





International Conference on

Embracing the Digital Horizon: Pioneering Commerce and Management Strategies for a Transformative Future (EDH 2024)

March 13, 2024





# Organized by

Departments of Commerce, Accounting & Finance and Business Administration Loyola College of Arts & Science (Co-ed.) Mettala, Rasipuram Taluk, Namakkal District Tamil Nadu, India

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International Conference On Embracing the Digital Horizon: Pioneering Commerce and Management Strategies for a Transformative Future (EDH 2024)

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#### **Editorial Message:**

# "Enhancing the Digital Horizon Pioneering Commerce and Management strategies for a Transformation future"

Loyola College of Arts and Science have a rich history of organizing intellectual programs which aims to bring together students, academicians, research scholars and corporate to exchange and share their rich learning, findings and experiences in various disciplines. As change is inevitable and nothing in this world is permanent except change, this conference finds its prominence. The objective of the conference is to enhancing the digital horizon ensuring strategies and to analyse and address the issues and challenges regarding the same. This book is a culmination of research articles from various research areas adding to the existing literature from researchers<sup>ee</sup> viewpoint.

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#### PREFACE

The Digital Horizon refers to a new emphasis on electronic manipulation of information influencing the global economy in ways the production and exchange of physical goods influenced economies in the past, in the industrial age. Explosive growth of the Internet over the past decade allows information, goods, and services to be shared between people of all economic levels from around the globe. This instant accessibility to news, entertainment, and information has changed the way we communicate, shop, and learn.Because society is changed by technology, those who steer the development and course of technology should be knowledgeable about and sensitive to the effects of their work on others. Courses in this Pathway will offer opportunities for learning about digital information technology and the way it pervades our lives. A main Pathway goal will be to deepen knowledge and understanding of the complex interplay between social, moral, political and cultural values and our digital society through integrative, cross-disciplinary learning. This international conference can be motivational, in which case the purpose is usually to inspire the students to become better people, or to work towards implementing the skills they might have learned from the conference.

Today's digitalization is important for an organization because it unlocks new thinking and approaches in how the organization perceives its role within its ecosystem and itsopportunity for increased profitability. Technology is not an end in itself. With digitalization in place, these organizations can begin to create new value chains and experiences that are collaborative, interactive, sustainable, and profitable.

This conference acts as an established forum for students to share their knowledge and enhance their own skills and abilities.

We are immensely grateful to our Management for permitting us to conduct the conference and bring out this volume.

> Staff Members & Students Department of Commerce, Accounting and finance and BusinessAdministration Loyola College of Arts and Science, Mettala.

# AIM AND OBJECTIVES OF THE CONFERENCE

This conference is dedicated to discussing challenges, exchanging of ideas and view towards the advancement of theory and practices in the field of Commerce and Management. All technical sessions will predominantly be related to digital transformation. The objectives have been outlined as under.

- 1. To provide a robust platform for expression of interest and cognitive thoughts and promote research among all the active participants in the conference.
- 2. To discuss the challenges of digital horizon in various organization.
- To explore real life examples and novel ideas in the stream of Commerce & Management
- 4. To enable the participants to upgrade their knowledge in the context of digital transformation

#### **Message from Superior**

### "NONE OF US IS AS SMART AS ALL OF US"



I am delighted to know that three of our departments – Commerce, Accounting & Finance and Business Administration – are jointly organizing an International Conference on a relevant and emerging topic: "Embracing the Digital Horizon: Strategies for a Transformative Future". Inter-departmental collaboration is the talk of the day and

need of the hour. I appreciate the departments for their collaborative venture in organizingthis international conference. "Team work makes the dream work".

Children of today are born and are growing with digital facilities. Use of digital phones, digital marketing, digital money transaction, digital display boards for teaching-learning and communication, etc., have become part of our day-today life. Everything is digital today. Everywhere we notice display of digital technologies. Pioneering digital horizon with a highly pronounced emphasis on the latest digital technologies is poised to drive business inall spheres of human activity. All dimensions of this paradigm will have to be integrated for a successful and a sustainable enterprise. Digitalization marks upward growth in the knowledge driven economy.

I wish the staff and students of the three departments and all the participants an enriching experience and I hope that all the participants will carry home lasting memories of the conference. God bless one and all.

Rev. Dr. Alphonse Manickam, SJ. Superior

#### **Message from Secretary**

## "Dream it and you will achieve it!"

When an enlightened group of individuals are sure that their future is headed in the right direction. Loyola College of Arts and Science provides value added quality education bringing the peace, joy and prosperity.

It gives me immense happiness to be part of the International Conference being organized by the Department of Commerce,



Accounting and Finance and Business Administration. In this 21st century we belong to knowledgeable era in which acquisitions, possessions, and application of knowledge are the important resources, this one-day national conference titled **"Enhancing the Digital Horizon Pioneering Commerce and Management strategies for Transformation future,** definition provides knowledge sharing platform to bring forth a renaissance in the field of education.

I appreciate for choosing an apt topic for the one-day international conference and inviting experts to deliberate on it. I congratulate the Interdisciplinary Head of the Departments and all the organizing committee members for organizing and doing all the preparatory work for the successful ending of this international conference. I am sure that this international conference would pave the way for the policy makers to take a final decision on this subject. I wish all the resource persons, participants and paper presenters to have a pleasant and fruitful stay in our institution while gaining and sharing knowledge.

Rev. Dr. Albert William, SJ. Secretary

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#### **Message from Principal**



Loyola College of Arts and Science is silently making a big noise by re-writing and exploring new dimensions of the Industry and Education to facilitate business and academia. The Institution has been vigilant to understand as well as discuss the changing Economic Scenario since 2015. The Institution has always been an initiator in discussing the latest digital transformations taking place. Keeping its

foot forward, the Institution has organized an International Conference on "Enhancing the Digital Horizon Pioneering Commerce and Management strategies for a Transformation future"

The present era is the era of transformation, the era of digitalization, the era which iswitnessing the consequences of the digital upgradation that has happened in the last decade. The focal point of the conference will revolve around the topics like Artificial Intelligence and its Applications, Innovation and Business Intelligence, Digital competence, ChatGPT, Forensic Accounting, Economic Policies for trade facilitation and many implications of organization.

I congratulate the initiative undertaken by the departments to hold the international conference on such an interesting and insightful topic, wherein a number of eminent academicians, researchers, industry practitioners and students from the globe will present research articles as well as share their own experiences on digital horizon

I am confident that the papers presented at this conference and the subsequent discussions will offer valuable insights to the students, researchers, professionals and industry practitioners in the fields of the digital business transformation and sustainability.

I wish the conference and the organizing members a grand success.

Rev. Dr. Samuel Jayaseelan, S.J. Principal

#### **Message from Convener**

It is a matter of contentment and pride for me to organize Enhancing the Digital Horizon Pioneering Commerce and Management strategies for a Transformation future. We have been thinking about organizing a conference for quite some time and the first aspect which we had to discuss was that would we be able to make it meaningful and



fulfill the expectations of the participants and the aspirants. This took us around a year to think over the issues to be floated, the format, the key participants, their orientation, and so on. I am sure that you will gain from this event.

It is a great pleasure that Department of Commerce, Accounting and Finance and Business Administration, is organizing an International Conference on digital horizon. It is landmark event for the Loyola College of Arts and Science. This conference aims to be a key national forum for the exchange and dissemination of digital transformation.

The enlisted topics shall set up a platform of spreading light of the recent technologies and enable us to grow by way of learning from knowledge reserves and absorbing expertise from treasury of learned academicians.

I would like to thank management, for giving me this responsibility. My thanks are also due to the editorial team-members, reviewers, core team faculties and student volunteers who have helped me for this conference.

Mr. A. Arulkemilas Convener Head of the Commerce Department Loyola College of Arts and Science, Mettala, Namakkal

#### **Keynote Address**



Education innovation and technology is the key to unlock the potential of the future, creating new opportunities for learners and shaping the world we live in. it gives me immensepleasure to acknowledge the efforts of Loyola College of Arts and Science organizing international conference on "Enhancing the Digital Horizon Pioneering Commerce and Management strategies for Transformation future, This conference represents a unique opportunity to discuss and explore the challenges and opportunities facing the education and industry sectors in the face of rapid technological, economic, and social change.

To prepare our younger generation in this high-tech era, we need to re imagine our education system. We need to move away from rote learning and standardized tests and focus on developing the skills that are essential for success in the 21st century.

I am sure that this Conference will have a tremendous impact on education system in variably in all disciplines.

I wholeheartedly appreciate the organizing committee for their exceptional efforts in planning and executing this conference. To the researchers and delegates who are participating in this conference, I would like to express my appreciation and encouragement continue taking a leading role in learning, research, and technological advancements. Your contributions to the field are essential, and I am confident that our collective efforts will lead to significant progress and innovation in education.

I wish this conference every success, and I hope that the discussions and collaborations that take place here will lead to fruitful outcomes that benefit the society as a whole.

Dr. Gnanaprakasam Chinnappan, Associate Professor and Head Department of Business Administration & Hospital Management RVS Kumaran Arts and Science College, Dindigul

#### **Keynote Address**



At the outset I would like to congratulate the organizers of the International conference on "Enhancing the Digital Horizon Pioneering Commerce and Management strategies for Transformation future.I am privileged to say that this conference will definitely offer suitable solutions to the issues raised in the conference and relevant questions for further exploration and studies in the field.

It is a relevant aspect of our society and has ramifications with its interdisciplinary approach; the conference gives an opportunity to comprehend the digital world. It will give an insight into digital technology and how they themselves relate to the world around them. The various research papers will throw light on the different dimensions.

The unprecedented situation in which we find ourselves also has tremendous influence on the condition and position of digital transformation. I hope all the delegates have a fruitful discussion and are able to indicate the path on digital horizon may put forward their best foot.

Congratulation to all the presenters for their hard work and valuable research inputs in the conference .There have been a number of quality papers that were presented in the conference. The occasion provided an excellent environment for the researchers and academicians to freely exchange their views and ideas with others. I congratulate the organizing committee and extend my best wishes.

> **Prof Dr. Anbalagan Chinnah** Samara University, Ethiopia

#### **ABOUT LOYOLA COLLEGE:**

Loyola College, Mettala, is a minority Catholic Co-Educational Institution, Affiliated to the Periyar University, Salem. The College obtained 2(f) status from the University Grants Commission, New Delhi. It is one among the six colleges, run by the Chennai Province of the Society of Jesus. All these institutions under the chairmanship of the Provincial of the Jesuit Chennai Province follow a common policy for admissions, appointments and administration. As a minority Institution, the college caters primarily to the formation of Catholic students. However, our college keeps its portals open to any student without discrimination of caste and creed. The college Emblem with the motto & quot; Let your light shine& quot; brings lights of hope and liberation to others.

#### **ABOUT CONFERENCE:**

In today's world, digital horizon is in the minds of many organizations and promises to modernize the existing process, enhancing customer experiences and fostering new innovations. It serves as a compelling metaphor when contemplating the future management and finance. The theme insights into successful digital transformation of case studies & amp; it facilitates networking opportunities for professional experts and business people. It creates the vision for the attendees in commerce and management. The comprehensive analysis delves into how emerging technologies such as artificial intelligence, block chain, and big data are reshaping the landscape of business, altering consumer behavior, and redefining competitive dynamics. This Conference provides a roadmap for organizations to navigate this transformative era, highlighting innovative strategies and best practices for digital integration, agile management and customer- centric approaches. This seminal work is an essential guide for business leaders, strategists, and Vocational seeking to understand and harness the power of digital technologies to drive growth, efficiency, and competitive advantage in the 21st century. This conference aims to bring together leading academicians, researchers and students to share their experiences and results on all aspects of the digital horizon.

## **THEMES:**

- 1. Innovative strategies for adopting traditional business models to the digital era.
- 2. Navigating the future of online retail and emerging trends.
- 3. Sustainable and resilient supply chain practices in the digital landscape.
- 4. AI and chatbots to enhance customer service and satisfaction.
- 5. Strategies for creating a sustainable and ethical digital business ecosystem.
- 6. Overcoming challenges in international digital commerce and management.
- 7. Impact of emerging technologies on management.
- 8. Cyber security challenges in the digital business environment.
- 9. Harnessing the power of big data and analytics informed business decision
- 10. Case studies on successful digital transformation in various industries.
- 11. Global trade in the digital era: Challenges and solutions.
- 12. Leadership in Digital horizon.
- 13. Leveraging the power of social media in this digital age.
- 14. Other themes related to Digital horizon.

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Departments of Commerce, Accounting & Finance and Business Administration Loyola College of Arts & Science (Co-ed.) Mettala, Rasipuram Taluk, Namakkal District Tamil Nadu, India

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# Management Strategies for Building a Security Culture: Workforce Training and Awareness in Smart Manufacturing

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#### Abstract

A study on smart manufacturing management for cyber security is presented herein to fill the research gap regarding complexities in cybersecurity of smart manufacturing systems. This paper seeks to investigate components of security culture, examine implications from organizational structure, and suggest useful methods for workforce training and safety awareness programs. The research highlights an area in the literature that is underserved on how these types of models are actually used to design SMTP curriculum. The research showsthat effective security practice includes security leadership, incorporating security in job roles, and involvement across work areas. Security culture is largely shaped by organizational structure among others where flatness allows more flexibility within its hierarchy. As it has been established, the gap exists only on paper since adapting the Social Learning theory can be efficient while implementing the training programs. Given these challenges, it emphasizes the importance of contextually tailored communication and multi-channels approaches in awarenessprograms. These recommendations can have approaches aimed at creating a positive commitment within leaders, integrating job roles, and improving collaborative efforts across functions.

**Keywords:** Security Culture, Smart Manufacturing, Social Learning Theory, Workforce Training, Awareness Campaigns.

#### **1.0 Introduction**

In the present day and age of rapid technological progress, the environment of manufacturing has changed completely. Smart manufacturing, whereby it was born through interconnecting technologies and data driven processes for efficiency and innovations sake. Nonetheless, such an

evolution has faced some challenges, and top of the list is the need to safeguard the complex systems. The study is about creating a security culture within that of smart manufacturing which includes training and awareness within the organization's workforce.

# 1.1 Background

A new era is on the horizon called smart Manufacturing, which is considered to be the fourth industrial revolution. The complex webs of integration with AI and automated devices increasingly expose their inter-connection system to cyber criminals. From manual labor to mechanical systems in the historic pathway of the manufacturing process is the history that precedes a digitized one in the modern world. Consequently, there is a necessity of protecting the digital system used in current production activities. Indeed, there has been an upsurge in cases of cyber-attacks aimed at manufacturing facilities worldwide thus emphasizing on need for improved security protocols.

# 1.2 Significance of the Study

This study addresses the vital importance of developing a security culture among the employees of Smart Manufacturing. The first line of defence or the critical weakness in the modern security chain is the most exposed part as organizations become digitalized.

# **1.3 Scope and Limitations**

The scope of this study is restricted to Smart Manufacturing and explores the ways to develop a security culture. Although there are many areas in the cyber security space, such an approach helps one explore particular issues and options associated with the intersection between technology and manufacturing.

# **1.4 Research Questions**

To guide the inquiry, the following research questions will be addressed:

- 1. What is the role of workforce training in creating a security culture in Smart Manufacturing?
- 2. How can awareness programs help enhance cybersecurity in the manufacturing industry?

# **1.5 Research Objectives**

The objectives of this study are twofold:

1. On evaluating the role of workforce training in developing a security culture.

2. Evaluate the impact of cyber security enhancement in a smart manufacturing environment due to the awareness campaigns.

# **1.6 Definition of Key Terms**

For clarity and precision, the following key terms are defined:

Smart Manufacturing: Leveraging modern technologies to enhance manufacturing operationsfrom IoT, AI and automated processes.

Security Culture: Cyber security culture is defined as the collective awareness, attitudes, and behaviors of individuals within an organization toward cyber security.

# 2.0 Statement of the Problem

# 2.1 Overview of Smart Manufacturing

Smart manufacturing or intelligent manufacturing is another main characteristic of modern production, which involves the application of cutting-edge IT-technologies and utilization of

data-driven mechanisms. This new strategy is unprecedented in terms of efficiency and innovation, but it entails rather complicated web security barriers.

# 2.2 Security Concerns in Smart Manufacturing

New era of smart manufacturing has created numerous security problems, far exceeding typical manufacturing risks profile. Such system is now digitized and interconnected to the production systems thus; there are a lot of cyber threats that pose a risk for them.

# 2.3 Lack of Security Culture

However, the biggest challenge is that the foundation of Smart Manufacturing systems on the part of security culture development plays fewer roles than required. The human factor is the most important piece when it comes to cybersecurity.

## 2.4 Implications of Inadequate Security Culture

In the case of Smart Manufacturing, Ineffective security culture leaves a number of consequences that are of public, social and private nature. However, if cyber security was not provided in proper training for the employees, they could unknowingly perform activities that would make their company vulnerable to a breached digital environment.

## 3.0 Objectives of the Study

# **3.1 General Objective**

In essence, this study aims to provide appropriate governance measures that ensure safety aspects while training employees for smart manufacturing.

## **3.2 Specific Objectives**

To achieve the general objective, the study will pursue the following specific objectives:

1. Evaluate the Effectiveness of Workforce Training: The existing workforce training programs in Smart Manufacturing. Examine the extent to which these training schemes are able to overcome cybersecurity problems. Highlighting areas that need improvements in existing training methods. 2. Assess the Impact of Awareness Programs: Examine the extent of awareness campaigns in Smart production companies. Assess the level of knowledge on threats and appropriate measures when dealing with cyber issues. To identify gaps and suggest improvements on awareness programs.

3. Examine the Relationship Between Workforce Training and Security Culture: Assess the impact of workforce training on building security consciousness. Evaluate the relationship between training knowledge and security operational practices in the organization. What are major obstacles of training integration in routine everyday operations?

4. Evaluate the Role of Awareness Programs in Security Culture Formation: Evaluate how awareness programs can change the workforce's attitude and action towards cybersecurity.

5. Provide Recommendations for Strengthening Security Culture in Smart Manufacturing: Summarize their findings, create recommendations that would be practical for them to implement in order to improve security culture.

# 4.0 Literature Review

## 4.1 Evolution of Smart Manufacturing

Research literature about Smart Manufacturing has widely explored this subject. For example, scholars such as Alippi, C., & Ozawa, S. (2024) highlighted that manufacturing incorporates IoT, artificial intelligence and cyber physical systems. These are called Industry 4.0, where traditional manufacturing gave way for smart and integrated systems.

# 4.2 Security Challenges in Smart Manufacturing

It is a sign that the Smart Manufacturing environment will be plagued by heightened safety and security concerns. Wasumwa, S.A., "Smart Systems and Vulnerabilities", asserted that smart systems have interconnectivity making them vulnerable for malicious attacks.

# 4.3 The Role of Workforce Training in Security Culture

Many studies emphasize on the importance of workforce training to harden the security posture of an organization. Chowdhury, N., and Gkioulos, V. (2021). Well trained employees serve as a critical line of defence against cyber threats".

# 4.4 Importance of Awareness in Security Culture

Security culture has widely been discussed in literature with awareness being a key component. According to Sasan, kit Kilag and J. M., awareness programs instill a higher level of responsibility in employees. Awareness decreases the chances of the occurrence of security events and cultivates the culture of alertness according to studies done by Nwankpa, J. K., Datta,

P. M. (2023). Additionally, Badi, S., and Nasaj (2023) emphasize the importance of awareness in developing a security-conscious organizational culture that goes beyond ordinary training and impacts employee conduct.

# 4.5 Previous Studies on Security Culture in Manufacturing

Security culture in manufacturing studies have been carried out by several scholars.B In this study, Tejay, G. P., and Mohammed, Z. A. examined the organizational antecedents of the adoption of security practices. Furthermore, the research piece by Merhi, M. I. (2023) focused onsome cultural issues associated with the adaptation of safety tools within manufacturing companies. Such studies are important in understanding cultural aspects inherent in organizational security.

## **4.6 Theoretical Foundations**

Security culture in Smart Manufacturing is explained on the basis of some theoretical frameworks. Scholars like Dube, D. P., & Mohanty, R. P. (2023) have applied Social Learning Theory of Bandura, A. (1977), in cybersecurity. The theory asserts that people can learn by watching others; hence when used to train employees they model safe practices to promote safetycultural among their colleagues. The TAM (Davis, F. D., 1989) has also been employed by Hsu, C. L., & Lin, J. C. C. (2018). **5.0 Conceptual Framework** 

# 5.1 Defining a Security Culture

This study is centered on a conceptual framework that starts with an elaborate description of a security culture. Security culture in an organization is defined by Khripunov, I. (2017) ascommon values, mindsets, and conducts associated with organizational securities. In line with the work of Khattal, A. (2023), cultures entails unwritten rules that people must follow when

interacting within a particular environment. A security culture in this case entails an acceptance and adherence to cybersecurity practices to secure the digital infrastructure.

# 5.2 Components of Security Culture in Smart Manufacturing

Literature pinpoints the fundamental elements forming security culture in the realm of Smart Manufacturing context. Studies by Al-Kumaim, N. H., & Alshamsi, S. K. (2023) and Zaniewski, M. (2023) stress that cybersafety relies on a corporate leader. Leaders, who emphasize on security and demonstrate secure behaviors, reinforce a culture of security. In addition, there is employee engagement that as articulated by Nyarko, D. A., & Fong, R. C. W. (2023) contribute towards enhancing of security culture. This involves instilling a culture whereby employees consider themselves obligated to protect their respective employer's digital property.

# 5.3 Relationship between Workforce Training and Security Culture

A security culture can be defined as dependent on its correlation with workforce training hence the basis of the conceptual framework. According to Wasike, B. (2023), behavioral change usually derives learning and changing of attitudes. According to Kasowaki, L., & Burak, A. (2023), training programs act like a driving force that helps people to realize the need to develop relevant knowledge and skills towards cybersecurity requirements in this century. This supports the finding by Yoon, Y. (2023) showing that workers are more capable of exemplifying the security culture when they are properly trained.

# **5.4 Role of Awareness Programs**

It is one of several factors that may help in developing security-conscious environment in SMOs. According to Saeed, S. (2023), employees' perception of cybersecurity risk has been informed by awareness campaigns which in turn induce secure practices among the workers. Ohara, M. R. says that sharing pertinent information on threatening measures and good practices can be done through communication. According to Serenko, A., (2023), successful awareness programs do not merely deliver information but involve all employees in working towards improved security.

# 5.5 Integrating Technology in Security Culture

Literature also explores how one can integrate technology into the security culture framework. According to Malmio, I. (2023), technology can be a mechanism for enabling security measures . Examples include adapting for example enhanced authentication techniques and intrusion detection systems into the overall security posture. As Kok, S. L., and Siripipattakanul, S. (2023) point out, successful adoption of technology necessitates cultural shifts within an organisation.

## **6.0 Theoretical Framework**

# 6.1 Social Learning Theory

# 6.1.1 Explanation of Social Learning Theory

The Social Learning theory proposed by Bandura (1977) claims that people learn by modelling other people's behaviours. According to this theory, social factors like peer pressure, role-modeling and positive feedback on behaviour are key influences. Studies developed by Bandura suggest that people learn new cognition and behavior through observation of other' actions and consequences Kim, S. H., & Mokhtarian, P. L. (2023). Cybersecurity and especially social

learning theory point out that people's perception of a secure operation is shaped by their social environment.

# 6.1.2 Application to Workforce Training in Smart Manufacturing

With regard to Smart Manufacture's workforce training, literature proposes that the training schemes must be concurrent with the principles underlining social learning theory, which includes observational learning. According to Saeed, S. (2023), modeling of security behaviors during training can lead to positive perception and practice among the employees. Bjønnes, S.C.,(2023) observed that using realistic scenarios and simulations helps employees see and learn from events simulating possible cyber threat attacks. **6.2 Relevant Examples** 

# 6.2.1 Case Study 1: Successful Implementation of Social Learning Theory in Security Training

For instance, Social Learning Theory was used effectively in the security training for XYZ Manufacturing Winesburgh (A. H., 2023). Thus, the company realized that it needed to change its culture to be more aware of cyber threats and initiated a training programme based upon Social Learning Theory. There were role model-based sessions meant to expose cybersecurity experts who showcased secure practices and created a culture of imitation among other employees.

**6.2.2 Case Study 2: Challenges and Solutions in Integrating Social Learning Theory** However, difficulties may be encountered in adopting Social Learning Theory as part of workforce training. Burton, S.L., presented a case study concerning reluctance to embrace change in a firm that engaged in a cybersecurity culture makeover. It was observed that employees did not readily adopt new practices during training sessions even when modeled behaviors.

# 7.0 Empirical Study

# 7.1 Methodology

# 7.1.1 Research Design

This study adopted a qualitative research design as its nature guided the choice. Halaweh, M. (2023) provided a description of how Grounded Theory can be used to allow for the development of ideas and topics from the data.

# 7.1.2 Data Collection

The study involved semi-structured interviews with the following stakeholders; cyber security experts, human resource personnel, and employees of smart manufacturing institutions. The use of the purposive sampling approach enhanced the enrolment of personnel who possessed distinct views towards security culture, training, and awareness programs.

## 7.1.3 Data Analysis

Data analysis was conducted using the grounded theory coding procedure as per Laari, L., & Duma, S. E., 2023. Through iterative open coding, axial coding, and selective coding the researchers identified some concepts, relationships, and finally core categories.

# 7.2 Extensive Review of Related Studies

# 7.2.1 Comparative Analysis of Security Culture in Smart Manufacturing

Related studies were reviewed comprehensively, which gave important views on the prevailing situation for Smart Manufacturing security culture. In 2023, Bandary, V., did a comparison of security cultures between different manufacturing industries having some similarities and differences. This was a study that emphasized the role played by organizational size, structures, and leadership styles in cultivating and sustaining the development of a security culture.

# 7.2.2 Workforce Training Models in the Manufacturing Sector

A thorough examination of current training model in the manufacturing industry enhanced the notion on efficient training approaches. Allenbacher, J., & Berg, N. (2023), conducted a study of how effective are immersive and hands on trainings. The research indicated that hands-on and situation-oriented training sessions are effective in developing the workers' cybersecurity abilities.

## 8.0 Research Gap

# 8.1 Identified Gaps in Current Literature

A review of existing literature showed that there were many important gaps which needed to be addressed by the present research. One major finding in this study was the lack of studies on how smart manufacturing is related to security culture. Despite being recognized as a reality, there are limited research works exploring the actual elements that make up a security culture within a Smart Manufacturing scenario. The security culture that will emerge in this fast-changing smart manufacturing context needs to be better understood by scholars such as Yang, K. (2024).

## 8.2 The Need for Further Research

These identified gaps within current literature highlights critical areas to be explored in future research. To begin with, there must be greater explorations on what constitute security culture unique or inherent within SM. For example, one could investigate how technological progresses, organizational models, and managerial style contribute to shaping the safety climate in these settings. Scholars such as Kumar, P., and Aziz, S. (2023) acknowledge the importance of considering specificities of security culture within Smart Manufacturing.

# 9.0 Findings

# 9.1 Summary of Empirical Results

This empirical research highlighted the condition of culture of security in Smart Manufacture, offering the explanation on the circumstances that determine training of workforce and their consciousness. The key findings can be summarized as follows:

- 1. Diverse Components of Security Culture
- 2. Influence of Organizational Structure
- 3. Effectiveness of Social Learning in Training
- 4. Challenges in Awareness Programs

# 9.2 Insights into the Current State of Security Culture in Smart Manufacturing

This section reviews the empirical findings that presently summarize the security situation across different aspects of Smart Industry. Smart manufacturing requires culture for security which

must involve flexibility, cooperation and embeddedness in the organization. Exploration ofvarious elements of security culture explains why comprehensive consideration is warranted involving technology and man as separate entities. Organizational structure and its impact on security culture indicates significant role of organisational design to promote security consciousness. With flatter structures there is faster decision making and communication which enable organizations react fast to developing cyber threats. With these, Social Learning Theory can be incorporated in workforce programs with proven success indicating how much effect on developing a security climate the tailored approach.

## **10.0 Recommendations**

## **10.1 Practical Strategies for Implementing Security Culture**

Using the empirical evidence presented above, the article formulated practical means of strengthening security culture in Smart Manufacturing companies. These recommendations address the identified gaps in the literature and offer actionable steps for organizations aiming to strengthen their security posture:

1. Leadership Commitment: Leadership must start to instill a culture that values cybersecurity in the organizations.

2. Incorporating Security into Job Roles: To make this happen, it is advisable that companies integrate their employees' security responsibilities in their jobs so as to ensure they see a link between their day-to-day tasks and cyber practices.

3. Cross-Functional Collaboration: Since Smart Manufacturing is a dynamic process, collaboration between various departments is paramount.

## **10.2 Enhancing Workforce Training Programs**

The study recommends enhancements to workforce training programs, aiming to bridge the gap between theoretical frameworks and practical applications in the context of Smart Manufacturing: 1. Tailored Social Learning Programs: The training should be designed using Social Learning theory and it should include simulation, modelling session and interactive learning experiences.

2. Continuous Learning Pathways: With the dynamic nature of digital risks, organizations should practice ongoing learning tracks.

3. Integration of Gamification Elements: Badges, challenges and rewards are examples of gamification elements that can be incorporated into training programs in order to boost participation.

## **10.3 Developing Effective Awareness Campaigns**

To address the challenges identified in awareness campaigns, the study proposes strategies for developing more effective and engaging campaigns:

1. Contextualized Communication: The awareness campaigns associated with Smart manufacturing should be customized to a given employee's role and job description.

2. Multi-Channel Communication: Using different communications channels like visual tools, workshops and digital media ensure that the Awareness messages reach employee via many avenues.

3. Feedback Mechanisms: Feedback mechanisms need also to be established in order for the employees to express their views of whether or not awareness campaigns are working. Frequent

surveys, focus groups, and open forums form an integral part of a continuous feedback flow that enables organizations to redefine and tailor their awareness efforts in response to employee understandings about the organization. Following recommendations by Rane, N. (2023).

## **11.0 Conclusion**

## **11.1 Recap of Key Findings**

This study was concluded by assessing the existing security culture, human resource development and awareness initiatives. The empirical findings shed light on vital elements that support a sound security culture in the ever-changing environs of Smart Manufacturing.

## **11.2 Implications for Smart Manufacturing**

However, this research has wide applicability going beyond theory consideration but also providing useful insights into practice with some concrete guidelines for Smart Manufacturing organizations. In that respect, suggested approaches to Security Culture enhancement, improving Workforce Training, and creating successful Awareness Programmes with regard to Smart Manufacturing.

# **11.3 Suggestions for Future Research**

Although this study has gone a long way to fill evident gaps, there exists plenty of room for possible future work. Scholars and practitioners are encouraged to delve deeper into several areas to further enrich the understanding of security culture in Smart Manufacturing:

1. Exploration of Cultural Nuances: Further study could examine multicultural elements influencing protection procedures inside international smart manufacturing businesses.

2. Longitudinal Studies: The longitudinal studies on changes in Smart organization's security cultures, over time will enable a dynamic perspective.

3. Quantitative Assessments: This paper took a qualitative approach; however, it may be worthwhile to conduct some quantitative analysis to determine if specific actions really affected the key operating data of the organization.

4. Influence of Regulatory Changes: However, future research may look into how changes in regulatory regimes affect the design and establishment of security cultures for Smart Manufacturing.

Finally, this study is a milestone on the path towards improving the concept of security culture in Smart Manufacturing. Future research suggestions are proposed herein with the objective of igniting further studies and discoveries to ensure cyber security is dynamic as smart manufacturing adapts to changing demands.

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#### Commerce and Management Strategies for a Transformative Future (EDH 2024)

# Navigating Ethical and Security Landscapes in Quantum Computing Administration: A Research Inquiry

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#### Abstract

This study examines the development of quantum computing technology and how computation might be revolutionised by it. It recognises the encouraging gains in processing power but also draws attention to the security and ethical issues that go along with them. The goal of the project is to conduct a qualitative analysis of the security threats and moral conundrums that come with running quantum computing infrastructure. Concerns including the possibility of technological misuse and weaknesses in conventional encryption techniques are covered. The paper employs a qualitative methodology that incorporates research, case studies, and expert interviews to identify and tackle these challenges. It highlights the significance of risk mitigation tactics and puts forth concepts for ethical and secure quantum management. The paper focuses on several important areas, such as secure key distribution, untraceable encryption standards, and the establishment of a strong governance framework. By resolving these issues, the paper hopes to empower organisations and policymakers to capitalise on the advantages of quantum computing while maintaining ethical standards and guaranteeing data security.

Keywords: Quantum computing, ethics, security, management, governance, cryptography, research, regulations.

#### 1. Introduction

The emergence of quantum computing has signaled a transformative shift in information technology, presenting unparalleled processing capabilities through the utilization of quantum bits and principles like superposition and entanglement. However, alongside its technical prowess, the rise of quantum computing has brought forth ethical dilemmas and security risks, prompting a comprehensive examination of management strategies for responsible utilization. This study, 'Ethical and Security Considerations for Quantum Computing Management,' delves into these multifaceted aspects, exploring the ethical conundrums, security challenges, and necessary management strategies in the quantum computing landscape.

Drawing from the historical evolution of quantum computing, from theoretical foundations to practical realization, the research underscores the urgency of addressing its ethical and security dimensions. Despite advancements in quantum computing, the ethical and security facets remained relatively unexplored, warranting an interdisciplinary approach to bridge this gap. Through collaboration among physicists, computer scientists, ethicists, government decision-makers, and business executives, the study aims to provide organizations with a conceptual framework to navigate the complex ethical and security landscape of quantum technology. The investigation traverses theoretical challenges such as ethical implications of quantum algorithms and practical issues like securing quantum networks and implementing quantum-resistant cryptography. By unraveling these ethical and security complexities, the study seeks to pave the way for trustworthy quantum computing adoption, ensuring progress aligns with moral standards and global advancements support local goals. Ultimately, the research serves as a foundational step towards responsible and ethical management of quantum computing, guiding organizations through this uncharted territory while upholding principles of ethics and security."



Figure 1. Quantum computing and its key application areas

Source: https://fractal.ai/quantum-computing-ishere-is-your-business-ready/

- 1.1 Research Objectives
- i. To investigate the security issues and moral issues that the application of quantum computing in management practices raises.
- To evaluate how quantum computing will affect data management, data security, and information privacy within organizations.

- iii. To create a thorough management structure that takes into account the security and ethical implications of quantum computing, including risk management and talent development.
- To provide organizations and decisionmakers useful guidelines and best practices for managing quantum computing technology responsibly and reducing related risks.

#### 1.2 Research Methodology

The conceptual emphasis of this study was explicitly considered when designing the qualitative research methodology. The major emphasis is on synthesizing, analyzing, and interpreting the corpus of literature, theories, and concepts relating to moral and security concerns in quantum computing management. Literature Review:

The foundation of this work is a careful examination of scholarly books, papers, articles, and other relevant materials. The objective of the literature review is to identify the key theoretical frameworks, ethical principles, security models, and practical advice for handling quantum computing.

Conceptual Framework Development: Quantum computing is a specialized discipline that addresses challenging moral and security challenges. We'll create a framework that addresses these issues in order to address this. This framework will also make use of current theories to create a useful viewpoint for the requirements of quantum technology. Critical Analysis: Viewing complicated situations from several perspectives is one method to develop a thorough grasp of them. In this instance, this study evaluated the ethical and security issues brought up by quantum computing utilizing a qualitative method. The study's aim is to give you an idea of how intricate this topic may grow by analyzing existing theory.

Case Studies and Practical Examples: We are aware that philosophy has few applications in the actual world. Consequently, even though this paper is mostly philosophical in nature, we'll nonetheless provide pertinent examples and case studies. It's crucial that we provide you with all the resources you require to address ethical and security issues related to managing quantum computing.

Interdisciplinary Perspective: When it comes to quantum computing, using a unique method is insufficient since resolving one problem might result in an altogether different one. In view of the interdisciplinary character of quantum computing Goldberg, A. Z., & Heshami, K. (2022), this study included ideas from other disciplines, such as physics, computer science, ethics, and management, to avoid this dilemma. It aims to combine several viewpoints into a coherent knowledge of the issue. In conclusion, this conceptual paper's research technique entails a thorough literature assessment, the creation of a customized conceptual framework, critical analysis, the use

of case studies, and an interdisciplinary approach. This approach seeks to offer a thorough examination of moral and security issues related to the administration of quantum computing within a qualitative research framework.

2. Quantum Computing Fundamentals The principles of quantum computing give the groundwork needed to comprehend the special features of the technology.

2.1 Quantum Mechanics Overview

The theoretical foundation for quantum computing is quantum mechanics. It explains the atomic and subatomic, or quantum, behavior of matter and energy. Wave-particle duality, Heisenberg's uncertainty principle, and quantization of energy levels are important concepts (Evangelisti, F. (2023). It is essential to comprehend these concepts since they serve as the foundation for quantum computing activities. 2.2 Quantum Bits (Qubits) and Quantum Gates The basic building blocks of quantum information are quantum bits, or qubits. Qubits have a feature known as superposition that allows them to exist in several states at once, unlike conventional bits, which may only be either 0 or 1 Vidhya, N., Seethalakshmi, V., & Suganyadevi, S. (2023). The quantum equivalents of conventional logic gates are called quantum gates. Through operations like NOT, AND, and OR, they control qubits, but they also take use of quantum processes to carry out tasks that classical gates are unable to.

2.3 Quantum Superposition and Entanglement Qubits may exist in several states simultaneously due to the basic quantum characteristic known as superposition. Because of this ability, quantum computers may investigate several potential solutions to a problem at once, possbly accelerating some calculations exponentially. Another phenomena known as entanglement occurs when qubits are so closely connected that their states can instantly affect one another even though they are physically apart. In quantum computing techniques and cryptography, entanglement is essential McLeod, J., Majumdar, R., & Das, S. (2022).

2.4 Quantum Algorithms

Quantum algorithms are created especially to take use of the capabilities of quantum computing. Famous examples are Grover's algorithm, which speeds up database searches, and Shor's algorithm, which factors big numbers exponentially faster than traditional algorithms. The promise of quantum computing to transform problem-solving depends critically on quantum algorithms.



Figure 2. Quantum Algorithm: Applications.Source: Research Gate 20212.5 Current State of Quantum Computing

## Technology

Quantum computing technology is now in a stage of fast development. There are many different types of quantum computers, from small, noisy intermediate-scale quantum (NISQ) devices to bigger, error-corrected ones Akahoshi, Y., et al.(2023). Working on quantum hardware include large corporations like IBM and Google as well as startups like Rigetti and IonQ (Rietsche, R., et al. (2022). However, quantum computers are still in their infancy and have difficulties with stability, scalability, and error correction. It is crucial to comprehend the fundamentals of quantum computing, including quantum mechanics, qubit characteristics, superposition, entanglement, quantum algorithms, and the state of quantum computing technology today, in order to fully appreciate the transformative potential of this young field and its applications in a variety of fields.

3. Ethical Considerations in Quantum Computing

Quantum computing introduces a host of ethical considerations that intersect with technology, privacy, and research ethics.

3.1 Privacy Concerns and Quantum Cryptography

Privacy is a paramount concern in the era of quantum computing. The power of quantum computers to break current encryption standards threatens the confidentiality of sensitive information Ulitzsch, V. Q et al. (2022). Quantum cryptography offers a potential solution. It leverages quantum properties, such as entanglement, to create unbreakable encryption methods. Ethical considerations here revolve around the need to adopt quantumresistant encryption and secure communications to protect privacy.



Figure 3. Quantum Cryptography System Source:

https://www.bbvaopenmind.com/en/technology/ digital-world/understanding-quantumcryptography/

3.2 Quantum Computing and Data Security
Quantum computing has the potential to disrupt
data security. Its superior computational
capabilities could undermine classical
encryption techniques, rendering sensitive data
vulnerable to decryption. Ethical considerations
include the responsibility of organizations to
adapt to quantum-resistant encryption methods
and protect customer data from quantum threats.
4. Security Challenges in Quantum Computing
Quantum computing presents unique security
challenges that require innovative solutions and
a proactive approach to safeguard sensitive

4.1 Quantum Threats to Classical EncryptionQuantum computers pose a significant threat toclassical encryption methods. Algorithms such

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as Shor's algorithm have the potential to factor large numbers exponentially faster than classical counterparts Iftemi, A., (2023). This could compromise the security of widely used encryption protocols, such as RSA and ECC. Organizations must anticipate the need for quantum-resistant encryption standards to protect sensitive data against quantum attacks. 4.2 Quantum-Resistant Cryptography Quantum-resistant cryptography is a critical area of research and development. It involves the creation of encryption algorithms that are secure against attacks from quantum computers Kumar, A., & Verma, G. (2023). Post-quantum cryptography aims to provide encryption methods that can withstand quantum attacks. Implementing quantum-resistant cryptography is essential to ensure the long-term security of communications and data in a quantum computing era.

4.3 Quantum Key Distribution (QKD) Quantum key distribution is a quantum cryptographic technique that uses the principles of quantum mechanics to enable secure communication. QKD ensures that any eavesdropping attempts are detected, making it highly secure. Ethical considerations here involve the responsible deployment of QKD technologies and adherence to privacy principles when implementing quantum-secure communication systems.

5. Quantum Computing Management Framework Developing a comprehensive management framework for quantum computing is essential for organizations to harness the potential of this transformative technology while addressing associated challenges.

5.1 Integration of Quantum Computing in Business

Integrating quantum computing into business operations is a strategic imperative.

Organizations need to identify use cases and applications where quantum computing can provide a competitive advantage. Ethical considerations include ensuring that the integration aligns with responsible business practices and doesn't compromise data privacy or security.

5.2 Quantum Computing Infrastructure Quantum computing requires specialized infrastructure. This includes the development and maintenance of quantum hardware, as well as the creation of quantum-ready data centers. Managing the infrastructure involves ethical considerations related to resource allocation, environmental impact, and ensuring equitable access to quantum resources.

5.3 Quantum Talent and Skill Development
Building a workforce with the necessary
quantum expertise is crucial. Organizations must
invest in quantum talent development through
training and education programs. Ethical
considerations here include ensuring diversity
and inclusivity in quantum skill development to
promote equal opportunities in the quantum era.
5.4 Quantum Computing Policies and
### Regulations

As quantum technologies advance, policymakers and regulators must establish appropriate policies and regulations. These may include standards for quantum security, export controls, and guidelines for responsible quantum research and development. Ethical considerations involve striking a balance between innovation and responsible use of quantum technologies.

# 6. Security Strategies for Quantum Computing Management

Security strategies are crucial for protecting data and information in the age of quantum computing. These strategies must adapt to the unique challenges posed by quantum technologies.

# 6.1 Secure Key Distribution and Quantum-Safe Cryptography

In a quantum world, secure key distribution is crucial. To enable secure communication, quantum key distribution (QKD) makes use of quantum features including entanglement. Postquantum cryptography, commonly referred to as quantum-safe cryptography, uses encryption techniques that are impervious to quantum assaults. Responsible deployment of secure communication technology and ensuring that quantum-safe encryption is available to everyone are ethical issues.

6.2 Quantum-Resistant Data ProtectionProtecting data from possible quantum assaults

is a component of quantum-resistant data protection solutions. This involves using encryption technologies that can withstand quantum decoding approaches. In the quantum age, ethical issues include safeguarding private data and preserving sensitive information.

# 7. Quantum Computing Governance and Compliance

For the development, use, and usage of quantum technologies to be compliant with societal norms, laws, and regulations, governance and compliance are crucial.

7.1 Legal and Regulatory Frameworks It is essential to create legal and regulatory frameworks for quantum computing in order to define expectations, obligations, and rules. Laws and rules governing quantum research, data privacy, export restrictions, and intellectual property relating to quantum theory may be included in these frameworks. Making sure that laws support innovation while preserving moral standards is one ethical consideration.

# 7.2 Intellectual Property and Quantum Computing

In relation to patents and inventions in particular, intellectual property (IP) concerns are prevalent in quantum computing. IP rights, licencing contracts, and cooperation agreements must all be negotiated by organisations and researchers in an ethical and responsible manner. Fair IP practises and equal access to quantum advancements are ethical issues.

7.3 Standards and Certification for Quantum Technologies

For quantum technologies to be of high quality, safety, and interoperability, standards and certification agencies are essential. The hardware, software, and security facets of quantum computing are covered by these standards. In order to establish standards that encourage moral and secure quantum practises, it is important to ensure that all relevant stakeholders are fairly represented.

# 7.4 Ethics Boards and Quantum Research Oversight

Research employing quantum technology must be reviewed and approved by ethics boards and oversight committees. These organisations assess the ethical ramifications of testing, data collecting, and research. The necessity of thorough ethical evaluations and openness in research procedures are ethical issues.

# 8. Quantum Computing and Business Management

Utilising quantum computing's potential benefits while tackling its problems calls for a deliberate approach to its integration into company management.

8.1 Quantum Computing's Impact on Industry Numerous industries, including banking, healthcare, logistics, and materials research, stand to benefit from quantum computing. Organisations must be able to adapt and stay competitive, which requires a thorough understanding of how quantum technologies may affect certain industries. Making sure that the advantages of quantum breakthroughs are distributed fairly across industry is one of the ethical issues.

8.2 Quantum-Ready Business Strategies A key component of quantum-ready business strategy is getting organisations ready to use quantum computing. This entails determining use cases, gaining quantum knowledge, and forming alliances with suppliers of quantum technologies. Responsible business practises that prioritise data protection, security, and ethical concerns fall under the heading of ethical considerations.

8.3 Managing Quantum Computing Projects Project management for quantum computing calls for specialised knowledge and experience. Quantum initiatives must be planned, carried out, and monitored by project management teams inside organisations. Ethical aspects include ensuring that project management procedures follow moral guidelines and perform ethically sound research.

# 8.4 Cost-Benefit Analysis of Quantum Computing

Investments in quantum computing initiatives are frequently considerable. Organisations may analyse the economic viability of quantum

projects and determine the possible return on investment (ROI) by performing a cost-benefit analysis. Responsible resource management and openness in financial decision-making are ethical factors.

### 9. Conclusion

The study summarizes the main findings, discusses potential possibilities for quantum computing and management, and makes some last observations about moral and security issues.

9.1 Summary of Key Findings

It is crucial to emphasise the study's major ideas and results while summarising the key findings. This contains a review of the ethical, security, and governance issues that quantum computing raises, as well as the solutions and ideal practises that should be used to deal with them. The synopsis should also discuss the effects of quantum technology on various businesses and stress the significance of ethical quantum innovation and research.

9.2 Future Directions in Quantum Computing and Management

The section on future directions examines how quantum computing is developing and what effects it will have. Predictions on the advancement of quantum technology, prospective scientific discoveries, and new uses might be included. It should also include how organisations and politicians might adjust to these shifts as well as the ethical principles that must steer future advancements.

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# Revolutionizing Entrepreneurship: Harnessing the Power of Quantum Computing for Enterprise Advancement

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### Abstract:

This study explores the possible impact of quantum computing on entrepreneurship, addressing a gap in understanding. Through literature reviews, interviews, and case studies, it presents a strategic framework for incorporating quantum computing in entrepreneurial pursuits. The findings suggest that quantum computing enhances optimization, problem-solving, and data security in entrepreneurship. It also highlights emerging trends like cloud-based quantum services and quantum-resistant cryptography as potential opportunities for entrepreneurs. Challenges include the complexity of algorithms and the rapidly changing nature of the quantum industry. To address these challenges, the study suggests education, exploring potential applications, and collaborating with quantum service providers. It also recommends policy support for entrepreneurs seeking to innovate using quantum technologies. Keywords: Quantum Computing, Entrepreneurship, Qualitative Research, Research Gap, Recommendations.

### 1. Introduction

In the ever-changing world of technology, quantum computing emerges as a revolutionary development, offering entrepreneurs unprecedented opportunities. Unlike traditional computing, it exploits the principles of quantum mechanics to perform calculations at

extraordinary speeds, addressing complex issues that were previously impossible to solve effectively. This paradigm shift empowers entrepreneurs to explore new and untapped domains, while also presenting a range of challenges and complexities that call for innovative approaches.

This research aims to investigate the substantial effects of quantum computing on businesses and entrepreneurship. By using the principles of superposition and entanglement, quantum computers have the power to handle enormous amounts of data and perform intricate algorithms with matchless efficiency. This revolutionary capability has the potential to transform numerous aspects of entrepreneurship, such as optimizing supply chains and financial operations, expediting drug discovery, and improving data encryption techniques.

As businesses navigate an increasingly complex and digitalized global economy, quantum computing offers a transformative force that can address various challenges. Quantum computing provides innovative solutions to complex problems, enhancing decision-making, driving unprecedented innovation and agility, and unleashing new possibilities for entrepreneurship. However, to harness its full potential, stakeholders must understand the underlying principles, explore practical applications, and anticipate the challenges and opportunities that arise from quantum computing's rapid advancement.

1.2 Statement of the Problem

Business executives and politicians face a difficulty as a result of the quantum computing technology's quick development and its effects on entrepreneurship. To take advantage of the benefits it offers while minimising the hazards, they must negotiate this complicated environment. This paper attempts to solve this issue by investigating the theoretical foundations of how quantum computing will affect entrepreneurship.

#### 1.3 Research Objectives

The following are the goals of this study:

1. To investigate the conceptual underpinnings of quantum computing.

2. To evaluate how quantum computing could affect entrepreneurship.

3. To determine how company owners might use quantum computing into their business plans.

### 1.4 Scope of the Study

The purpose of this study is to conceptually explain how entrepreneurship may employ quantum computing. It does not require experimental data or quantitative measures. To shed light on the subject, it instead uses qualitative analysis, theoretical frameworks, and case studies. The study's scope includes an analysis of the theoretical underpinnings of quantum computing, prospective applications, and strategic integration in the context of entrepreneurship.

#### 1.5 Research Methodology

This study uses a qualitative research technique to meet the study's goals and questions. It involves a

thorough examination of existing literature, case studies of quantum computing adoption in entrepreneurship, and theoretical analysis to build a conceptual framework for entrepreneurs to navigate the quantum computing landscape. Data collection methods include document analysis and expert interviews. The study is conducted in the past tense, as the research has been completed.

### 2. Literature Review

The literature review section provides a comprehensive overview of the existing knowledge relevant to the study's various aspects, including quantum computing, entrepreneurship, and their intersection. Here, we delve into each of the headings and subheadings.

### 2.1 Quantum Computing Fundamentals

#### 2.1.1 Quantum Bits (Qubits)

Quantum computing fundamentally relies on the concept of quantum bits or qubits. Researchers like Marella, S. T., & Parisa, H. S. K. (2020) elucidate that unlike classical bits, which can be in a state of either 0 or 1, qubits can exist in multiple states simultaneously due to superposition. This property is the foundation of quantum computing's capacity for parallel processing, enabling it to solve complex problems efficiently.

### 2.1.2 Quantum Algorithms

Understanding quantum algorithms is vital to comprehend the power of quantum computing. Grover's algorithm and Shor's algorithm, developed by Lov Grover and Peter Shor, respectively, stand as exemplars of quantum algorithms that exhibit exponential speedup in specific problem domains Ambainis, A. (2018). These algorithms show how quantum computing has the power to completely transform problemsolving and optimisation processes.



Figure 1. Quantum Algorithm: Applications. Source: Research Gate 2021 2.2 Entrepreneurship in the Digital Age

# 2.2.1 The Impact of Technology on Entrepreneurship

According to Rashid, S., & Ratten, V. (2020), the entrepreneurial landscape has changed as a result of the digital era. The internet in particular has created new opportunities for company development. Entrepreneurs use digital tools for online marketing, e-commerce, and market research, upending established business paradigms in the process.

2.2.2 E-commerce and Online Marketplaces Entrepreneurship has been transformed by ecommerce and online marketplaces. These platforms have made it possible for firms to

access a worldwide audience, lower transaction costs, and automate sales procedures, according to academics like Hagiu, A. (2009). New business models, such drop shipping and affiliate marketing, have emerged as a result of this.

#### 3. Methodology

The strategy and procedures employed in this qualitative, conceptual investigation are described in the methodology section. There includes a thorough discussion of the research design, data collecting, data analysis, sampling, and ethical issues.

### 3.1 Research Design

The descriptive research design was used in this qualitative study. Exploring and understanding complicated events is a good fit for descriptive research, according to Gao, J., et al. (2023). Without the necessity for numerical measurements, the main goal was to provide a thorough knowledge of the conceptual framework of quantum computing in business.

### 3.2 Data Collection

#### 3.2.1 Secondary Data

For a thorough literature evaluation, which served as the study's theoretical framework, secondary data collecting was crucial. To investigate the state of the art in the fields of entrepreneurship and quantum computing, academic books, reports, and academic papers were examined.

### 3.2 Data Analysis

The broad literature research and the qualitative data gathered through interviews were both the focus of theme analysis. Using this technique, reoccurring themes, patterns, and ideas regarding the influence of quantum computing on entrepreneurship might be found George, B., & Wooden, O. (2023). The goal of data analysis was to unearth insights and produce a deeper knowledge of the theoretical framework, the promise of quantum computing, and real-world applications in business.

### 4. Research Gap

Identifying the research gap is a crucial element of the study, as it positions the research within the broader academic landscape and highlights the novel contributions it brings to the field. This section discusses the existing knowledge and practices related to quantum computing and entrepreneurship, the identified research gap, and mentions instances where other scholars have recognized the need for further research in this area.

#### 4.1 Existing Knowledge and Practices

A substantial body of knowledge and practices exists in the fields of quantum computing and entrepreneurship. The literature review (Section 2) has already highlighted the foundational work by various scholars in these domains. Theoretical and practical insights have been developed on quantum computing fundamentals, entrepreneurial strategies in the digital age, and the impact of

technology on entrepreneurship.

#### 4.2 Identified Research Gap

Despite the existing wealth of knowledge, several gaps have been identified through this study:

- 1. Qualitative Exploration: While there are quantitative studies exploring the applications and implications of quantum computing, a qualitative, conceptual understanding has been lacking. The study fills this gap by providing in-depth insights into the conceptual aspects of quantum computing in entrepreneurship.
- 2. Comprehensive Integration Framework: Existing literature often provides isolated insights into quantum computing or entrepreneurship. However, a holistic framework for integrating quantum computing into entrepreneurial strategy has been relatively underexplored. This study bridges this gap by proposing a conceptual framework for entrepreneurs.
- 3. Real-World Applications: Previous studies have primarily focused on theoretical discussions. However, the practical applications of quantum computing in realentrepreneurship world are underrepresented. Through case studies and interviews, this study offers insights established into how startups and

enterprises are leveraging quantum computing technologies.

#### 5. Findings

The study's findings, which were intended to fill the identified research gap and offer information about how quantum computing affects entrepreneurship, are presented in the findings section. The effects of quantum computing on entrepreneurship, upcoming trends and possibilities, and problems and constraints are the three main topics covered in this section.

# 5.1 The Impact of Quantum Computing on Entrepreneurship

The results of the study showed that entrepreneurship is significantly impacted by quantum computing. Researchers like Fahlkvist, A., & Kheiltash, A. (2023) have emphasised how quantum computing may significantly improve optimisation and simulation jobs, giving business owners the chance to make decisions that are more effectively. Furthermore, as observed by Babu, C. S., & Akshara, P. M. (2023), the enhanced encryption capabilities of quantum computing can considerably improve cybersecurity, a major worry for contemporary businesspeople. Quantum computing also offers opportunity to both new and established businesses. By developing cutting-edge applications like quantum machine learning, startups can use quantum computing to obtain a competitive advantage Prakash, P. M. (2023).

Quantum algorithms that optimise supply chains and logistics can help established businesses improve their current operations Gupta, S., & Sharma, V. (2023).

# 5.2 Emerging Trends and Opportunities

The study's conclusions revealed a number of new trends and business potential. Entrepreneurs now have access to quantum resources through cloudbased services because to the commercialisation of quantum computing platforms by organisations like IBM, Google, and Rigetti Computing Fahlkvist, A., & Kheiltash, A. (2023). Due to a fair playing field created by this, entrepreneurs and small enterprises may now benefit from quantum computing. Additionally, the development of post-quantum algorithms and quantum-resistant encryption gives business owners the chance to innovate in the cybersecurity industry. Entrepreneurs can help secure digital transactions in the age of quantum computing by creating encryption techniques that can survive quantum assaults Majot, A., & Yampolskiy, R. (2015). Entrepreneurship Trends of 2023



# Source: dfycopywriting.org

6.3 Challenges and Limitations

Despite its potential, quantum computing has a number of drawbacks and restrictions for business owners. The results of expert interviews on quantum computing and case studies of businesses showed that the field is still developing, with the quantity and power of operational quantum computers being constrained. According to Hilkamo, O., & Granqvist, N. (2022), entrepreneurs must contend with the difficulty of quantum algorithms and the requirement for extremely specialised expertise. Due to its sensitivity to the outside environment, quantum hardware is difficult to keep stable enough for error-free calculations. Smaller enterprises may face severe entrance difficulties as a result of this restriction. The haziness around the use of quantum computing on a large scale is another drawback. Given the dynamic environment of quantum hardware and software development,

entrepreneurs must carefully choose whether and how to include quantum technologies into their plans. The findings offer a thorough knowledge of how quantum computing affects entrepreneurship, demonstrating the technology's promise for innovation, security, and optimisation. Along with a realistic appraisal of the difficulties and restrictions business owners can run into in their quest of quantum computing integration, future trends and possibilities are also given.

#### 7. Recommendations

The advice and conclusions drawn from the study are presented in the suggestions section. In addition to addressing the identified research gap and advancing our understanding of how quantum computing affects entrepreneurship, it also makes regulatory suggestions and strategic advice for entrepreneurs.

7.1 Strategic Recommendations for Entrepreneurs Entrepreneurs can take several strategic actions to harness the potential of quantum computing for their businesses:

a. Invest in Quantum Education and Training: Given the specialized nature of quantum computing, entrepreneurs should invest in education and training for their teams. Scholars like Kapur, D. (2006) have noted the importance of developing in-house quantum expertise. Courses, workshops, and collaborations with quantum experts can equip teams with the necessary skills.

b. Explore Quantum-Ready Applications:

Entrepreneurs should identify areas within their business operations where quantum computing can be applied effectively. This includes optimization tasks, complex problem-solving, and enhancing data security. Quantum machine learning and quantum-inspired algorithms, as discussed by Tang, E. (2019), offer potential avenues for innovation.

c. Collaborate with Quantum Service Providers: As quantum computing resources become more accessible through cloud-based services, entrepreneurs can explore partnerships with quantum service providers like IBM and Rigetti Computing Fahlkvist, A., & Kheiltash, A. (2023). This allows businesses to experiment and scale quantum applications without the need for substantial in-house quantum infrastructure. 8. Conclusion

### 8.1 Summary of Key Findings

In the ever-evolving landscape of entrepreneurship, this study has endeavored to explore the fascinating intersection of quantum computing and business. The findings of this qualitative, conceptual study have illuminated the path to understanding the profound impact that quantum computing holds for entrepreneurs. Our exploration has revealed that quantum computing has the potential to revolutionize entrepreneurship in multiple dimensions. The efficient optimization, problem-solving capabilities, and enhanced security offered by quantum technologies provide entrepreneurs with new tools to navigate the complexities of the digital age.

Through the examination of case studies, interviews, and an extensive literature review, we have unveiled the real-world applications of quantum computing in startups and established enterprises, showcasing the diversity of opportunities it presents.

8.2 Implications for Entrepreneurship Entrepreneurs may be significantly impacted by the important consequences of this study. It emphasises how crucial it is to innovate and adapt in response to the quick changes in technology. Entrepreneurs can no longer view quantum computing as a distant prospect but must consider its applications in their strategic decision-making processes. The strategic recommendations provided equip entrepreneurs with the necessary steps to integrate quantum computing into their business models effectively. Collaboration with quantum service providers, investment in quantum education, and exploration of quantum-ready applications stand as pivotal strategies for staying competitive in the digital era.

8.3 The Future of Entrepreneurship in the Quantum Computing Era

As we gaze into the future, it is clear that entrepreneurship is on the cusp of a quantum revolution. The practical adoption of quantum computing, once considered a distant dream, is gradually becoming a reality. In particular, cloudbased quantum services and quantum-resistant encryption are two developing trends and prospects that this paper explores. But it's important to acknowledge the difficulties and constraints that come with this quantum trip. Significant barriers include the difficulty of quantum algorithms, the scarcity of practical quantum computers, and the uncertainty around adoption dates. However, these challenges do not deter the entrepreneurial spirit; rather, they encourage invention, flexibility, and a readiness to accept change. In conclusion, our study emphasises how dynamic and transformational quantum computing may be for entrepreneurship. By offering conceptual knowledge and useful insights into incorporating quantum technologies into entrepreneurial strategy, it closes a critical research gap. The ramifications for business owners and decision-makers are clear, indicating that entrepreneurship in the age of quantum computing would require flexibility, inventiveness, and limitless potential. Although this trip has only just begun, entrepreneurs are now prepared to set out on this exciting quantum endeavour thanks to the advice and recommendations presented in this research.

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### Entrepreneurial Opportunities in Industrial Innovation: Leveraging Human-Machine Interfaces (HMIs) to Enhance User Experience

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### Abstract:

This study explores entrepreneurial opportunities in industrial innovation through the lens of Human-Machine Interfaces (HMIs). The objective is to understand the dynamics of HMI integration, enhance user experiences, and offer strategic insights for entrepreneurs. The study identifies gaps in existing literature by emphasizing the underexplored entrepreneurial dimensions of HMI utilization in industrial settings. Methodologically, it employs qualitative interviews and document analysis, grounding the research in the Technology Acceptance Model (TAM) for a comprehensive exploration. Findings reveal patterns in entrepreneurial initiatives, user experience impact assessments, and a comparative analysis of HMI utilization across industries. Recommendations advocate usercentric design principles, continuous iteration, and collaboration with human factors experts. Policy implications highlight incentives for research. standardization. and education programs. The study contributes significantly to the field by aligning with TAM and effectual

reasoning, filling a critical research gap, and offering actionable insights for entrepreneurs, policymakers, and future researchers. This research advances our understanding of the interplay between technology, entrepreneurship, and user experiences, paving the way for future explorations in this dynamic field.

**Keywords:** Entrepreneurship, Human-Machine Interfaces, Industrial Innovation, User Experience, Technology Acceptance Model (TAM).

### **1.0 Introduction**

The dynamic realm of industrial innovation is undergoing a rapid transformation, with entrepreneurs keenly eyeing the synergistic interplay between human capabilities and machine interfaces. At the forefront of this evolving landscape is the profound impact of Human-Machine Interfaces (HMIs), a pivotal focus for visionaries seeking revolutionary opportunities. This study intricately explores the entrepreneurial

landscape embedded in the strategic utilization of HMIs to elevate user experiences within industrial settings. The essence of this research lies in unraveling the transformative potential that arises when HMIs are seamlessly integrated into industrial processes, giving rise to unprecedented entrepreneurial avenues. In dissecting the symbiotic relationship between humans and machines, entrepreneurs discover a nexus of opportunities waiting to be explored. The intricate dance between human intuition and technological precision defines the crux of industrial evolution. This study aims to dissect and understand this symbiosis, delving into the ways in which HMIs serve as the catalyst for heightened efficiency and innovation within industrial environments. The driving force behind this research lies in the exploration of how the integration of HMIs acts as a propellant for industrial innovation. As industries grapple with the challenges of the digital age, entrepreneurs recognize HMIs as a gateway to overcoming barriers and ushering in a new era of possibilities. By seamlessly melding human intuition with machine efficiency, entrepreneurs can navigate uncharted territories, fostering groundbreaking solutions and redefining the contours of industrial progress. Central to this exploration is the identification of novel avenues for entrepreneurial ventures. As HMIs redefine user experiences within industrial settings, entrepreneurs are presented with a unique canvas to paint their visions of innovation. From streamlining operational processes to enhancing safety protocols, the entrepreneurial landscape flourishes with possibilities. This study aims to provide insights into how entrepreneurs can strategically navigate and capitalize on these untapped opportunities, ultimately reshaping the industrial landscape.

### 1.1 Background of the study

The genesis of this research is rooted in the seismic shifts witnessed in global business paradigms, particularly driven by the disruptive forces unleashed by E-commerce and Online Marketplaces. The transformative impact of these technological advancements has not only reshaped conventional business models but has also necessitated a thorough exploration of alternative entrepreneurial pathways. In the wake of this evolving landscape, the significance of Human-Machine Interfaces (HMIs) has risen to prominence as a pivotal element, offering the promise of heightened user experiences within industrial processes. The historical underpinnings leading to the present focus on HMIs unveil a narrative of businesses grappling with the challenges posed by traditional models. The advent of E-commerce and Online Marketplaces has not merely shifted consumer behaviors; it has catalyzed an imperative for industries to reevaluate their established operational frameworks. Against this backdrop, the integration of HMIs emerges as a strategic response, a proactive measure to navigate and thrive in this dynamically evolving landscape. This research endeavors to trace the evolutionary trajectory that has propelled businesses from the constraints of traditional models to the forefront of technological adaptation. At the heart of this exploration lies the acknowledgment of Ecommerce and Online Marketplaces as catalysts of change. These platforms have not only disrupted established norms but have ushered in an era demanding innovative solutions. The integration of HMIs into industrial processes becomes a logical and necessary step, representing an orchestrated effort to optimize both user interactions and operational efficiency. Through this lens, the research aims to unravel the symbiotic relationship between technological disruption and entrepreneurial exploration, illuminating the path forward in a landscape defined by constant change and adaptation.

### 1.2 Significance of the Study

This study holds paramount significance as it delves into unexplored entrepreneurial possibilities within the realm of industrial innovation. By unraveling the latent potential inherent in Human-Machine Interfaces (HMIs), entrepreneurs gain a compass to navigate the everevolving industrial landscape, enabling the creation of ventures finely attuned to the shifting needs of users and industries. Positioned as a conceptual exploration, this study serves as a theoretical bedrock, empowering entrepreneurs to envision and strategically plan their ventures. Understanding and harnessing the capabilities of HMIs become pivotal tools for entrepreneurs

seeking to carve their niche in a dynamic and competitive industrial milieu. The study, through its theoretical lens, not only sheds light on the transformative power of HMIs but also provides a roadmap for entrepreneurs to chart their course in the uncharted territories of industrial innovation. In essence, the significance lies not only in uncovering the untapped potential but also in offering a conceptual framework that propels entrepreneurial endeavors towards the forefront of innovation, ensuring relevance and resonance in a rapidly evolving industrial landscape.

### 1.3 Scope of the Study

This study rigorously focuses its examination on the nexus of industrial innovation, Human-Machine Interfaces (HMIs), and the entrepreneurial landscape. Its primary objective is to furnish a thorough comprehension of how entrepreneurs can strategically employ HMIs to elevate user experiences within the intricate tapestry of industrial settings. The scope extends across a diverse spectrum of industries, recognizing the nuanced applicability of HMIs within different sectors. Within the confines of this exploration, the study seeks to unravel the multifaceted relationships among industrial evolution, the integration of HMIs, and the burgeoning entrepreneurial opportunities that arise from this symbiosis. By delineating the boundaries of its focus, the study acknowledges the intricate interplay between technology and entrepreneurship within the realm of industrial innovation. This is done by considering differences involved in the acceptability of any given HMI and how these depend on specific applications and industries involved in the evolutionary processes of technological incorporation. Ultimately, the concept covers a complex examination intended to be holistic yet relevant for business people on the basis of actual problems they face within their industries.

### **1.4 Research Questions**

To navigate the uncharted territory of entrepreneurial opportunities in industrial innovation, the study addresses the following research questions:

1. How well are we aware of the integration of HMIs in industrial processes?

2. What is the missing piece of understanding present?

3. Why are these gaps important in relation with entrepreneurship venture?

4. What is the rationale behind exploring HMIs as a catalyst for industrial innovation?

# 1.5 Objectives of the Study

This research aims to achieve the following objectives:

- 1. To critically review and synthesize existing literature on the integration of HMIs in industrial contexts.
- 2. To identify and analyze gaps in the current understanding of entrepreneurial opportunities in this domain.
- 3. To elucidate the significance of addressing these gaps for both academia and industry.
- 4. To provide a theoretical foundation for entrepreneurs seeking to capitalize on HMIs in their ventures.

# **1.6 Methodology Overview**

Given the qualitative and conceptual nature of this study, the methodology involves an extensive literature review, synthesizing insights from interdisciplinary sources. By employing a qualitative approach, the study aims to delve deep into the theoretical issues and practical problems surrounding the integration of HMIs in industrial innovation. Relevant examples and citations will be woven into the fabric of the study to substantiate theoretical discussions and provide a nuanced understanding of the entrepreneurial landscape within this technological frontier.

# 2.0 Statement of the Problem

# 2.1 Evolution of Industrial Innovation

The unfolding narrative of industrial innovation constitutes a dynamic journey, characterized by the constant interplay of transformative technological advancements reshaping the fabric of business operations. In the relentless pursuit of heightened efficiency, productivity, and user satisfaction, the historical trajectory of industrial innovation mirrors an imperative for evolving approaches that harmonize with the demands of the contemporary era. This evolutionary process signifies a shift from conventional paradigms to a landscape where industries are compelled to adapt and embrace emerging technologies. The very essence of industrial innovation lies in its responsiveness to the evolving needs of businesses and consumers alike. As technologies evolve, so does the industrial ecosystem, necessitating a continuous reassessment of strategies and methodologies. This fluid progression underscores the imperative for transformative approaches that not only meet but anticipate the demands of a rapidly changing business landscape. The journey of industrial innovation is a testament to the adaptability and resilience of industries in the face of technological disruptions. It reflects a persistent quest for methodologies that not only enhance operational efficiency but also cater to the ever-evolving expectations of a technologically savvy market. In essence, the evolution of industrial innovation emerges as a reflection of the intricate dance between technological progress and the perpetual pursuit of excellence in business operations.

# **2.2 Challenges Faced by Traditional Business Models**

Once stalwart and efficacious, traditional business models find themselves navigating an array of challenges amidst the seismic shifts brought about by digital disruptions, notably catalyzed by the ascendancy of E-commerce and Online Marketplaces. The transformative wave of digital disruptions has not only reshaped consumer behaviors but has also instigated an imperative for businesses to swiftly adapt or risk obsolescence. In this transformative landscape, the challenges confronting traditional models compel a critical reevaluation of strategies to ensure competitiveness and relevance in an ever-evolving market. The disruptions unleashed by Ecommerce and Online Marketplaces have fundamentally altered the dynamics of business operations, challenging the established norms and necessitating an agile response from traditional entities. Consumer preferences, once predictable, are now shaped by the convenience and accessibility offered by digital platforms, prompting traditional models to recalibrate their approaches to customer engagement and satisfaction. These challenges signify more than

mere obstacles; they are catalysts for innovation and reinvention. Traditional business models are compelled to embrace digital transformation, reassess operational frameworks, and adopt agile strategies that align with the demands of a digitally-driven era. In essence, the challenges faced by traditional models serve as a clarion call for adaptability and a proactive embrace of technological advancements to thrive in the contemporary business landscape.

# **2.3 Emergence of Human-Machine Interfaces** (HMIs)

Traditional business models have been confronted with challenges; hence, HMIs, which is a disruptive innovation has emerged to revolutionize industry settings. HMI is a combination of human capability and machine intelligibility for enhanced user experience and improved performance. The growth of this technology brings about a new paradigm that should be well understood to help guide industrial innovation and entrepreneurship ventures.

### 2.4 The Need for Entrepreneurial Solutions

The integration of HMIs in industrial processes introduces a unique set of opportunities and challenges. While these interfaces hold the potential to enhance user experiences and operational efficiency, realizing these benefits requires entrepreneurial acumen. The need for entrepreneurial solutions arises from the imperative to bridge the gap between technological advancements and practical applications within industrial settings. Entrepreneurs play a pivotal role in identifying, harnessing, and capitalizing on the latent potential of HMIs to address the evolving needs of industries and users. In light of these contextual considerations, the statement of the problem revolves around understanding how entrepreneurial solutions can be strategically employed to leverage Human-Machine Interfaces (HMIs) for the enhancement of user experiences within the evolving landscape of industrial innovation. The study aims to explore the intricacies of this integration, addressing the challenges faced by traditional business models and offering insights into the entrepreneurial avenues that emerge in response to the evolving

dynamics of industrial processes.

### 2.5 Key Concepts and Models in Human-Centered Security

In the dynamic landscape of cybersecurity, Human-Centered Security focuses on aligning security measures with human behavior, acknowledging that end-users play a pivotal role in maintaining a secure environment. Several key concepts and models contribute to the development of effective human-centered security strategies:

### 1. Usability and Security Integration:

Seamlessly integrating security measures into user interfaces to ensure that protective measures do not hinder user experience. A user-friendly design encourages compliance and reduces the likelihood of users circumventing security protocols.

**2. Security Awareness Training:** Educating users on potential security threats and best practices to cultivate a security-conscious organizational culture. Informed users are better equipped to recognize and respond to security risks, serving as a valuable line of defense against cyber threats.

**3. User-Centric Authentication:** Implementing authentication methods that balance security and usability, such as biometrics or multi-factor authentication. Enhancing security while minimizing user friction, thereby encouraging adoption and adherence to secure practices.

4. Behavioral Analytics: Utilizing data analytics to identify and respond to abnormal user behavior, enabling early detection of security incidents. Proactively addressing security threats by recognizing deviations from typical user behavior patterns, bolstering incident response capabilities.
5. Privacy by Design: Embedding privacy considerations into the design of systems and applications to protect user data from the outset. Ensuring that security measures align with privacy requirements, building trust with users and regulatory compliance.

Key Concept		
or Model	Description	Significance
	Seamlessly	Encourages
Usability and	integrating	compliance
Security	security	and reduces
Integration	measures	the

	into user	likelihood of
	interfaces for	users
	a user-	circumventin
	friendly	g security
	experience.	protocols.
	Educating	F
	users on	
	security	
	threats and	Informed
	best	users are
	practices to	hetter
	foster a	equipped to
	security-	recognize
Security	conscious	and respond
A wareness	organization	to security
Training	al culture	risks
	Implementin	
	σ	Enhances
	authenticatio	security
	n methods	while
	halancing	minimizing
	security and	user friction
	usability	encouraging
User-Centric	(e g	adoption of
Authenticatio	hiometrics	secure
n	multi-factor)	practices
	Using data	practices.
	analytics to	Proactively
	identify	addresses
	abnormal	security
	user	threats by
	behavior	recognizing
	enabling	deviations
	early	from typical
	detection of	user
Rehavioral	security	behavior
Analytics	incidents	natterns
1 thaty ties	meraents.	Ensures
		security
	Embedding	measures
	privacy	align with
	consideration	privacy
	s into system	requirements
	design to	building
	protect user	trust and
Privacy by	data from the	regulatory
Design		compliance
DUDIZII	Juisei.	compnance.

### **3.0 Literature Review**

3.1 Historical Context of Industrial Innovation

The historical evolution of industrial innovation is a tapestry woven with groundbreaking contributions. Osipian, A. L. (2023) posited the concept of "creative destruction," emphasizing the incessant innovation cycles that propel economic development. The Industrial Revolution marked a pivotal moment, with steam engines and mechanization transforming production processes Baracca, A. (2023). More recently, the digital era witnessed the integration of information technology, setting the stage for the current wave of industrial innovation Abdullah, M. R., & Al-Amaim, M. A. N. A. (2023).

# **3.2 Disruption in Business Models: Ecommerce and Online Marketplaces**

The advent of E-commerce and Online Marketplaces has disrupted traditional business models, reshaping consumer interactions and market dynamics. Innovations such as Amazon's one-click ordering Li, D. (2023) and the emergence of platforms like Alibaba have fundamentally altered the retail landscape Kapoor, S., & Sivadas, E. (2023). This disruption underscores the need for businesses to adapt swiftly to the changing market conditions or risk obsolescence Weiss, E., & Ariyachandra, T. (2023).

# **3.3 Role of Human-Machine Interfaces (HMIs) in Industrial Innovation**

HMIs represent a critical juncture in the ongoing evolution of industrial processes. Scholars like Lyu, Z. (2023) emphasize the transformative potential of HMIs in fostering human-computer collaboration. The integration of touchscreens, augmented reality, and voice recognition systems has redefined how humans interact with machines Pedzisai, E., & Charamba, S. (2023). Notably, Adel, A. (2023) highlights the significance of intelligent automation, where HMIs contribute to decision-making processes, improving efficiency and reducing errors.

# **3.4 User Experience Enhancement through HMIs**

User experience enhancement, a cornerstone of industrial innovation, is deeply intertwined with the evolution of HMIs. Jo, H., & Park, D. H.

(2023) underscores the importance of designing interfaces that align with human cognition and behavior, enhancing usability. The application of HMIs in industrial settings has been shown to reduce cognitive workload and improve task performance Zahmat Doost, E., & Zhang, W. (2023). Such advancements are crucial for optimizing user experiences and ensuring seamless human-machine collaboration.

# **3.5 Entrepreneurial Opportunities in Technological Shifts**

Entrepreneurial opportunities arise at the intersection of technological shifts and emerging market needs. Schumpeter's concept of entrepreneurship as an engine of economic development Schumpeter, J. A. (1934) remains relevant in the context of technological disruptions. Kawai, N., & Sibunruang, H. (2023) argue that entrepreneurs play a pivotal role in identifying and capitalizing on these opportunities. The era of HMI presents entrepreneurs a virgin land to start ventures using these interfaces for solving current problems for industries like those experienced by Tesla Garg, G. (2023). The relevance of this literature review indicates that history has always been closely linked with disruptions in markets as well as their innovations, with respect to HMIs and user experiences along with entrepreneurial possibilities. These observations give a broad basis of a theoretical framework, upon which a theoretical study is made, illuminating about the general environment around factory or plant type machines' HMI issues.

# 4.0 Conceptual Framework

# **4.1 Understanding the Interaction between Humans and Machines**

As such, a solid conceptual foundation for the theory stems from understanding complexities around human-machine interactions. Additionally, L. A. Moralez (2023) posited a notion about affordances highlighting the ability of objects through their perceived and actual traits. This is how the drivers of efficient interactions would manifest themselves in the interfaces sides according to Li et al. (2023). According to Subramanian and De Moor (2023), the most

effective interface in all user considerations must be based on cognition.

# **4.2 The Integration of HMIs in Industrial Processes**

The incorporation of HMIs in industrial processes has redefined man-machine relation. He described cognitive processes behind worker's interaction with a machine system using the term – "Cognitive Work Analysis" Suleiman, A. M. (2023). Touchscreen gestures and voice recognition are incorporated in today's automation tools, Jeon, J., Lee, S., & Choe, H. (2023). This facilitates people interacting with the system more naturally and effectively. Ystgaard, K. F., & De Moor, K. (2023) in their research argues that human-centered design principles should be considered for an effective adoption process.

### 4.3 Impact on User Experience

This conceptual framework has its core in HMI and what it entails on user experience. Kivijärvi, H., and Pärnänen, K. (2023) presented the theory of "User Experience" as an integrated measure that takes into account one's sense perception, emotion, and behavior in engaging with a good or service. This implies that in the case of HMIs, the design components shape perception on ease-ofuse, efficiency and satisfaction Alayli (2023). Alexander Alexander T. (2023) pointed out that good HMI design lowers cognitive workload resulting in positive user experience.

# 4.4 Entrepreneurial Opportunities in Leveraging HMIs

The transformative nature of HMIs creates entrepreneurial opportunities in industrial settings. Dynamic Capabilities framework of Yoruk, E., & Jones, P. (2023) allows understanding and usage of entrepreneurial opportunities in rapid environment changes. R (2023), Tesla Ruvald highlights an entrepreneur's ability to exploit technogological transforming in projects such as integrating HMI's. According to Moșteanu, N. R. (2023), entrepreneurs are key actors in determining the way industries evolve by discovering and exploiting technological opportunities. The theoretical basis for this study's exploration of the dynamics of exploiting HMIs in industrial innovation is grounded in an understanding of human-machine interaction and integration of HMIs, the effect on user experience, and entrepreneurial possibilities. There are scholars' contributions span on human-computer interaction, cognitive psychology, and entrepreneurs that fill the framework, which analyzed the study's empirical data.

### **5.0 Theoretical Framework**

# 5.1 Adoption of the Technology Acceptance Model (TAM)

This study's theoretical framework is based on TAM; popular model helping predict users' behaviors when considering new technologies Davis, F. D. (1989). The TAM offers a framework for understanding how people view and accept innovative technology, which is vital to this paper's examination of the use of HMI in industrial settings.

### 5.1.1 TAM Components

The TAM comprises two main components: use, PU and PEOU. This is according Davis F.D. who states that the users will adopt a technology they find useful in accomplishing tasks and are also comfortable with. Without these elements, it is difficult to comprehend why HMIs are accepted in industrial processes. In their research works, scholars, for example, Dimulescu, C., (2023), enlarged the TAM model adding other constructs such as image, subjective norm, among others, thus explaining user acceptance in more depth.

# **5.1.2 TAM Application in Industrial Innovation**

The TAM has been used in the study of many technologies' acceptance in the process of industrial innovation. Alateeg, S. S., and Alhammadi, A. D. (2023), using TAM, explore ecommerce technology adoption in supply chain management with special focus on perceived usefulness and ease of use The TAM framework fits well to evaluate how people and operatives in industries will perceive value and ease-of-use of such HMIs.

# 5.1.3 Examples of Successful Implementation

Many studies demonstrate the effectiveness of TAM towards comprehending and forecasting the

acceptance of technology within industry settings. As an example, Lutfi, A., & Alqudah, H. (2023), using TAM, investigated the adoption of computer- assisted audit technique within the profession of auditing. The example shown here clearly demonstrates the utility of TAM for measuring the adoption of technology among different professions. Additionally, in a particular situation relating to HMIs, A. A. Khafaga, L. C. Moreira, and B. Horan employed TAM to explore the adoption of augmented reality for HMI at manufacturing sites (2023). These research findings support the use of TAM for measuring the acceptance of new interface designs in industrial contexts, illuminating determinants associated with effective implementation. This study adopts TAM as its theoretical basis and demonstrates how HMIs are accepted for use in manufacturing. They offer a way for an entrepreneur to structure their approach when they are trying to get people to understand the usefulness and ease-of-use associated with HMIs that will be introduced into industrial processes.

# 5.2 Visual Representation of the Model

Visualization is crucial in explaining complex theories and models. This way, providing data in table format provides a clear and systematic approach that can be easily understood.

Element	Description	
	The model comprises	
	key components that	
	interact to achieve the	
Components	desired outcome.	
	Depicting the	
	relationships and	
	interactions between	
	different components,	
	illustrating the flow of	
	processes within the	
Interconnections	model.	
	Identifying the inputs	
	required for the model,	
	whether they are data,	
	parameters, or other	
	variables influencing the	
Inputs	model's behavior.	
	Describing the core	
Processes	processes or actions that	

	take place within the	
	model, showcasing the	
	sequence of events or	
	operations.	
	Highlighting the	
	outcomes or results	
	generated by the model	
	based on the inputs and	
	processes, providing a	
Outputs	tangible endpoint.	
	Representing any	
	feedback loops within	
	the model,	
	demonstrating how	
	outputs might influence	
	subsequent inputs or	
Feedback Loops	processes.	
	Integrating visual aids	
	such as icons, colors, or	
	symbols to enhance	
	clarity and facilitate a	
	quicker understanding of	
Visual Aids	the model.	

A model can become simpler through its pictures, i.e depiction. Information presented in a tabular form helps in understanding the dynamics of the model through identification of various interrelationships. "Components" define the main construction components, thus eliminating any doubts about the general composition. "Interconnections" creates a visual map of relationships among the parts and offers directions in which various features interact. "Inputs" and "Processes" provide the information needed, clarifying how the system works. In the "Outputs" section, it focuses on the tangible outcomes of these programs, providing an end to these processes. "Feedback Loops" depict cyclic processes with outputs influencing additional inputs hence developing an advanced impression of the model. Using visual aids (such as charts and other paraphernalia) makes reading easier. Visual cues such as icons, color, and symbols direct the viewer through the information using icons, colors, and symbols. However, as a whole, this table is an effective tool that makes the complexity of the model understandable and clear to many people.

# 6.0 Empirical Study: Extensive Review of Related Studies

This empirical exploration in this study focuses on a comprehensive literature review that captures essential views of HMI implementation under current industrial innovation.

### 6.1 Research Design

As regards the qualitative aspect of this conceptual study it aimed at explaining the intricate matters surrounding Human-Machine interface integration in innovation in industry. Based on the grounded theory approach by Yeboah et al., the research design allowed for a close examination of the experiences, interpretations, and social lives of participants in industrial environments. For example, scholars like Walsh, I., & Rowe, F. (2023), have highlighted a structured but flexible method of theory generation from empirical data. Through this approach, the researchers were able to let them happen naturally while capturing the intricacies of entrepreneurial initiatives and how they affect users' experience across numerous manufacturing facilities.

### **6.2 Data Collection Methods**

The main source of data collection was qualitative interviews which allowed extensive discussions with key players from industrial set ups. It entailed semi-structured interviews that used a predefined interview guide, which intended to capture the participant's views regarding the implementation of HMIs, entrepreneurial opportunities, as well as the user experience. Roulston.K. (the Ed.), methodical guidance. The approach employed for (2023) interviewing involved asking questions that would yield elaborate and descriptive data. In addition to interviews, document analysis played a significant role. Academic literature, industry reports, and case studies were scrutinized to triangulate findings and enhance the robustness of the study. This multi-method approach aligned with the qualitative nature of the research, aiming for a comprehensive understanding of the phenomenon under investigation Amadi, A. (2023).

# 6.3 Sample Selection

The sample selection process prioritized diversity

to capture a broad spectrum of experiences. Purposive sampling was employed to select participants with expertise in industrial innovation, entrepreneurial ventures, and HMI integration. Theoretical sampling guided the iterative process of data collection, allowing for the exploration of emerging themes and ensuring saturation of the data Cohoon, J., & Howison, J. (2023). The sample included entrepreneurs, industrial engineers, technology specialists, and end-users working in sectors where HMIs played a significant role. The inclusion of participants from various industries contributed to the transferability of findings beyond specific contexts Mueller, C., & Kuschminder, K. (2023).

# 6.4 Data Analysis Techniques

Grounded theory coding techniques were applied for the analysis of qualitative data. The constant comparative method Bingham, A. J. (2023) facilitated the systematic coding of interview transcripts and documents. Initial open coding allowed for the identification of themes, followed by axial coding to establish relationships between codes. Theoretical coding enabled the refinement of emerging concepts, contributing to the development of a conceptual framework grounded in empirical data. Porath, U. (2023), qualitative data analysis software, was instrumental in managing and organizing the vast dataset. The process adhered to the principles of rigor and transparency in qualitative research, ensuring the trustworthiness and credibility of the study Enworo, O. C. (2023). Through this comprehensive empirical study, the qualitative approach provided depth and context to the exploration of entrepreneurial opportunities, user experiences, and the integration of HMIs in industrial innovation. The research design and data collection methods were aligned with the nature of the study, allowing for the exploration of intricate dynamics within the conceptual framework.

# 7.0 Extensive Review of Related Studies

# 7.1 Overview of Existing Research in Industrial Innovation

A comprehensive review of existing research in industrial innovation reveals a multifaceted

landscape characterized by a constant quest for improved efficiency, sustainability, and adaptability. According to studies by Güttel, W. H., & Konlechner, S. W. (2023), it is imperative that any organization must always innovate to remain competitive in a dynamic environment. Furthermore, the works of Schumpeter, J. A. (1934) and Christensen, C. (1997), give foundation to disruptive innovation that necessitates major changes in technology and business model. The theoretical foundation for evaluating the incorporation of HMI in industrial environments is drawn from these theories.

### 7.2 Studies on Entrepreneurial Ventures Utilizing HMIs

Still, the emergence literature concerning entrepreneurial ventures based upon HMIs is promising. A study carried out by Odien, J.K. (2015) examines at how this innovative firm used advanced Human Machine Interfaces in its cars as a strategy of successful venture. This is a case study that demonstrates how an entrepreneur can spearhead innovation by applying HMIs in order to revolutionize an entire sector. More so, T. (Ladd, 2018) also did some research on how the BMC can be used for new ventures. Using this framework entrepreneurs can develop a picture of their business models as they integrate HMIs into industrial aspects like value propositions, customer target groups, and key resources that interact with these value propositions and customer base.

# 7.3 Success Stories and Failures in HMI Integration

Studying successful and unsuccessful experiences with HMI integrations is very useful, as it reveals the difficulties faced when introducing these interfaces into industry. Gurney (2012) documents success in HMIs implementation at Boeing which proves that thorough approach towards HMI design is able to improve operational process and user experiences. However, the failures at Three Mile Island Arosenius, H., & Ivarsson, S. (2023) illustrate the vital role of factoring in human elements, as well as possible blunders that should be avoided to avoid disastrous outcomes.

# 7.4 Key Findings from Previous Research

The complexities involved in HMI integration should be considered in industrial innovations as highlighted by key findings from prior research. According to Ali et al. (2023), it is critical for the designers of HMISs to focus entirely on usercentered design principles. More importantly, Mbelekani, N. Y., and Bengler, K. (2023) state that the usability of an HMI will depend greatly on its ability to reduce mental stress, hence optimizing cognitive workload and enhancing overall performance. The study from Zhang, Z., & Lin, K. Y. (2021), highlights the importance of perceive usefulness and ease of use in adopting HMIs in the industrial world. In that regard, this can be said to have concurred with the TAM components and provided support for the model applied herein. Overall, the elaborate literature review of previous research works offers grounds for conceptual study that sheds light on the historical backdrop for industrial innovations, successful entrepreneurship that capitalizes on HMI, the success stories, failures, and main outcomes which underlie this case.

### 7.5 Visualizing Challenge Solutions

For the sake of problem-solving, this is how we can understand and explain table solutions for our challenges. The table will function as a dynamic way of highlighting problems identified, appropriate solutions put across alongside accompanying results in a clear orderly way for informed decision making.

Chall	Challeng	Solution	Expected
enge	e	Strategy	Outcomes
ID	Descripti		
	on		
1	Limited	Implemen	Increased
	Resource	t Lean	Efficiency,
	Allocatio	Practices	Cost
	n		Reduction
2	Complex	Adopt	Streamlined
	Workflow	Modular	Processes,
	Integratio	Integratio	Improved
	n	n	Connectivit
			У
3	Resistanc	Facilitate	Improved
	e to	Change	Adaptabilit
	Change	Managem	у,
		ent	Employee

			Engagemen
			t
4	Cybersec	Implemen	Enhanced
	urity	t Multi-	Data
	Vulnerabi	Layered	Protection,
	lities	Security	Reduced
		Measures	Cyber
			Threats
5	Ineffectiv	Establish	Improved
	e	Clear	Collaborati
	Communi	Communi	on,
	cation	cation	Reduced
		Channels	Misunderst
		and	andings
		Protocols	
6	Regulator	Develop	Mitigated
	У	Robust	Legal
	Complian	Complian	Risks,
	ce	ce	Enhanced
	Challenge	Protocols	Reputation
	S		
7	Technolo	Invest in	Future-
	gical	Continuo	Proofing,
	Obsolesce	us	Increased
	nce	Technolo	Competitiv
		gical	eness
		Upgrades	

Tabular forms provide some sort of strategic way of solving problems by visualizing challenges and their solutions. The table provides a list of specific challenges that are assigned an individual ID and a thorough description in every row. Solution Strategy describes suggested solutions to all challenges and offers implementative wayforward. The "Expected Outcomes" column enumerates expected outcomes which gives an insight into each solution's anticipated benefits. It makes it easy for decision makers in their process of decision making to determine whether a particular strategy can be implemented or not together with its effect in the economy. For instance, Challenge ID 4 addresses cybersecurity vulnerabilities, proposing the implementation of multi-layered security measures. The expected outcomes include enhanced data protection and reduced cyber threats. This clarity aids in informed decision-making and resource allocation. Ultimately, the tabular visualization of challenge solutions is a strategic tool that

promotes transparency, facilitates collaboration among stakeholders, and guides organizations toward effective problem resolution.

### 8.0 Research Gap

### 8.1 Identified Gaps in Existing Literature

A meticulous examination of the existing literature on the integration of Human-Machine Interfaces (HMIs) in industrial innovation revealed several discernible gaps that called for further exploration. Scholars such as Daradkeh, M. (2023) and Porath, U. (2023) have delved into the challenges of managing technological change within organizations but often neglect the nuanced entrepreneurial opportunities arising from such changes. The identified gap lies in the limited exploration of the entrepreneurial dimensions of leveraging HMIs in industrial contexts. While existing studies touch upon the technical aspects of HMI integration and its impact on user experiences, there is a paucity of research that explicitly investigates the entrepreneurial opportunities this integration affords within the broader landscape of industrial innovation.

### 8.2 The Unexplored Dimensions of Entrepreneurial Opportunities

The unexplored dimensions of entrepreneurial opportunities in the integration of HMIs constitute a critical research gap. Research by Adebakin, A. B., & Ayanlowo, A. E. (2023) and Foss, N. (2023) has underscored the significance of entrepreneurship in exploiting technological opportunities. However, the specific context of HMIs in industrial innovation remains underexplored in the entrepreneurship literature. Furthermore, scholars like Lee, Y., & Hemmert, M. (2023) have emphasized the importance of identifying and exploiting unique resources and capabilities as a basis for entrepreneurial opportunities. In the case of HMIs, the distinctive capabilities they offer in terms of human-machine collaboration and enhanced user experiences present an untapped reservoir for entrepreneurs. The literature, however, falls short in providing a comprehensive understanding of how entrepreneurs can strategically leverage these interfaces to drive innovation and create value.

# **8.3 Filling the Gap: Importance of the Current Study**

The current study addresses these identified gaps by delving into the unexplored entrepreneurial dimensions of integrating HMIs in industrial innovation. By adopting a qualitative approach and leveraging a conceptual framework grounded in the Technology Acceptance Model (TAM), the study contributes to the academic discourse surrounding entrepreneurship, technological innovation, and user experience enhancement. Other scholars who have acknowledged the gap include Trischler, M. F. G., & Li-Ying, J. (2023), who has argued for more research on the intersection of technology and entrepreneurship. The lack of comprehensive studies specifically focusing on HMIs within this intersection reinforces the significance of the current study. Filling this gap is of paramount importance, as it not only contributes to academic knowledge but also provides practical insights for entrepreneurs seeking to navigate the uncharted territory of HMIs in industrial settings. The study aims to offer a roadmap for entrepreneurs, policymakers, and industry practitioners to capitalize on the untapped potential of HMIs, thus addressing the void identified by various scholars and researchers in the field.

# 9.0 Findings

# 9.1 Analysis of Empirical Data

Analysis of empirical data revealed several implications for incorporating HMI's into industrial innovation. With reference to qualitative interviews and document analysis, the research explored the views and encounters of entrepreneurs, industrial engineers, and users who utilized the products that had been designed with HMIs. For example, scholars like Meek, W. R., & Gianiodis, P.T. (2023) give out methodological guidelines on how to analyze qualitative data in a systematic manner. The spectrum of entrepreneurial activities ranged from small-scale to the giants of the industrial sector all facing problems and opportunities related with HMI integration.

# **9.2** Patterns and Trends in Entrepreneurial Initiatives

Drawing on the basis laid by Schumpeter(1934) and Wai, E., & Lee, C.K.M.(2023), the work focused on recognizing the tendencies and the nature of the ventures that are utilizing HMIs in an They noticed that entrepreneurs developed new products and services using the special abilities of HMIs. These patterns gave us an in depth insight into how entrepreneurs approach the challenging terrain of industrial innovation. Additionally, the study was along the line of van der Westhuizen, T. (2023)., elaborating on how effective reasoning influences entrepreneurial ventures. Effectual logic was used in adapting the human capabilities and machine interfaces to dynamically changing environments for entrepreneurs in this case study.

### 9.3 User Experience Impact Assessment

The study used the theoretical framework developed by Andersen, J. P. (2023) in their evaluation of the effects of HMIs on users' experiences. End users demonstrated increased user satisfaction, less cognitive load, and better performance in tasks that involve interacting with systems having well-developed HMIs. This supported the research carried out by Musa, N. K. B., (2023) on user experiences in human – machine interfaces. Such entrepreneurs creating value by emphasizing user centered design principles had a competitive advantage in the marketplace.

# 9.4 Comparative Analysis of HMI Utilization

This research involved a cross-industry analysis aimed at enhancing comprehension of multifarious applications and problems encountered by businessperson. Insights from Andersen, T. J., & Bering, S. (2023) was instrumental in framing the comparative analysis, emphasizing the need for tailored approaches in different industrial contexts. The findings indicated that industries with a strong focus on safety, such as nuclear power plants, prioritize HMI designs that minimize errors and enhance situational awareness. Conversely, sectors like manufacturing may emphasize speed and efficiency, leading to different design considerations. This nuanced comparative analysis enriches the academic discourse on HMI utilization in industrial settings. In conclusion, the findings not only filled the identified research gap

but also provided a detailed and nuanced understanding of the entrepreneurial opportunities and user experience implications associated with the integration of HMIs in industrial innovation. The empirical data offered a rich tapestry of insights, aligning with and extending the contributions of various scholars in the fields of entrepreneurship, technology acceptance, and user experience design.

### **10.0 Recommendations**

# **10.1 Strategies for Entrepreneurs in Industrial Innovation**

The study generated practical recommendations for entrepreneurs seeking to capitalize on the entrepreneurial opportunities presented by the integration of Human-Machine Interfaces (HMIs) in industrial settings.

### **10.1.1 User-Centric Design Principles**

Entrepreneurs are advised to prioritize user-centric design principles Vir, S. C. (2023) when developing products or services incorporating HMIs. Ensuring that interfaces are intuitive, reduce cognitive workload, and enhance overall user experiences can contribute to market acceptance and competitiveness.

### **10.1.2 Continuous Iteration and Adaptation**

Building on the principles of effectual reasoning Beretta, M., & Smith, P. (2023), entrepreneurs should embrace a mindset of continuous iteration and adaptation. The dynamic nature of HMI interactions requires entrepreneurs to be agile in adjusting their strategies based on user feedback, technological advancements, and changing market demands.

# **10.1.3 Collaboration with Human Factors Experts**

Given the impact of HMIs on user experiences, entrepreneurs are encouraged to collaborate with human factors and ergonomics experts. Insights from Aslam, U. (2023) highlight the importance of considering human capabilities and limitations in interface design, ensuring that products align with user needs and preferences.

# **10.2 Policy Implications**

The study identified key policy implications to support the seamless integration of HMIs in industrial innovation.

# **10.2.1 Incentives for Research and Development**

Policymakers are recommended to provide incentives for research and development efforts focused on the improvement of HMIs. Aligning with the work of Mahardhani, A. J. (2023), such incentives could stimulate innovation by fostering collaborations between academia, industry, and entrepreneurs.

### **10.2.2 Standardization and Certification**

To ensure the quality and safety of HMIs, policymakers should consider the development of industry standards and certification processes. Drawing on insights from safety-critical industries Selim, H., & Milson, S. (2023), standardization can mitigate risks associated with HMI integration, promoting user trust and reducing the likelihood of failures.

# **10.2.3 Training and Education Programs**

It would be wise to direct policy initiatives toward training and education efforts targeted at entrepreneurs and industry specialists. This aligns with the recommendations of Andersen, J. P. (2023), emphasizing the need for a workforce equipped with the knowledge and skills to leverage HMIs effectively.

# **10.3 Future Research Directions**

The study opens avenues for future research to delve deeper into the complexities of HMIs in industrial innovation.

### **10.3.1 Longitudinal Studies on Entrepreneurial** Ventures

Researchers are encouraged to conduct longitudinal studies tracking the trajectory of entrepreneurial ventures utilizing HMIs. This approach, aligned with the work of Moșteanu, N. R. (2023), can provide insights into the long-term sustainability and adaptability of ventures in dynamic technological environments.

# **10.3.2** Cross-Industry Comparative Analyses

Further research should explore cross-industry

comparative analyses of HMI utilization. Insights from Grech, M. R., & Lutzhoft, M. (2016) suggests that different industries may have distinct challenges and priorities in HMI design. Comparative analyses can shed light on industryspecific best practices.

# **10.3.3 Exploration of Ethical and Social Implications**

Future research should investigate the ethical and social implications of widespread HMI integration. As the impact of technology on society gains prominence Andersen, J. P. (2023), understanding how HMIs influence work dynamics, privacy, and social interactions is crucial for shaping responsible and sustainable innovation. In conclusion, the recommendations outlined for entrepreneurs, policymakers, and future researchers not only address the identified research gap but also offer actionable insights for driving positive change in the integration of HMIs in industrial innovation. The study's thorough examination of entrepreneurial strategies, policy implications, and future research directions contributes to the broader discourse on technological innovation and its societal implications.

# **11.0 Conclusion**

### **11.1 Summary of Findings**

In conclusion, this study embarked on a journey to explore the uncharted terrain of entrepreneurial opportunities arising from the integration of Human-Machine Interfaces (HMIs) in industrial innovation. Through a qualitative analysis of empirical data and a comprehensive review of existing literature, the study unraveled patterns, trends, and user experience implications associated with entrepreneurial initiatives leveraging HMIs. The findings highlighted the diverse strategies employed by entrepreneurs, emphasizing the importance of user-centric design principles, continuous iteration, and collaboration with human factors experts. The comparison helped develop a deeper understanding of the way HMIs operate in different industries. Besides, the paper has also increased on the theoretical framework where it aligned itself to the TAM and effectuation theory, adding knowledge on the

dynamic relationship between technology as well as entrepreneurship.

### **11.2 Implications for Industrial Practices**

This has repercussions for industry practices that can be of assistance to entrepreneurs and policy makers as well as key decision makers in the industry. This implies that, entrepreneurs should consider adopting the user-oriented design, constant adjustment, and collaboration practices to maximize the impact of the HMIs. The results will help policymakers design incentives, standards and education programs on safer and innovative HMI integration. The comparative analyses will help industry professionals fine-tune strategies that are relevant to the sectoral challenges and targets.

# **11.3 Contribution to the Field of Entrepreneurship and Industrial Innovation**

The study is highly relevant because it fills a much-needed gap in research on entrepreneurship, as well as industrial innovation as a whole. The investigation of entrepreneurial possibilities in the integration of HMI reveals a sophisticated comprehension of intersection between the technology and innovation. This paper broadens the dialogue past technical issues to include the strategic, cultural, and market perspectives in industrial advancement. In addition, the paper conforms and is an addition to other scholars' findings (e.g., the Technology Acceptance Model and effectual reasoning) within the context of Human-machine interfaces (HMIs). This creates a future roadmap for researchers who will explore other dimensions of this relationship and improve on our knowledge of the changing interactions.

# **11.4 Concluding Remarks**

This research reveals that merging Humanmachine Interfaces into an industrial change does not refer only to technology but to a vast entrepreneurial arena. As we navigate the complexities of an ever-evolving technological terrain, the lessons gleaned from this study underscore the imperative of human-centered approaches, adaptive strategies, and collaborative endeavors. As entrepreneurs embark on ventures harnessing the transformative potential of HMIs, policymakers shape the landscape for responsible

innovation, and scholars delve deeper into the intricate dynamics, we stand at the threshold of a new era in industrial innovation. The insights garnered from this study serve as a beacon, guiding stakeholders toward a future where the seamless integration of technology and entrepreneurship propels us into realms of unprecedented possibilities and positive societal impact.

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### Management Strategies for Building a Security Culture: Workforce Training and Awareness in Smart Manufacturing

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### Abstract

A study on smart manufacturing management for cyber security is presented herein to fill the research gap regarding complexities in cybersecurity of smart manufacturing systems. This paper seeks to investigate components of security culture, examine implications from organizational structure, and suggest useful *methods for workforce training and safety* awareness programs. The research highlights an area in the literature that is underserved on how these types of models are actually used to design SMTP curriculum. The research shows that effective security practice includes security leadership, incorporating security in job roles, and involvement across work areas. Security culture is largely shaped by organizational structure among others where flatness allows more flexibility within its hierarchy. As it has been established, the gap exists only on paper since adapting the Social Learning theory can be *efficient while implementing the training* programs. Given these challenges, it emphasizes the importance of contextually tailored communication and multi-channels approaches in awareness programs. These recommendations can have approaches aimed at creating a positive

commitment within leaders, integrating job roles, and improving collaborative efforts across functions. Tailored social learning programs, constant learning directions, and gamification aspects constitutes workforce training amendments. Contextualized communication, multi-channel approaches, and feedback mechanisms are suggested for effective awareness campaigns. The results provide real-world implications for organizations seeking to enhance their resilience within a highly volatile environment characterizing the domain of Smart Manufacturing.

**Keywords:** Security Culture, Smart Manufacturing, Social Learning Theory, Workforce Training, Awareness Campaigns.

### **1.0 Introduction**

In the present day and age of rapid technological progress, the environment of manufacturing has changed completely. Smart manufacturing, whereby it was born through interconnecting technologies and data driven processes for efficiency and innovations sake. Nonetheless, such an evolution has faced some challenges, and top of the list is the need to safeguard the complex

systems. The study is about creating a security culture within that of smart manufacturing which includes training and awareness within the organization's workforce.

### 1.1 Background

A new era is on the horizon called smart Manufacturing, which is considered to be the fourth industrial revolution. The complex webs of integration with AI and automated devices increasingly expose their inter-connection system to cyber criminals. From manual labor to mechanical systems in the historic pathway of the manufacturing process is the history that precedes a digitized one in the modern world. Consequently, there is a necessity of protecting the digital system used in current production activities. Indeed, there has been an upsurge in cases of cyber-attacks aimed at manufacturing facilities worldwide thus emphasizing on need for improved security protocols. The intrusion into intelligent industrial establishments entails economic losses and threats to the national safety. In the manufacturing process, the stakes are even bigger with one of the world's greatest risks being the cyber security according to the World Economic Forum.

### **1.2 Significance of the Study**

This study addresses the vital importance of developing a security culture among the employees of Smart Manufacturing. The first line of defence or the critical weakness in the modern security chain is the most exposed part as organizations become digitalized. Smart manufacturing depends on understanding how cyber security threats can be managed through training and awareness pertaining to work force.

### **1.3 Scope and Limitations**

The scope of this study is restricted to Smart Manufacturing and explores the ways to develop a security culture. Although there are many areas in the cyber security space, such an approach helps one explore particular issues and options associated with the intersection between technology and manufacturing. Nonetheless, it's important to note the boundaries of this study. The study might not have covered every aspect of cybersecurity or considered a number of specific circumstances that need to be taken into account in different businesses.

### **1.4 Research Questions**

To guide the inquiry, the following research questions will be addressed:1. What is the role of workforce training in creating a security culture in Smart Manufacturing?2. How can awareness programs help enhance cybersecurity in the manufacturing industry?

### **1.5 Research Objectives**

The objectives of this study are twofold: 1. On evaluating the role of workforce training in developing a security culture.

2. Evaluate the impact of cyber security enhancement in a smart manufacturing environment due to the awareness campaigns.

### 1.6 Definition of Key Terms

For clarity and precision, the following key terms are defined:

Smart Manufacturing: Leveraging modern technologies to enhance manufacturing operations-from IoT, AI and automated processes. Security Culture: Cyber security culture is defined as the collective awareness, attitudes, and behaviors of individuals within an organization toward cyber security.

# 2.0 Statement of the Problem

### 2.1 Overview of Smart Manufacturing

Smart manufacturing or intelligent manufacturing is another main characteristic of modern production, which involves the application of cutting-edge IT-technologies and utilization of data-driven mechanisms. This new strategy is unprecedented in terms of efficiency and innovation, but it entails rather complicated web security barriers. However, Smart Manufacturing does not offer complete safety since it provides high degrees of interconnection among devices and systems; hence, the safety gaps should be analyzed by conducting a full security audit of the existing safety measures.

### **2.2 Security Concerns in Smart Manufacturing** New era of smart manufacturing has created

numerous security problems, far exceeding typical manufacturing risks profile. Such system is now digitized and interconnected to the production systems thus; there are a lot of cyber threats that pose a risk for them. Among other risks is an unauthorized connection, compromised information, and adjustment of sensitive machine processes. Unique security challenges in Smart Manufacturing must be understood along with management solution for the same.

### 2.3 Lack of Security Culture

However, the biggest challenge is that the foundation of Smart Manufacturing systems on the part of security culture development plays fewer roles than required. The human factor is the most important piece when it comes to cybersecurity, even though most organizations concentrate on technological issues at the expense of ignoring the most valuable part. Slips which lead to a vulnerability on the part of the organization due to an invisible security culture affecting operations among employees.

# 2.4 Implications of Inadequate Security Culture

In the case of Smart Manufacturing, Ineffective security culture leaves a number of consequences that are of public, social and private nature. However, if cyber security was not provided in proper training for the employees, they could unknowingly perform activities that would make their company vulnerable to a breached digital environment. Such ignorance coupled with the lack of conscience could lead to more chances of being successful during the attack. This is beyond the mere loss in revenue in the economic sector that encompasses damage of reputation, stealing of intellectual properties and in some cases threatens public health with respect to these key sectors of the economy. Essentially, through Smart Manufacturing advancement in comparison to insufficient workplace security culture development the problem is critical in nature and requires a complex solution. Management tactics for worker training and awareness toward Smart Manufacturing's landscape-based security threats are addressed in this study as an approach to solve this problem.

### 3.0 Objectives of the Study

### **3.1 General Objective**

In essence, this study aims to provide appropriate governance measures that ensure safety aspects while training employees for smart manufacturing.

### **3.2 Specific Objectives**

To achieve the general objective, the study will pursue the following specific objectives: 1. Evaluate the Effectiveness of Workforce Training: The existing workforce training programs in Smart Manufacturing. Examine the extent to which these training schemes are able to overcome cybersecurity problems. Highlighting areas that need improvements in existing training methods.

2. Assess the Impact of Awareness Programs: Examine the extent of awareness campaigns in Smart production companies. Assess the level of knowledge on threats and appropriate measures when dealing with cyber issues. To identify gaps and suggest improvements on awareness programs.

3. Examine the Relationship Between Workforce Training and Security Culture: Assess the impact of workforce training on building security consciousness. Evaluate the relationship between training knowledge and security operational practices in the organization. What are major obstacles of training integration in routine everyday operations?

4. Evaluate the Role of Awareness Programs in Security Culture Formation: Evaluate how awareness programs can change the workforce's attitude and action towards cybersecurity. Determine the long-term effect of the awareness program on whole the Smart Manufacturing's security culture. Discuss some issues which make it easy or difficult for a program on awareness to be implemented successfully.

5. Provide Recommendations for Strengthening Security Culture in Smart Manufacturing: Summarize their findings, create recommendations that would be practical for them to implement in order to improve security culture. Identify methods to optimise current workforce training programmes, as well as improve performance of awareness projects. Discuss how these recommendations can be implemented within the overall company structure. By addressing these specific objectives, the study aims to contribute valuable insights and practical recommendations to the ongoing discourse on cybersecurity in Smart Manufacturing, particularly in the context of workforce training and awareness.

### 4.0 Literature Review

### 4.1 Evolution of Smart Manufacturing

Research literature about Smart Manufacturing has widely explored this subject. For example, scholars such as Alippi, C., & Ozawa, S. (2024) highlighted that manufacturing incorporates IoT, artificial intelligence and cyber physical systems. These are called Industry 4.0, where traditional manufacturing gave way for smart and integrated systems. In addition to this, Kusiak, A. (2023), pointed out that intelligent manufacture increases productivity, quality, and flexibility. Security against smart manufacturing is discussed further, building on the basic meaning provided at this stage.

### 4.2 Security Challenges in Smart Manufacturing

It is a sign that the Smart Manufacturing environment will be plagued by heightened safety and security concerns. Wasumwa, S.A., "Smart Systems and Vulnerabilities", asserted that smart systems have interconnectivity making them vulnerable for malicious attacks. An example of such threats is ransomware attack that can endanger manufacturing facility and is provided by Mullet, V., Sondi , P., and Ramat, E. 2021). In addition, Tousni, and H. Rais, 2008) stresses that cyber attacks are becoming more advanced in targeting manufacturing processes that demand an all-inclusive security strategy.

# **4.3 The Role of Workforce Training in Security Culture**

Many studies emphasize on the importance of workforce training to harden the security posture of an organization. Chowdhury, N., and Gkioulos, V. (2021). Well trained employees serve as a critical line of defence against cyber threats". As indicated in the work of Herath, T., &Rao, H. R (2009), it is evident that customized training improves their skills on how they can spot security weaknesses and vulnerabilities. Kayode-Ajala, O., 2023 further pointed out need for continuous training in order to stay ahead of the dynamic and changing nature of cyber threats.

# **4.4 Importance of Awareness in Security Culture**

Security culture has widely been discussed in literature with awareness being a key component. According to Sasan, kit Kilag and J. M., awareness programs instill a higher level of responsibility in employees. Awareness decreases the chances of the occurrence of security events and cultivates the culture of alertness according to studies done by Nwankpa, J. K., Datta, P. M. (2023). Additionally, Badi, S., and Nasaj (2023) emphasize the importance of awareness in developing a security-conscious organizational culture that goes beyond ordinary training and impacts employee conduct.

# **4.5 Previous Studies on Security Culture in Manufacturing**

Security culture in manufacturing studies have been carried out by several scholars.B In this study, Tejay, G. P., and Mohammed, Z. A. examined the organizational antecedents of the adoption of security practices. Furthermore, the research piece by Merhi, M. I. (2023) focused on some cultural issues associated with the adaptation of safety tools within manufacturing companies. Such studies are important in understanding cultural aspects inherent in organizational security.

### **4.6 Theoretical Foundations**

Security culture in Smart Manufacturing is explained on the basis of some theoretical frameworks. Scholars like Dube, D. P., & Mohanty, R. P. (2023) have applied Social Learning Theory of Bandura, A. (1977), in cybersecurity. The theory asserts that people can learn by watching others; hence when used to train employees they model safe practices to promote safety cultural among their colleagues. The TAM (Davis, F. D., 1989) has also been employed by Hsu, C. L., & Lin, J. C. C. (2018). The study synthesis these literature strands and
contributes to the already existing knowledge on the basis that it proposes management approaches rooted in the comprehension of Smart Manufacturing, its vulnerabilities and theoretical foundations of the security culture within work environment.

#### 5.0 Conceptual Framework

#### **5.1 Defining a Security Culture**

This study is centered on a conceptual framework that starts with an elaborate description of a security culture. Security culture in an organization is defined by Khripunov, I. (2017) as common values, mindsets, and conducts associated with organizational securities. In line with the work of Khattal, A. (2023), cultures entails unwritten rules that people must follow when interacting within a particular environment. A security culture in this case entails an acceptance and adherence to cybersecurity practices to secure the digital infrastructure.

### **5.2** Components of Security Culture in Smart Manufacturing

Literature pinpoints the fundamental elements forming security culture in the realm of Smart Manufacturing context. Studies by Al-Kumaim, N. H., & Alshamsi, S. K. (2023) and Zaniewski, M. (2023) stress that cybersafety relies on a corporate leader. Leaders, who emphasize on security and demonstrate secure behaviors, reinforce a culture of security. In addition, there is employee engagement that as articulated by Nyarko, D. A., & Fong, R. C. W. (2023) contribute towards enhancing of security culture. This involves instilling a culture whereby employees consider themselves obligated to protect their respective employer's digital property.

# **5.3 Relationship between Workforce Training and Security Culture**

A security culture can be defined as dependent on its correlation with workforce training hence the basis of the conceptual framework. According to Wasike, B. (2023), behavioral change usually derives learning and changing of attitudes. According to Kasowaki, L., & Burak, A. (2023), training programs act like a driving force that helps people to realize the need to develop relevant knowledge and skills towards cybersecurity requirements in this century. This supports the finding by Yoon, Y. (2023) showing that workers are more capable of exemplifying the security culture when they are properly trained.

#### 5.4 Role of Awareness Programs

It is one of several factors that may help in developing security-conscious environment in SMOs. According to Saeed, S. (2023), employees' perception of cybersecurity risk has been informed by awareness campaigns which in turn induce secure practices among the workers. Ohara, M. R. says that sharing pertinent information on threatening measures and good practices can be done through communication. According to Serenko, A., (2023), successful awareness programs do not merely deliver information but involve all employees in working towards improved security.

#### **5.5 Integrating Technology in Security Culture**

Literature also explores how one can integrate technology into the security culture framework. According to Malmio, I. (2023), technology can be a mechanism for enabling security measures . Examples include adapting for example enhanced authentication techniques and intrusion detection systems into the overall security posture. As Kok, S. L., and Siripipattakanul, S. (2023) point out, successful adoption of technology necessitates cultural shifts within an organisation. It also means that any technological solutions must be aligned to the security culture's espoused values and behaviors, if they are indeed to be effective. Overall, the developed conceptual framework from the literature highlights the multidimensional view of security culture in Smart Manufacturing. The article brings a variety of perspectives into definitions, outlines the basic building blocks, examines the connection between employee training and security culture, stresses awareness campaigns, and deals with a technology-driven approach within these frameworks. As such, this conceptual framework provides a basis for an empirical investigation that links theoretical considerations to the practice of smart manufacturing cybersecurity.

#### **6.0 Theoretical Framework**

#### 6.1 Social Learning Theory

#### 6.1.1 Explanation of Social Learning Theory

The Social Learning theory proposed by Bandura (1977) claims that people learn by modelling other people's behaviours. According to this theory, social factors like peer pressure, role-modeling and positive feedback on behaviour are key influences. Studies developed by Bandura suggest that people learn new cognition and behavior through observation of other' actions and consequences Kim, S. H., & Mokhtarian, P. L. (2023). Cybersecurity and especially social learning theory point out that people's perception of a secure operation is shaped by their social environment. In this regard, Bandura believes that an individual can learn even through observations or indirect experiences, which involve observing those people whose actions lead to results. It serves as a basis for developing training programs that use social impacts to increase information security mindfulness and conduct.

### 6.1.2 Application to Workforce Training in Smart Manufacturing

With regard to Smart Manufacture's workforce training, literature proposes that the training schemes must be concurrent with the principles underlining social learning theory, which includes observational learning. According to Saeed, S. (2023), modeling of security behaviors during training can lead to positive perception and practice among the employees. Bjønnes, S.C., (2023) observed that using realistic scenarios and simulations helps employees see and learn from events simulating possible cyber threat attacks. Additionally, organizations may create a tradition of mentoring and fellowship in which senior staff members would be expected to educate their colleagues on what they have learned and done all these years. This is consistent with the social reinforcement component of Social Learning Theory, which involves the reinforcement due to socia interaction that contributes to the adoption of safe practices Chen et al. 2023. These aspects make workforce training an interactive endeavor that is consistent with the tenets of Social Learning Theory.

#### **6.2 Relevant Examples**

6.2.1 Case Study 1: Successful Implementation of Social Learning Theory in Security Training For instance, Social Learning Theory was used effectively in the security training for XYZ Manufacturing Winesburgh (A. H., 2023). Thus, the company realized that it needed to change its culture to be more aware of cyber threats and initiated a training programme based upon Social Learning Theory. There were role model-based sessions meant to expose cybersecurity experts who showcased secure practices and created a culture of imitation among other employees. Other means of enhancing observational learning including interactive workshops and real life scenarios/simulations gave the employees a chance to watch for security threatening instances that could happen at workplace thus gaining experience. These positive outcomes included enhanced security measures, fewer reported cases of intrusions into organizational systems, and greater staff acceptance of cybersecurity activities at the company.

# **6.2.2** Case Study 2: Challenges and Solutions in Integrating Social Learning Theory

However, difficulties may be encountered in adopting Social Learning Theory as part of workforce training. Burton, S.L., presented a case study concerning reluctance to embrace change in a firm that engaged in a cybersecurity culture makeover. It was observed that employees did not readily adopt new practices during training sessions even when modeled behaviors. The resistence was explained as caused by a weak communication and perception that it does not fit with the prevailing organizational values. Case in point is the need for aligning the training program with the existing socio-organisational matrix, dealing with resistance through proper communication and matching the observed behaviours for them to resonate with personal perceptions and experiences of employees. In summation, there is tremendous value associated with employing social learning theory as a conceptual framework when considering its role in developing smart manufacturing's security culture and also its linkage to workforce training.

The observation, modelling, social incentivereinforcement as the building blocks of cybersecurity behaviours. An illustration of Social Learning Theory application is given with regards to successful integrations of the theory into security training programmes as well as difficulties in doing so.

#### 7.0 Empirical Study

#### 7.1 Methodology

#### 7.1.1 Research Design

This study adopted a qualitative research design as its nature guided the choice. Halaweh, M. (2023) provided a description of how Grounded Theory can be used to allow for the development of ideas and topics from the data. Such an approach was selected for its ability to depict the intricacies and subtleties involved in cultivating a security culture in Smart-Manufacturing, resulting in a deep comprehension of the case under study.

#### 7.1.2 Data Collection

The study involved semi-structured interviews with the following stakeholders; cyber security experts, human resource personnel, and employees of smart manufacturing institutions. The use of the purposive sampling approach enhanced the enrolment of personnel who possessed distinct views towards security culture, training, and awareness programs. Recurring patterns of responses in interviews were identified through transcription and analysis. Moreover, analysis of documents, such as organizational policies, training manuals, and sensitization campaigns, was also done to complement the interview findings. The multi-methods approach was applied with the goal to ensure credibility and consistency of the research results Tjandra, N. C., & Feri, A. (2024).

#### 7.1.3 Data Analysis

Data analysis was conducted using the grounded theory coding procedure as per Laari, L., & Duma, S. E., 2023. Through iterative open coding, axial coding, and selective coding the researchers identified some concepts, relationships, and finally core categories. The constant comparison method helped in categorizing coded units as well as formation of themes. The objective of the analysis was to identify trends linked with the conceptual development of approaches for cultivating a security culture.

#### 7.2 Extensive Review of Related Studies

# 7.2.1 Comparative Analysis of Security Culture in Smart Manufacturing

Related studies were reviewed comprehensively, which gave important views on the prevailing situation for Smart Manufacturing security culture. In 2023, Bandary, V., did a comparison of security cultures between different manufacturing industries having some similarities and differences. This was a study that emphasized the role played by organizational size, structures, and leadership styles in cultivating and sustaining the development of a security culture. Taking this comparative approach highlighted how context influences security cultures -the foundation of the theoretical focus of this investigation.' The research work of Smith and Chang (2019) also further assisted in the comprehension of how cultural diversity within multinational manufacturing firms impacts on acceptance of security practices. The study examined how culture mediates employees' attitude and behavior toward cyber security. This comparison established an avenue for discussing issues related culturally and securely among manufacturing organizations.

# 7.2.2 Workforce Training Models in the Manufacturing Sector

A thorough examination of current training model in the manufacturing industry enhanced the notion on efficient training approaches. Allenbacher, J., & Berg, N. (2023), conducted a study of how effective are immersive and hands on trainings. The research indicated that hands-on and situation-oriented training sessions are effective in developing the workers' cybersecurity abilities. Continuous training and integration of real time feedback mechanisms to sustain security aware workforce; an explorative study by Hasan, M.T. (2023). A detailed analysis of existing studies showed various methods used by the manufactures employees trained on cyber security. The integration of these outcomes provided grounds upon which empirical investigation into the successful practices as well as gaps in establishing a security culture through workforce training within the ambit of smart manufacturing.

#### 8.0 Research Gap

#### 8.1 Identified Gaps in Current Literature

A review of existing literature showed that there were many important gaps which needed to be addressed by the present research. One major finding in this study was the lack of studies on how smart manufacturing is related to security culture. Despite being recognized as a reality, there are limited research works exploring the actual elements that make up a security culture within a Smart Manufacturing scenario. The security culture that will emerge in this fastchanging smart manufacturing context needs to be better understood by scholars such as Yang, K. (2024). Nevertheless, a prominent difference surfaced in relation to incorporating theoretical concepts like Social Learning Theory into real operations training approach of Smart Manufacturing. The application of Bandura's social learning theory in many areas has been reported, including in Workforce training for Smart Manufacturing where it is little explored yet. In addition, Thomas Alvin Doe wrote, as highlighted by these findings, the need for matching theory into practice in order to create a safe and prepared work environment. Furthermore, literature indicated the lack of comprehensive studies which compare security culture among various manufacturing sectors. As pointed out by Glasauer, C. (2023), the comparative assessment dealt with this, however, further studies should examine the impact of organizations factors on safety culture. Scholars such as W. Albayaydh and others indicated that in-depth study into the cultural traits impacting Smart Manufacturing will be pivotal.

#### 8.2 The Need for Further Research

These identified gaps within current literature highlights critical areas to be explored in future research. To begin with, there must be greater explorations on what constitute security culture unique or inherent within SM. For example, one could investigate how technological progresses, organizational models, and managerial style contribute to shaping the safety climate in these settings. Scholars such as Kumar, P., and Aziz, S. (2023) acknowledge the importance of considering specificities of security culture within Smart Manufacturing. Additionally, the use of the same for developing practical workforce training strategies requires more deliberations. The application of Social Learning Theory in Smart Manufacturing holds much potential for success; however, to improve practice it is necessary that we better understand how such a theory can be transformed into practical training techniques. Therefore, further empirical studies should be conducted to ensure that the theories that support workforce training towards improving security culture are valid. Finally, wide-ranging comparative studies encompassing the entire fabrication industry remain unimplemented. Such research should focus on cultural underpinnings determining security practice variations within separate Smart Manufacturing entities. Crosssectoral research is required to explain how cultural diversity within organisations can affect adoption of physical security measures. Summing up, these observed gaps justify the reasons why the research is made into smart manufacturing and its effects on the security culture. Several scholars have underscored the need for fine-grained examinations, the use of theoretical frameworks in practice, and extended comparisons; this underlies the present investigation.

#### 9.0 Findings

#### 9.1 Summary of Empirical Results

This empirical research highlighted the condition of culture of security in Smart Manufacture, offering the explanation on the circumstances that determine training of workforce and their consciousness. The key findings can be summarized as follows:

1. Diverse Components of Security Culture: Security culture in Smart Manufacturing was found to be quite complex being a combination of the managerial approaches within a company, employees participation, and cybersecurity as an integral part of operational activities. Their study is consistent with these conclusions and supports the idea that when defining security culture it is important to take into account various aspects. 2. Influence of Organizational Structure: The organizational structure was recognized as another major determinant of security culture. The companies with the low-level hierarchy were more responsive as compared to their counterparts and as the result, they developed more flexible and robust culture of information protection. This is similar to what Aseeri, M, & Kang, K. (2023) observed concerning the effect of organization's size and structure on security culture in the manufacturing industry.

3. Effectiveness of Social Learning in Training: The utilization of Social Learning Theory in work force training turned out successful. Simulated and modeling sessions helped improve employee's knowledge on how to practice cyber security and also encouraged secure behavior among them. This complements Cavallari, M. (2023) and demonstrates the value of adopting social learning theory to shape security-conscious behaviors.

4. Challenges in Awareness Programs: Some of the challenges encountered include the issue of short-term involvement and perceived disconnect between what employees do and what they are expected to do. First, the results validate Boaz, A., & Nutley's finding highlighting the need to address practical challenges in awareness campaigns.

# **9.2 Insights into the Current State of Security Culture in Smart Manufacturing**

This section reviews the empirical findings that presently summarize the security situation across different aspects of Smart Industry. Smart manufacturing requires culture for security which must involve flexibility, cooperation and embeddedness in the organization. Exploration of various elements of security culture explains why comprehensive consideration is warranted involving technology and man as separate entities. Organizational structure and its impact on security culture indicates significant role of organisational design to promote security consciousness. With flatter structures there is faster decision making and communication which enable organizations react fast to developing cyber threats. With these, Social Learning Theory can be incorporated in

workforce programs with proven success indicating how much effect on developing a security climate the tailored approach. The missing area about translating theory onto practice in Smart Manufacturing personnel's training is addressed by simulating and role-playing sessions. Awareness programs face challenges that further emphasize the need to consistently modify and tailor them according to the specific requirements of Smart Manufacturing. The idea points on the change in security culture and the need for updated approaches to sustain continuous connection and competence. Essentially, the empirical evidence also confirms the existing knowledge about the security aspect which is specific to the Smart manufacturers. This gives an in-depth insight into what affects the security culture and, therefore, offers grounds for devising effective management policies in relation to the issue. Indeed, this research contributes towards bridging the existing lacuna in the literature on the subject under consideration.

#### **10.0 Recommendations**

#### **10.1 Practical Strategies for Implementing** Security Culture

Using the empirical evidence presented above, the article formulated practical means of strengthening security culture in Smart Manufacturing companies. These recommendations address the identified gaps in the literature and offer actionable steps for organizations aiming to strengthen their security posture:

1. Leadership Commitment: Leadership must start to instill a culture that values cybersecurity in the organizations. It is important to have leadership commitment for establishing a tone about security measures as well as expectations toward security practices. The findings in Burton, S. L. (2023) affirm this approach towards cybersecurity as well as encourage a collaborative culture among employees.

2. Incorporating Security into Job Roles: To make this happen, it is advisable that companies integrate their employees' security responsibilities in their jobs so as to ensure they see a link between their day-to-day tasks and cyber practices. Thus, this method is in line with an

acknowledged gap on the inclusion of the security practices within the standard processes of smart manufacturing. It is easier for employees to accept security procedures when their work activities are tied and related to them directly.

3. Cross-Functional Collaboration: Since Smart Manufacturing is a dynamic process, collaboration between various departments is paramount. Creating cross-functional cybersecurity groups helps in dissemination of information and adoption of broad perspective on matters related with security. This conforms with the conclusion of Butler, K. J., and Brown, I.(2023) that organizational structure affects security culture.

#### **10.2 Enhancing Workforce Training Programs**

The study recommends enhancements to workforce training programs, aiming to bridge the gap between theoretical frameworks and practical applications in the context of Smart Manufacturing:

1. Tailored Social Learning Programs: The training should be designed using Social Learning theory and it should include simulation, modelling session and interactive learning experiences. This resonates with studies which proved Social Learning Theory and fostering secure behavioral norms. The practice of tailored training that simulates actual scenarios makes it easy to apply theoretical frameworks in practice.

2. Continuous Learning Pathways: With the dynamic nature of digital risks, organizations should practice ongoing learning tracks. Updates on the training content, adaptive learning modules and real time feedback for updating employees with the recent happenings in cyber security. As proposed by Anderson and Williams, T.A., & Fathallah (2024), this is consistent with continuous training in the manufacturing industry. 3. Integration of Gamification Elements: Badges, challenges and rewards are examples of gamification elements that can be incorporated into training programs in order to boost participation. The approach addresses the challenges posed by the awareness programs using competition and awards concept. This is in line with what Fuchs, K. (2023) says about sustaining involvement within awareness campaigns.

### **10.3 Developing Effective Awareness Campaigns**

To address the challenges identified in awareness campaigns, the study proposes strategies for developing more effective and engaging campaigns:

1. Contextualized Communication: The awareness campaigns associated with Smart manufacturing should be customized to a given employee's role and job description. Making communication relevant and engaging calls for tailoring it towards the daily activities of the staff. It agrees with the research deficiency, focusing on the employee's apparent incongruence with their daily activities. 2. Multi-Channel Communication: Using different communications channels like visual tools, workshops and digital media ensure that the Awareness messages reach employee via many avenues. It deals with the problem of continuous involvement, taking into account the fact that different individuals prefer to receive information in diverse ways. According to Chaudhary, B., and Gupta, K., (2023), multi-channel communication proves effective.

3. Feedback Mechanisms: Feedback mechanisms need also to be established in order for the employees to express their views of whether or not awareness campaigns are working. Frequent surveys, focus groups, and open forums form an integral part of a continuous feedback flow that enables organizations to redefine and tailor their awareness efforts in response to employee understandings about the organization. Following recommendations by Rane, N. (2023), this approach is an example of how real-time feedback can be integrated within the training program. Thus, at the end of it all, these recommendations have been specifically formulated to fill the identified gaps on the existing studies as well as empirical findings of this research. The contribution is aimed at facilitating the practicality of the implemented strategies within this research regarding smart manufacturing by making them suitable for different scenarios and situations.

#### **11.0 Conclusion**

#### **11.1 Recap of Key Findings**

This study was concluded by assessing the existing security culture, human resource

development and awareness initiatives. The empirical findings shed light on vital elements that support a sound security culture in the everchanging environs of Smart Manufacturing. From this perspective, security culture embodies several elements including management commitment, staff participation, and the implementation of cyber security in everyday operations. Organization structure and its impact on Security Culture showed that organization's structure has significance for creating security-minded climate. Practical information on the feasibility of matching theory with day-to-day practices was provided by the Effectiveness of Social Learning Theory in Training Program. Some challenges surrounding awareness campaigns underscored that it should be revised in accordance with the specific requirements of Smart Manufacturing. Together, these results offer a sophisticated view of what constitutes security culture and help an organization in building its cyber safety stance.

#### **11.2 Implications for Smart Manufacturing**

However, this research has wide applicability going beyond theory consideration but also providing useful insights into practice with some concrete guidelines for Smart Manufacturing organizations. In that respect, suggested approaches to Security Culture enhancement, improving Workforce Training, and creating successful Awareness Programmes with regard to Smart Manufacturing. Smart Manufacturing leadership teams should utilize their findings to formulate a security environment which is flexible, participatory, and embedded into the organisational culture. Organizations can mitigate the complex challenges of being in a highly digitized environment by integrating security into job roles, teaming up across functions, and customizing social learning systems. The effects also reach the workforce that is provided with new improved training tools that are offered as continuous paths of learnning including game based methods and application of the theory in their daily practice. Therefore, through these initiatives, employees are enabled to actively participate in developing and promoting security culture which is in tune with dynamic cyber threats. In short, implications of such changes in Smart Manufacturing organization are

revolutionary. These are guidelines to grow a digital-age and future-oriented security culture.

#### **11.3 Suggestions for Future Research**

Although this study has gone a long way to fill evident gaps, there exists plenty of room for possible future work. Scholars and practitioners are encouraged to delve deeper into several areas to further enrich the understanding of security culture in Smart Manufacturing:

1. Exploration of Cultural Nuances: Further study could examine multicultural elements influencing protection procedures inside international smart manufacturing businesses. The comparative study of different organizations' security culture provides an understanding for intersecting culture and cybersecurity.

2. Longitudinal Studies: The longitudinal studies on changes in Smart organization's security cultures, over time will enable a dynamic perspective. Such an approach might be able to depict flexible security cultures based on new technology and dynamic organizational settings. 3. Quantitative Assessments: This paper took a qualitative approach; however, it may be worthwhile to conduct some quantitative analysis to determine if specific actions really affected the key operating data of the organization. It will also add credibility when it comes to evaluating the effectiveness of the security culture initiatives. 4. Influence of Regulatory Changes: However, future research may look into how changes in regulatory regimes affect the design and establishment of security cultures for Smart Manufacturing. This would give an understanding of the compliance issues which companies have to deal with.

Finally, this study is a milestone on the path towards improving the concept of security culture in Smart Manufacturing. Future research suggestions are proposed herein with the objective of igniting further studies and discoveries to ensure cyber security is dynamic as smart manufacturing adapts to changing demands. With time, as the digital landscape keeps developing, we should continuously develop our resilient, proactive security culture in sync with the Smart Manufacturing.

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#### Commerce and Management Strategies for a Transformative Future (EDH 2024)

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#### Abstract

Urban transportation systems are essential for connecting residents, businesses, and services inside cities. Congestion, old infrastructure, environmental sustainability, safety, and *inefficiency issues are hampering their* effectiveness, nevertheless. By investigating the use of advanced management principles inside Intelligent Transportation Systems (ITS) in the context of urban environments, this qualitative research aims to address these problems. This study intends to thoroughly investigate how the application of advanced management principles can improve efficiency, optimize urban transportation systems, and address the critical issues in managing urban transportation. Urban mobility must be improved immediately as a result of the numerous problems that urban transportation systems confront, such as traffic jams, environmental sustainability, safety issues, inefficiency, and aging infrastructure. This study uses a qualitative research methodology to examine how advanced management ideas might be incorporated into ITS. It also conducts a thorough evaluation of comparable papers. A qualitative study is required to address the gap in the literature that is shown by the incomplete exploration of advanced management principles inside ITS in urban transportation situations. The results of the study demonstrate how crucially important strategy management,

operational management, and human resource management are to increasing transportation effectiveness. It also underlines the significance of cybersecurity and data privacy safeguards. According to the study, ITS policies should be approached holistically, advanced management capabilities should be developed, and continual training and skill development for a skilled workforce should be prioritized. Additionally, it emphasizes the necessity of strong cybersecurity and data privacy controls in the transportation sector. The incorporation of advanced management ideas into ITS is revealed as a game-changing method for improving urban transportation systems, resolving major issues, and increasing sustainability. For politicians, transportation authorities, and urban planners looking to develop more effective, sustainable, and adaptive transportation networks for contemporary cities, this study offers useful insights.

**Keywords:** Urban Transportation, Intelligent Transportation Systems (ITS), Advanced Management, Efficiency, Sustainability, Data Privacy, Cybersecurity.

#### **1.0 Introduction**

The implementation of Intelligent Transportation Systems (ITS) has become a revolutionary force in the constantly changing world of urban transportation. These cuttingedge devices have the potential to increase

mobility, ease traffic, and boost overall transportation effectiveness. But there are still difficulties in this technological transformation, especially in the area of management. In order to understand the complexity that underpin the optimization of urban mobility, this qualitative, conceptual study explores ITS while incorporating the fundamentals of good management. Urban communities all across the world are battling a confluence of transportation issues. Cities are in severe need of creative solutions to a variety of problems, including escalating traffic congestion that lowers economic output and environmental issues related to vehicle emissions. Intelligent Transportation Systems have given urban planners and policymakers a glimmer of hope. These systems integrate a wide range of technologies, such as real-time traffic management, vehicle-to-infrastructure connection, and data-driven decision-making, with the goal of radically altering how people and products move through cities. The understanding that while the technological underpinnings of ITS are solid, their effective deployment and management present complex issues is the origin of this research area. It is within this context that we delve deeper into the synergy between ITS and management principles.



ure 1. Intelligent Transportation Systems and th smart grid in a smart city.

Source: https://www.researchgate.net/figure/Intelligent-Transportation-Systems-and-the-smart-grid-in-a-smartcity\_fig8\_276288597

#### 1.1 Objectives of the Study

The primary objective of this study is to comprehensively explore the integration of management principles within the framework of Intelligent Transportation Systems. This overarching goal encompasses the following specific objectives:

1. To examine the role of strategic management in shaping the trajectory of ITS initiatives and optimizing their long-term impact.

2. To analyze how operational management principles can be applied to enhance the efficiency and performance of ITS components and applications.

3. To evaluate the significance of human resource management in nurturing a skilled workforce capable of innovating within the realm of urban transportation.

#### 1.2 Significance of the Study

The significance of this study lies in its potential to bridge the gap between the promising technological advancements in ITS and their effective, real-world implementation through sound management practices. By unraveling the complexities of ITS management, this research aims to provide actionable insights for urban planners, policymakers, and transportation practitioners. Ultimately, it aspires to contribute to the development of sustainable, efficient, and resilient urban transportation systems that address the pressing challenges of our time.

#### 1.3 Methodology

This study employs a multidisciplinary approach, drawing from literature in the fields of transportation, management, and technology. Data collection that involves an extensive review of scholarly articles, reports, case studies, and relevant literature is employed. The data were be analyzed qualitatively to synthesize insights into the integration of management principles within ITS. This approach enables us to explore the theoretical underpinnings and practical complexities of the subject matter, providing a holistic understanding of the intersection of ITS and management. This study shed light on the critical role that management plays in optimizing the potential of Intelligent Transportation Systems, ultimately contributing to the advancement of urban transportation in an era of rapid technological change.

### 2.0 Statement of the Problem

2.1 Overview of Transportation Systems

Urban environments' complex webs of infrastructure, vehicles, and technology that enable the movement of people and products are known as transportation systems. According to Pozoukidou, G., and Chatziyiannaki, Z. (2021), these networks are the lifeblood of cities. enabling citizens to access opportunities, services, and employment. They also play a crucial role in determining the standard of urban living. Urban transportation systems include a variety of modalities, such as roads, trains, public transportation, bicycles, and foot travel. They are dynamic and multifaceted, driven by things like increasing urbanization, population expansion, technological development, and environmental concerns. et al., Raihan (2023). Beyond physical infrastructure, transportation systems are studied in depth. Complex interactions between different transportation options, urban planning, policy creation, and management techniques are all part of it. Urban transportation is a key cause of environmental problems and a catalyst for economic growth Glover, L., & Low, N. (2020).

# **2.2** Current Challenges in Transportation Management

Urban transportation networks are extremely important, but they also confront a number of difficulties that limit their efficacy overall and their sustainability, efficiency, and sustainability:

**1. Congestion:** Travel times, fuel consumption, and air pollution are all affected by traffic congestion, which is a common problem in urban areas. It lowers citizens' quality of life and hinders economic output. (2017) Bharadwaj et al.

**2. Aging Infrastructure:** Aging infrastructure that needs maintenance and upgrading plagues many metropolitan transportation networks. System reliability is hampered by a backlog of maintenance tasks, limited capacity, and resource stress. Lee, H., and N. G. Leigh (2019).

**3. Environmental Impact:** Air pollution and greenhouse gas emissions are both significantly increased by transportation, creating serious environmental problems. This includes worries about urban air quality and climate change. In

2020, Wen et al.

**4. Safety:** Fatalities and traffic accidents are still a serious issue in urban transportation. A top concern continues to be ensuring the security of transportation infrastructure and users Culver, G. (2018).

**5. Inefficiency:** Time and resources are wasted by people and businesses as a result of inefficient transportation infrastructures. Efficiency problems include delays, poor services, and inadequate infrastructure utilisation. Lin, W. (2012). These challenges highlight the urgent need for

These challenges highlight the urgent need for creative answers that enhance urban transportation systems, making them more effective, sustainable, and responsive to the needs of metropolitan populations that are urbanizing quickly. To address these issues and develop urban transportation management, the study investigates the combination of advanced management principles with Intelligent Transportation Systems (ITS).

#### 2.3 Need for Optimization

The necessity for transportation system optimization is becoming more critical as urbanization quickens and cities keep growing. metropolitan transportation has a variety of difficulties, from traffic jams to environmental sustainability, and these problems have a significant impact on how well metropolitan inhabitants fare.

**1. Traffic Congestion:** Urban areas frequently experience traffic congestion, which causes commuters to spend time, use more fuel, and feel more stressed (Gössling et al., 2021). Congestion has significant negative effects on quality of life, productivity, and the economy. 2. Environmental Sustainability: The harm that transportation causes to the environment cannot be understated. Due to emissions, urban air quality frequently falls short of acceptable requirements, and greenhouse gas emissions from vehicles have a significant role in climate change Shahet.al (2021). Addressing sustainability concerns is not only an environmental imperative but also a public health and urban planning challenge. **3. Safety:** Ensuring the safety of transportation systems remains a critical concern. Traffic accidents and fatalities continue to exact a toll

on urban populations Peden, M. M. (Ed.). (2004). The challenge lies not only in preventing accidents but also in enhancing the resilience of transportation systems to unforeseen events.

**4. Inefficiency:** Inefficient transportation systems result in economic losses, inconvenience for residents, and suboptimal use of resources Trinko et.al (2023). Inefficiencies can manifest as delays, unreliable services, and a lack of integration among transportation modes.

**5. Aging Infrastructure:** Many urban transportation systems grapple with aging infrastructure that demands maintenance and modernization. The strain on infrastructure resources can lead to service disruptions, reliability issues, and increased costs Krykavskyy, Y., & Stasiuk, K. (2021). Amid these challenges, there is a pressing need to optimize urban transportation systems comprehensively. Optimization encompasses various dimensions, including efficiency gains, environmental sustainability, enhanced safety, and improved quality of life for urban residents.

#### **3.0 Literature Review**

**3.1 Intelligent Transportation Systems (ITS)** Intelligent Transportation Systems (ITS) have witnessed remarkable growth and transformation, reshaping urban mobility and transportation management. According to Saleem et.al (2022), ITS represents a multifaceted approach that integrates advanced technologies into transportation networks to optimize traffic flow, improve safety, reduce congestion, and enhance the overall efficiency of urban transportation systems. Scholars such as Ashfaq et.al (2022) highlight the pivotal role of ITS in addressing contemporary urban challenges, such as the exponential growth of vehicles and the resulting traffic congestion. The evolution of ITS can be traced through its historical development. According to Faiyetole, A. A., and Fulani (2020), ITS technologies have advanced from primitive systems for coordinating traffic signals to complex ones that include real-time data collecting, vehicle-tovehicle communication, and intelligent traffic management. The importance of these technologies in supplying travelers with realtime information, enabling informed decisionmaking, and improving mobility is stressed by researchers like Louis, J., & Dunston, P. S. (2018).



Figure 2. Intelligent transportation System Source: https://api.semanticscholar.org/CorpusID:11822516

**3.1.1 Components and Technologies** The various parts and technologies that

The various parts and technologies that make up ITS have had a crucial role in influencing contemporary urban transportation. Systems for traffic management are crucial among these elements. These systems use sophisticated algorithms and sensors to monitor traffic conditions, optimize signal timing, and lessen congestion, as Wang et al. (2018) emphasized. In order to keep transportation networks operating effectively, real-time traffic flow management is required. The operation of ITS relies heavily on sensor technologies. According to Guerrero-Ibáez et al. (2018), sensors include a variety of gadgets like cameras, radar systems, and inductive loop detectors. These sensors gather information on traffic volumes, vehicle speeds, and movements. Following processing, this data is utilized to update travelers' knowledge of traffic conditions in real-time and to modify the timing of traffic signals. Additionally, the introduction of cutting-edge technologies like connected and autonomous cars (CAVs) has the potential to transform ITS. Martin-Gasulla, M., & Elefteriadou, L. (2021) claim that the ability of CAVs to communicate with one another and traffic management systems will result in safer and more effective traffic flows. It is anticipated that their adoption

will have a significant impact on urban transportation.

Figure 3. Major components of Intelligent Transportation System

Source: https://doi.org/10.1007/s13177-014-0097-9

#### 3.1.2 Applications of ITS

A wide range of applications provided by intelligent transportation systems (ITS) have the potential to completely transform urban transportation. According to researchers, these applications address a variety of issues related to mobility, safety, and efficiency in urban settings. Real-time traffic management is a well-known ITS application. According to Kumar et. al (2021), ITS makes it possible for traffic signal coordination and adaptive signal control systems. These systems alter traffic signal timings in real-time using data from sensors and cameras to lessen congestion and improve traffic flow. The management of the steadily growing number of cars on urban streets depends on this application. Applications of ITS are extremely beneficial to public transportation systems as well. According to Saleem et al (2022), transit signal priority (TSP) systems use ITS to give buses priority at traffic signals, minimizing delays and enhancing the dependability of public transportation services. According to Ashfaq et al (2022), commuters can also make educated judgments regarding transit routes and schedules by integrating real-time transit information into mobile apps. Roadway safety is significantly improved with ITS. A subtype of ITS called advanced driving assistance systems (ADAS) uses lane departure warnings and collision avoidance systems to prevent accidents. Dunston, P. S.; Louis, J. (2018). Furthermore, as discussed by Dev et al. (2016), the use of vehicle-to-vehicle (V2V) and vehicle-toinfrastructure (V2I) communication allows for the transmission of information regarding a vehicle's position and speed, improving situational awareness and avoiding crashes.

#### **3.1.3 Challenges in ITS**

Although ITS holds out great potential, it is not without difficulties and complexity. Numerous significant obstacles to the introduction and operation of ITS in urban transportation systems have been recognized by academics. In the field

of ITS, cybersecurity is a major problem. ITS is vulnerable to cyberattacks due to the growing reliance on digital communication and data sharing, as stated by Sedjelmaci et al (2019). To avoid hostile intervention, it is crucial to ensure the security of data sent between vehicles, infrastructure, and traffic control systems. Another difficulty in the ITS field is interoperability concerns. According to Contreras-Castillo et al. (2017), consistent communication protocols are essential for enabling seamless connection between infrastructure and vehicles made by various manufacturers. The advantages of V2V and V2I communication may not be achieved without compatibility. Another major obstacle is data privacy issues. The collection of vast amounts of data from sensors and vehicles raises questions about the privacy of individuals' travel information. As noted by Singha, S., & Singha, R. (2023), addressing these concerns and establishing robust data protection measures is essential to gain public trust in ITS. ITS applications encompass a broad spectrum of functions, including traffic management, public transportation enhancements, and safety improvements. However, the implementation of ITS is not without challenges, with cybersecurity, interoperability, and data privacy emerging as critical issues that must be addressed to fully unlock the potential of ITS in urban transportation systems.



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#### **3.2 Management Principles in ITS**

The integration of management principles within the framework of Intelligent Transportation Systems (ITS) is a dynamic area of research and practice. Management, as applied to ITS, plays a crucial role in optimizing the efficiency and effectiveness of transportation systems.

#### 3.2.1 Strategic Management

Strategic management in the context of ITS is paramount for aligning long-term objectives with technology deployment. Scholars emphasize that a clear strategic vision is essential for the successful implementation of ITS initiatives. Strategic management, according to Abdel-Aty and Abdelwahab (2019), entails determining the roadmap for ITS initiatives as well as goals and key performance indicators. Additionally, it requires involving stakeholders and making sure that ITS strategies are in line with more general goals for urban mobility. The capacity to promote innovation is one of strategic management's main contributions to ITS. An successful strategic management framework, according to Garbey and Appio et al. (2021), promotes experimentation and the adoption of innovative technology. Transportation agencies can fully utilize ITS solutions, such as real-time traffic management and connected vehicles, thanks to this innovation-driven approach. Risk reduction is part of strategic management's duty. The significance of risk assessment and emergency planning within the context of strategic management is highlighted by Ashfaq et al. in 2022. An agile and adaptive strategic approach is necessary to successfully traverse uncertainties given the complexity of ITS projects, including cybersecurity threats and interoperability problems. The literature also stresses the importance of strategic management in addressing the scalability of ITS. The need for transportation services rises as metropolitan areas expand. Louis, J., & Dunston, P. S. (2018) emphasize the significance of integrating scalability considerations into strategic management to guarantee that ITS solutions can support future expansion while preserving sustainability and efficiency.

**3.2.2 Operations Management** ITS operations management is crucial to

maximizing the effectiveness of transportation networks. The importance of operations management in preserving the effectiveness of ITS components and applications is emphasized by Grover et al in their work from 2022. This includes tracking traffic conditions in real-time, analyzing data, and modifying traffic control tactics to ease congestion and improve traffic flow. Implementing data-driven decisionmaking procedures is one of operations management's main contributions to ITS. In order to make wise decisions. Saleem et al. (2022) emphasize the utilization of real-time data gathered from sensors, cameras, and other sources. Transportation authorities can react swiftly to events and changing traffic conditions thanks to this data-driven method. Predictive maintenance plans can be used in conjunction with operations management principles. As mentioned by Ashfaq et. al in 2022, proactive maintenance based on data analysis can lower maintenance costs and minimize system downtime. It makes sure that ITS parts like traffic signal systems and sensors function at their best. The material also highlights the part operations management plays in encouraging sustainability within ITS. Louis, J., & Dunston, P. S. (2018) talk about how to include ecofriendly methods and green mobility into operations management. Along with other environmental sustainability objectives, this entails supporting eco-friendly forms of transportation and optimizing routes to cut emissions.

#### **3.2.3 Human Resource Management**

A key component of ITS is human resource management (HRM), which focuses on training a workforce with the skills necessary to innovate in the transportation industry. Through the development of talent and the promotion of an innovative culture, HRM principles greatly contribute to the success of ITS efforts. Within ITS, recruitment and talent acquisition are crucial parts of HRM. The need for transportation agencies to hire people with a variety of talents, such as data analytics, software development, and systems engineering, is emphasized by Pistikopoulos et al. in their study from 2021. For ITS solutions to be implemented successfully, it is essential to hire

individuals with experience in emerging technologies. Within the HRM framework, training and skill development are crucial. Saleem et al. (2022) emphasize the value of continuing education programs to keep transportation professionals abreast of the most recent ITS developments. HRM makes sure that staff members are competent in using and maintaining ITS systems. HRM procedures promote creativity and innovation. According to Ashfaq et al. (2022), a solid HRM framework fosters an innovative culture that frees up transportation agencies to investigate novel ideas and methods. It fosters an atmosphere where ITS innovations can flourish by encouraging collaboration and knowledge sharing among staff. The principles of HRM also cover change management. Ostrom et al. (2015) emphasize HRM's role in assisting organizational change to adjust to the changing urban mobility context. HRM techniques assist transportation organizations in embracing technology improvements and adjusting to changes in the paradigms of transportation.

Therefore, ITS's strategic, operational, and human resource management are all essential elements that support its effectiveness, viability, and innovation. A key component of a successful ITS adoption is strategic management. In order to fully utilize the potential of ITS solutions in urban transportation systems, it offers the vision, creativity, risk reduction, and scalability necessary. Predictive maintenance, sustainability, and data-driven decision-making are all used in operations management. Within the context of ITS, human resource management places a strong emphasis on talent acquisition, skill development, innovation, and change management. These management principles work together to help transportation agencies and companies successfully handle the challenges of contemporary urban mobility.

#### 3.3 Case Studies

The analysis of case studies offers insightful knowledge into the practical application of Intelligent Transportation Systems (ITS) and the incorporation of management principles to handle particular transportation issues. These case studies serve as actual instances of ITS deployment done well.

# **3.3.1 Integrated Traffic Management in a Smart City**

The intriguing case study Integrated Traffic Management in a Smart City illustrates the comprehensive strategy for controlling traffic flows in a built-up area. The foundation of this case study is the thorough integration of ITS technology, real-time data, and management principles, as noted by Rajabion et al (2019). This case study's demonstration of the seamless integration of traffic signals and dynamic traffic control systems is one of its major achievements. In order to optimize signal timings based on real-time traffic data, Saleem et al. (2022) place a strong emphasis on integrated traffic management systems. This results in less traffic congestion, quicker travel times, and better traffic flow in general. Additionally, the case study emphasizes how crucial data analytics are to integrated traffic management. In order to understand traffic patterns and bottlenecks, Zohdy et al. (2020) outline how data gathered from various sensors, cameras, and connected vehicles is examined. Transportation authorities can make educated judgments and proactively control traffic conditions thanks to this data-driven strategy. This case study clearly demonstrates the need of strategic management, which requires establishing precise goals and coordinating traffic control tactics with the overarching aims of the smart city. Strategic planning, according to Zhou et al. (2015, August), ensures that the integrated traffic management system can continue to adapt to new developments and difficulties.



Figure 5. Integrated Traffic Management in a Smart City



Figure 4. Architecture of an Integrated Traffic Management System. Traffic Management Controller (TMC): The primary function of the controller is to oversee and regulate the entire system. It is responsible for coordinating the operations of other application modules and entities within the system.

#### **3.3.2 Enhancing Public Transportation** Efficiency

The intriguing case study Enhancing Public Transportation Efficiency using ITS highlights the potential for advanced management ideas to revolutionize public transportation operations. This case study, according to Wang, F. Y. (2010), focuses on maximizing the effectiveness of public transportation services utilizing ITS systems. The use of Transit Signal Priority (TSP) systems is one of the case study's major accomplishments. TSP systems use real-time data from buses and traffic lights to offer buses precedence at crossings, according to Abolfathi et al. (2022). As a result, transit service quality is improved overall and travel times are shortened along with increased schedule dependability. According to Brakewood, C., & Watkins, K. (2019), integrating real-time transit information into mobile apps is another important feature of this case study. In order to plan their travels wisely, commuters have access to real-time information regarding transport routes, schedules, and service interruptions. The overall transit experience is improved by this degree of openness and accessibility. This case study clearly demonstrates the importance of human resource management (HRM), as HRM procedures are crucial for developing a qualified staff that is able to operate and maintain ITS systems. The need of training programs to make sure that transit staff are knowledgeable in utilizing ITS technologies efficiently is emphasized by Maddikunta et al. in their study from 2022. Therefore, case studies on Integrated Traffic Management in a Smart City and Enhancing Public Transportation Efficiency through ITS provide tangible examples of how

advanced management principles and ITS applications can transform urban transportation. These case studies highlight the integration of real-time data, strategic management, and HRM practices to achieve efficiency, reliability, and sustainability in transportation systems.

#### 4.0 Research Gap

The identification of research gaps is a critical aspect of scholarly inquiry, and in the context of this study, it serves as the foundation for understanding where existing literature falls short in addressing the complexities of Intelligent Transportation Systems (ITS) and their integration with advanced management principles.

#### 4.1 Identified Gaps in Existing Literature Limited Integration of Advanced Management Principles

One notable gap in the existing literature pertains to the limited integration of advanced management principles within the realm of ITS policies and practices. While scholars have extensively discussed the technical aspects of ITS, there is a paucity of research that comprehensively addresses the role of strategic management, operations management, and human resource management in optimizing ITS applications. This gap implies that many transportation agencies may not fully leverage these principles to enhance the efficiency and effectiveness of ITS. Wang, F. Y. (2010) highlight the need for strategic management in ITS but note the lack of comprehensive policy integration. Similarly, Raj, D. J. S. (2020) emphasize the role of real-time data analysis but do not delve into the integration of operations management principles within transportation agencies.

### Insufficient Attention to Data Privacy and Cybersecurity

Another significant gap in the literature relates to the insufficient attention given to data privacy and cybersecurity within the context of ITS. As ITS systems increasingly rely on data collection and communication, ensuring the security and privacy of this data is paramount. Existing literature often falls short in providing comprehensive insights into cybersecurity strategies and data protection policies, leaving transportation agencies vulnerable to potential

cyber threats. Tapia, J., & Castanho, R. (2023) shed light on the vulnerability of ITS to cyberattacks but do not extensively address cybersecurity measures. This gap suggests that more research is needed to develop robust cybersecurity frameworks for ITS.

#### 4.2 The Gap to be Filled

The identified gaps in existing literature pave the way for this study to make a significant contribution by addressing these shortcomings and filling the void. This research aims to bridge these gaps and provide comprehensive insights into the integration of advanced management principles and the enhancement of data privacy and cybersecurity within the context of ITS. **Integrating Advanced Management in ITS Policies** 

This study plugged a gap in the ITS policies' insufficient application of advanced management principles. This study offers actionable recommendations for enhanced policy integration by conducting in-depth analyses of strategic management, operational management, and human resource management for politicians and transportation organizations. The study aims to promote an innovative culture within transportation authorities and integrate ITS initiatives with more general transportation goals.

**Enhancing Data Privacy and Cybersecurity** Another important goal of this research is to close the cybersecurity and data privacy gap. This research attempts to offer a thorough understanding of the steps necessary to protect crucial transportation infrastructure by looking at best practices, guidelines, and tactics for cybersecurity in the context of ITS. It aims to arm transportation organizations with the information and resources required to safeguard private information and maintain public confidence in ITS technologies. This study also recognizes the value of using a multidisciplinary approach to close these gaps. It acknowledges that cooperation between academics, decisionmakers, transportation specialists, and cybersecurity experts is crucial to creating comprehensive solutions for the problems caused by the application of advanced management concepts in ITS. While the purpose of this study is to fill up some of these gaps, it

also emphasizes the necessity of continued research and collaboration to improve our comprehension of ITS and its incorporation with cutting-edge management ideas. By doing this, it adds to the expanding amount of knowledge that can assist researchers, politicians, and transportation organizations in developing creative, safe, and effective urban transportation systems.

#### 5.0 Findings

The study's conclusions, which are based on a thorough review of actual data, include significant insights that help us comprehend how advanced management principles are incorporated into Intelligent Transportation Systems (ITS).

#### 5.1 Analysis of Empirical Data

Several important conclusions that shed light on the incorporation of advanced management principles in ITS were drawn from the analysis of empirical data:

1: Integration of Strategic Management

The crucial importance of strategic management in optimizing ITS applications is one important finding. Efficiency and sustainability are increased for transportation authorities that match their ITS strategy with long-term transportation objectives. This strategic alignment allows for better decision-making, resource allocation, and adaptability to future developments in urban transportation.

#### **2: Operations Management Enhancements**

The analysis highlighted the importance of operations management principles in maximizing the benefits of ITS. Transportation agencies that implement real-time data analysis, predictive maintenance, and sustainability practices experience reduced congestion, improved traffic flow, and enhanced transit service quality. Operations management is a key driver of efficiency in ITS implementation. **3: Human Resource Management for Innovation** 

Human resource management (HRM) practices play a pivotal role in nurturing a culture of innovation within transportation agencies. Training programs and skill development initiatives are essential for building a skilled workforce capable of effectively utilizing ITS technologies. The study found that agencies that

invest in HRM see increased proficiency in ITS applications and more successful innovation.

#### 4: Data Privacy and Cybersecurity Challenges

The analysis also revealed a pressing concern related to data privacy and cybersecurity within the context of ITS. The study found that transportation agencies often face challenges in ensuring the security and privacy of data collected and transmitted by ITS systems. Cybersecurity measures and data protection policies require significant attention to safeguard sensitive information and maintain public trust in ITS technologies.

#### 5.2 Key Insights

The following important findings from this study offer helpful answers for decision-makers, transportation organizations, and researchers:

1: Holistic Approach to ITS Implementation A comprehensive strategy that incorporates advanced management principles is required to fully optimize ITS applications. This strategy should include workforce development, realtime data analysis, strategic planning, and cybersecurity measures. To ensure a seamless ITS implementation, policymakers should give integration of policies top priority.

#### 2: Data-Driven Decision-Making

Data-driven decision-making continues to be essential for effective ITS implementation. For the purpose of informing traffic management plans, transit operations, and overall transportation effectiveness, transportation agencies should invest in data analytics capabilities and real-time data collection systems.

### **3:** Continuous Training and Skill Development

Maintaining a professional workforce familiar with ITS systems requires ongoing training programs and skill development initiatives. To ensure that employees can successfully use ITS solutions for innovation and efficiency, agencies should give priority to talent acquisition and training.

#### 4: Emphasis on Cybersecurity and Data Privacy

The analysis emphasizes how crucial it is for ITS policies and procedures to give cybersecurity and data protection first priority.

To preserve transportation infrastructure and uphold the public's confidence in ITS systems, effective cybersecurity measures and data protection regulations are necessary. The research's findings thus offer a thorough grasp of how advanced management ideas are incorporated into ITS. These results provide policymakers and transportation organizations with practical advice on how to improve the effectiveness, sustainability, and creativity of urban transportation systems while addressing issues with data privacy and cybersecurity.

#### **6.0 Recommendations**

This section offers a complete list of suggestions aimed at maximizing the use of ITS technology in urban transportation in light of the thorough examination of Intelligent Transportation Systems (ITS) and the incorporation of management principles. These suggestions are meant to fill in any gaps that have been found and improve the effectiveness, sustainability, and creativity of transportation networks. **6.1 Integrating Advanced Management in** 

### ITS Policies

#### Develop Comprehensive ITS Policies

Urban authorities should give the creation of comprehensive ITS policies that support longterm transportation objectives top priority in order to fully realize the promise of ITS. These regulations should include the fundamentals of strategic management and lay out specific goals for ITS implementation. To create a strategic vision that directs the integration of ITS into the urban transportation environment, policymakers must work with transportation agencies. In their article from 2021, Abdel-Aty and Wimbadi et al. stress the significance of strategic management in ITS. Their findings highlight the necessity for policymakers to develop a framework that supports innovation and is in line with more general goals for urban transportation.

#### Embrace Data-Driven Decision-Making

Data-driven decision-making should be embraced by urban transportation agencies as a core component of ITS strategies. This necessitates spending money on systems for collecting data in real-time and on data analytics tools. Cities can dramatically increase the effectiveness of transportation by using data to enhance traffic management plans and transit operations. The need of real-time data analysis in transportation system optimization is stressed by Singh, B. (2023). Their study emphasizes how data-driven strategies can improve traffic flow and reduce congestion.

#### Prioritize Cybersecurity and Data Privacy

Policymakers and transportation organizations must give cybersecurity and data protection safeguards top priority given the rising reliance on digital communication and data sharing in ITS. To protect sensitive information and maintain public confidence in ITS technology, it is crucial to develop effective cybersecurity methods and data protection policies. Renne et al. (2020) draw attention to the ITS's susceptibility to cyberattacks. Their study highlights the significance of cybersecurity safeguards for vital transportation infrastructure. **6.2 Building Advanced Management** 

#### Capacity

#### Invest in Training and Skill Development

To establish a workforce capable of successfully managing and innovating within the ITS sector, transportation agencies should invest in training programs and skill development efforts. The utilization of cutting-edge technologies, data analysis, and cybersecurity procedures should all be covered in training. The importance of continual training programs for transportation personnel is stressed by Timmermans et al in 2019. Their study highlights the importance of skill development in leveraging ITS's advantages.

#### Foster a Culture of Innovation

Agencies should develop a culture that supports experimentation and the adoption of cuttingedge technologies in order to drive innovation within the transportation industry. This entails fostering an atmosphere where staff members are encouraged to suggest and execute cuttingedge ITS solutions. The importance of human resource management in fostering an innovative culture is stressed by Moustaghfir et al (2020). Their study emphasizes the value of communication and information exchange among transportation specialists.

#### Enhance Interagency Collaboration

For the successful implementation of ITS, cooperation between transportation agencies, technology providers, and other stakeholders is essential. In order to guarantee the seamless integration and interoperability of ITS solutions, policymakers should actively promote interagency cooperation and partnerships. Interoperability and standardized communication protocols are essential for ITS, according to Delgado et al. (2021). Their study emphasizes the value of teamwork in solving interoperability problems. In addition to filling in the gaps in the literature and case studies, these thorough recommendations offer policymakers, transportation authorities, and urban planners a road map for maximizing the advantages of ITS technologies in urban transportation. Cities may improve their mobility, transportation systems, and urban environments by incorporating advanced management ideas and developing management capacity.

#### 7.0 Conclusion

This study explored the complex interplay between Intelligent Transportation Systems (ITS) and advanced management principles in the aim of optimizing urban transportation systems and solving the always changing issues of our modern cities. Numerous insights have been discovered as a result of a thorough study of empirical data and a thorough assessment of the body of literature, highlighting the revolutionary potential of integrating advanced management inside ITS. The journey taken in this study started with the identification of gaps in the body of previous material. These shortcomings highlighted the requirement for a thorough investigation of advanced management principles in the context of ITS. The identification of these gaps was not just an academic exercise but a clarion call to bridge the divide between technological advancements and management practices. One of the foremost findings of this study lies in the pivotal role played by strategic management. The alignment of ITS strategies with long-term transportation goals emerges as a cornerstone for enhancing

efficiency, sustainability, and adaptability within urban transportation. It beckons policymakers and transportation agencies to orchestrate a symphony of strategic planning, resource allocation, and visionary decision-making. The journey continued with a deep dive into operations management, where real-time data analysis, predictive maintenance, and sustainability practices emerged as key drivers of efficiency. The findings revealed that the orchestration of ITS systems can achieve harmony on the urban transportation stage, reducing congestion, improving traffic flow, and enhancing transit service quality.

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Commerce and Management Strategies for a Transformative Future (EDH 2024)

# Co-authorship network analysis and co-occurrence network of keywords in digital marketing research from India S. Lakshmi<sup>1</sup>, Dr. L. Santhi<sup>2</sup> & Dr. A. Senthilkumar<sup>3</sup>

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#### Abstract

Researchers in the sciences and humanities as well as library and information science (LIS) professionals are finding that digital marketing is one of the most popular emerging topics. The Web of Science database for articles published between 1992 and 2022 was utilized by the researcher to perform this analysis, yielding 1006 publications from India. To examine the extracted data Vosviewer and Biblioshiny were utilized. The technique and possible uses of co-authorship network analysis in the field of health are reviewed in this article. Keywords: Digital Marketing; Marketing; Web of Science; Bibliometrics; Co-citation analysis; Co-occurrence network;

#### Introduction

The introduction of PCs with access to the internet has had an enormous effect on the economic conditions of many different countries. With the rapid development of ICT technologies in the digital age and the world's constant flux and dynamism, marketing has evolved. Digital marketing is the most assertive technique for maintaining communication with prospective customers at anytime, anywhere.

Digital Marketing refers to any marketing done by use of web and digital channels namely, search engines, social media, email, and other web pages connecting with the customers. Digital Marketing comes with different terms such as Online Marketing, Electronic Marketing, e-Marketing, Web Marketing and so on. Digital Marketing has become the most influential marketing platform for advertising products and services in contrary to traditional marketing (Schwarzl & Grabowska, 2015; Yasmin, et al., 2015). The increased level of social involvement, propagation and correspondence plays a major role in the evolution of digital marketing which have in turn enhanced the firm's ability to engage with their customers and keep them informed of the products and services. (Ko, 2019; Lamberton & Stephen, 2016; Martín-Consuegra, et al., 2018).

The use of digital marketing for stimulating the sale of products has lately spurred the publication of numerous studies, particularly after 2010. The literature on digital marketing metrics emphasizes the significance of digital marketing can be for both the academic community and our daily lives. The intellectual structure of business-to-business (B2B) marketing was examined by Backhaus, et al. in their research using citation and co-citation analysis of 1392 research papers published in prestigious journals. During four different periods, from 1972 to 1978, 1987 to 1991, 1998 to 2000, and 2007 to 2009, prominent marketing-related publications were published, including "Industrial Marketing Management," "Journal of Business-to-Business Marketing," and "Journal of Business and Industrial Marketing." The researchers who are often referenced include Y. Wind, F.E. Webster, and P.J. Robinson. Organization Buying Behavior and Personal Selling were the research fields until the fourth period, when Service Marketing and Relationship Marketing took their place, according to co-citation analysis. Later Corley, et al. (2013) examined the research on internet marketing for 18 years from 30 top information system journals and top 5 marketing journals.

Phase I of the research involved gathering a pool of articles, phase II involved classifying those articles according to research strategies, and the research output was categorized according to Internet marketing topics. 2010 was the most productive year in phase I, with 52 articles. Phase II results showed that formal theory was the research technique used in 110 out of 411 papers. Phase III data indicated that the most popular topic area for internet marketing was business models, with 41.1% of the 411 articles falling into this category. The second-most articles were on the internet advertising landscape (22.4%), followed by an appraisal of online performance (16.5%). Fatima et al. (2017) examined and identified Chinese trends in electronic commerce research. The bulk of the study output on electronic commerce was shown to fall into the categories of operations, logistics, social issues, and assessment. According to statistics from university digital resources, the areas of "marketing CRM issue" and "transformation issue" had the fewest research studies. Alekseeva, et al. (2019) used research papers from the 2010–2018 Scopus database to identify patterns in the evolution of marketing in the digital era. The results of this analysis showed a downward trend in the number of publications about "search engine optimization" and "search engine marketing." Big Data utilization has been rapidly expanding recently, with the United States leading the way in publishing. At the bottom of the list is email marketing. After searching the literature for digital marketing platforms and channels, Peter & Vecchia, (2020) developed a digital marketing toolkit for Swiss small and medium-sized enterprises. The poll not only addressed a knowledge gap but also provided SME's with an overview of the most important digital marketing tools. There are 24 tools in the created digital marketing toolkit, with the following 11 being the most popular: The study indicates that the most frequently cited, examined, and digital marketing tools are online public relations, search engine advertising, search engine optimization (SEO), social media, viral marketing, and the company website. According to Kim & Lee (2021), digital marketing is expected to play a significant role in this

technological revolution as it offers the most recent means of connecting and communicating with clients in order to stay informed, engage, supply, and close deals. The 5865 citations from 141 articles were assessed and examined in the research. The paper provided practitioners and scholars with thematic insights and implications that may guide the creation of effective digital marketing campaigns. Agarwal & Kumar (2021) examined the body of research on green advertising that has been published over the previous three decades. Spanning the WoS database, 113 items spanning 1999 to 2020 were taken out. Nine subtopics and six major literature gaps were identified for further research on green advertising as a result of thematic classification. Academic study on digital marketing is scarce, especially when compared to other fields of product promotion, despite the increasing usage of this strategy. Hence this study has been undertaken in order to provide an insights into the development of the literature on digital marketing area.

#### **Objectives of the Study**

The study's objective was to analyze the pertinent research papers that were gathered for the analysis in order to look at the dynamics of research and development in digital marketing from the perspective of a multidisciplinary domain. Outlining the purpose of the research on digital marketing as a point of reference the following objectives have been framed for this study.

- To examine the evolution of global citations and research in digital marketing
- To identify the most preferred document types by the researchers
- To identify the most prolific authors based on H-index
- To assess the collaboration trends in order to identify the prominent researchers and institutions
- To assess the co-citation network of keywords to help the researchers to learn the overview of the field of study

#### Methodology

The two main methods used in bibliometric studies to use bibliographic data to explore a specific scientific subject are performance

analysis and science mapping (Cobo et.al. 2011). Prior to this systematic review, a Web of Science database keyword search of the literature was carried out in order to rule out any possibility of bias in the research. The keyword "Digital Marketing" was deployed in order to fetch the required dataset for the present study.

### Analysis and Results

### Distribution of Digital Marketing Research by year

A total of 1066 research papers were published over the past 30 years as displayed in the Fig. 1. The patterns of publications are found to be in increasing trend but at a slower rate. Online marketing research became evidently popular in 2000, and publications began to rise steadily from that year on. Its total growth rate was stated at 21.4%, despite the fact that the quantity of articles was growing at a different pace every year. However, as Figure 1 shows, the number of annual publications of the digital marketing research has increased substantially since 2000 and is anticipated that from 2023 onwards, the publications are still going to flourish in this area.

There were 19713 citations received for the 1066 publications on digital marketing during 1992 to 2022. The average citations per documents are calculated at 22.43 and average citations per year per document are evaluated as 3.341.



The 1066 research paper published

included 11 document types as shown in the below table 1. It is clearly evident that more than 75% of the research output has been published as journal articles (77.77%) followed by Review Papers (13.88%); Article; Early Access (4.88%); Article: Proceedings Paper (1.41%); Review: Early Access (0.84%); Editorial Material (0.75%) and Meeting Abstract (0.47%).



#### Fig 2 Document types of publications on digital marketing Most prolific Authors based on H-index

Originally developed for a single scientist or academic, the h-index is an authorlevel indicator that assesses the productivity and citation effect of the articles. The most prolific authors, according to H-index are shown in the Fig. 3, it was found that Kumar, S. has the highest H-index score of 14 followed by Kumar, S. with H-index=13 and Gupta S & Kumar V share the same H-index score of 12.



#### Fig 3 Most prolific Authors based on H-index Co-author ship Analysis

Networks that foster scientific collaboration are a distinguishing feature in current research at colleges and universities. Researchers now work in teams that combine interdisciplinary methods and complementary abilities to achieve shared objectives rather than

as lone actors. Co-authorship networks and social network analysis are becoming more and more effective methods for identifying top organizations and scientists as well as evaluating cooperation trends. Through the identification of players and their relationships, the research uncovers the social structure of the networks. **Co-Authorship Network of Authors** Based on the data retrieved, the Indian research network on digital marketing was composed by 3406 authors during this study period indicating solid collaborative research efforts between the researchers. Out of the 3406 authors, the total strength of co-authorship links has been calculated and the authors with the greatest total link strength have been shown in Figure 3. It is evident from the figure that the co-authorship network of authors is weak as only 9 authors have been found to have strong links strength. Dwivedi, Yogesh K in cluster 1(Red Color) has the highest link strength=12, in cluster 2(Green Color), Luthra, Sunil has link strength=6, Rana, Nripendra P in Cluster 3(Blue Color) has link strength=12 and Raman, Ramakrishnan in cluster 4(Yellow Color) has link strength = 6. Among these authors Dwivedi, Yogesh K and Rana, Nripendra P have the strongest collaborative network intensity which is indicated by the thickness of lines connecting them.



Fig 4 Co-authorship Network of Authors Co-Authorship Network of Institutions

1609 organizations have contributed to the digital marketing research during the study period. According to the network analysis of institutions with respect to their collaboration among the institutions in India, King Abdul Aziz University (Link strength=19) in Cluster 1(Red Color) University of Petroleum and Energy Studies in Cluster 2 (Green Color), Georgia State University in Cluster 3(Blue Color), Indian School of Business in Cluster 4(Yellow Color) and Mudra Institute of Communications in Cluster 5(Purple Color) have the highest collaborations among the other institutions in each cluster. King Abdul Aziz University followed by Swansea University served as a mediator between two institutional organizations that are not otherwise related.



#### Fig 5 Co-authorship Network of Institutions Co- occurrence Network of Keywords

Co-occurrence Network map was fetched to reveal the relationship among the themes of digital marketing research during the study period. Node size can be interpreted as a measure of keyword frequency: larger nodes correspond to greater keyword frequencies. The tighter the links between two terms, the thicker the line; the greater the thickness between two words, the closer the association. As shown in Fig 4, the largest size of the 'India' node indicates that India is the term with the most frequency. Internet of Things, Machine Learning, Covid-19, Blockchain and Social Media are increasingly more common. Stronger associations are expressed using thicker lines that appear between two terms, such as between india, machine learning, market research, blockchain, internet of things, sentiment analysis, artificial intelligence, digital marketing and social media. On the other hand, we can also quickly locate some keywords with lesser frequency and tiny node sizes, including big data, security, loyalty, customer engagement, attitude, supply chain and marketing suggesting that these terms are on the edge of the study field.



#### Conclusion

The research network structure and important participants in the digital marketing research was roughly estimated, which might assist future research possibilities. In the coming years, the relatively modest and emerging research community is probably going to develop into a more stable network arrangement, creating opportunities for more in-depth analysis of the participating institutions and researchers.

The institutional network for digital marketing research indicates the industry's interest in this field and emphasizes the impact

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#### Fig 6 Co- occurrence Network of Keywords

of academic research particularly. It should also be mentioned that India has a fewer core digital marketing research areas. As a result, further research is required in several study areas. This study is still in its early stages and has some limitations. Future studies must be perfected and implemented. For instance, further research is required to ensure that the results of our studies are accurate. Additionally, it will be important to use certain research techniques in subsequent studies, such as cluster analysis and the network characteristics of centrality and density.

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### OVERCOMING CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE AND MANAGEMENT Mr.P.Tamilselvan&Mr.RBoobalan Mr.S.Arunkumar M.COM, Muthayammal College of Arts and Science, Rasipuram.

#### ABSTRACT

Challenges and remedies for international E-Commerce and management is capital to solve the talented the organization has Increase the trade product line be the must change to conditions and the situation of the real discuss the formula cannot be match. the stock level and sale platform the branches reason the formula cannot be match crystal change the technology Updation regarding the situation of the trade market and Management. time is the biggest challenge for Commerce International digital management due to reason the Organization cannot compromise the product quality, the protectivity and sale of the products profit. In this reason the respect organization can change the policies to short time profit earning formulas system the advertising product to be which all over the country which day short time to reach the product and make the market monopoly consent organization has follow some staticsso, the form can be check them often in much more importance system there is a lot of trading business that is Import and export so there organization would be check that information passed by the third party is to be valid or not stuff collecting feedback is i the business Nexus the phone can collect the feedback of only and know the product features also consumer preference. This way is used to point out the indirect position of our product. updating the technology regarding position of the firm it means save the time and source challenges and remedies for international E-Commerce and management is capital to solve the talented the organization has Increase the trade product line be the must change to conditions and the situation of the real discuss the formula cannot be match. the stock level and sale platform the branches reason the formula cannot be match crystal change the technology updation regarding the situation of the trade market and Management. time is the biggest challenge for Commerce International digitalmanagement due to reason the organization cannot compromise the product quality. the protectivity and sale of the products profit. In this reason the respect organization can change the policies to short time profit earning formulas system the advertising product to be which all over the country which day short time to reach the product and make the market monopoly consent organization has follow some statics so, the form can be check them often in much more importance system there is a lot of trading business that is import and export so there organization would be check that information passed by the third party is to be valid or not. collecting feedback, the business next the phone can collect the feedback of only and know the product features also consumer preference. This way is used to point out the indirect position of our product. updating the technology regarding position of the firm it means save the time and source.

#### Keywords:E-Commerce, Technology, Time, Feedback, Management policies

#### INTRODUCTION

Economic and business rule corresponding pressured. Digital commerce has implemented from business to consumer b2c and B2B hands it is originated in 1994 a white changes in forms of business market and consumer satisfaction. Digital commerce that available at offline stores to online and also ratify some type of retail transaction that is implemented via over internet digital commerce also here stage do something that cannot be find it the offline Store. Stage for media and also beginning remarkable services like server. The recent show towards and digital commerce society as well as economy is fuel Dubai business from such as radish food and IBM Google Amazon apple and other features for this study we look like and Apple how thiscompany way of business. Another thing how bad company nearby introduce some new innovation technology.

The leading company of digital commerce is one of the virtual shopping where purchase from clever it is started in 1994 find the Jeff Bezos also the company name is got Flipkart behindover here small platform or state of b2c by nearly sold good Sunday books and transfer to the biggest internet retailer in the United States Flipkart goes and public in May 1998.

### **OVERCOMING CHALLENGES ON DIGITAL COMMERCE AND MANAGEMENT** Stock listing on the internet

. The stock level and sale platform the branches reason the formula cannot be match crystal change the technology Updation regarding the situation of the trade market and Management. time is the biggest challenge for Commerce International digital management due to reason the Organization cannot compromise the product quality. the protectivity and sale of the products profit.

#### **Issuing personalisation parameter**

Economic and business rule corresponding pressured. Digital commerce has implemented from business to consumer b2c and B2B hands it is originated in 1994 a white changes in forms of business market and consumer satisfaction. Digital commerce that available at offline stores to online and also ratify some type of retail transaction that is implemented via over internet digital commerce also here stage do something that cannot be find it the offline Store. Stage for media and also beginning remarkable services like server.

#### **International expansion**

Stage for media and also beginning remarkable services like server. The recent show towards and digital commerce society as well as economy is fuel Dubai business from such as radish food and IBM Google Amazon apple and other features for this study we look like and Apple how this company way of business.

#### Short time and core interest

. Updating the technology regarding position of the firm it means save the time and source challenges and remedies for international E-Commerce and management is capital to solve the talented the organization has Increase the trade product line be the must change to conditions and

the situation of the real discuss the formula cannot be match. the stock level and sale platform the branches reason the formula cannot be match crystal change the technology updating regarding the situation of the trade market and Management. time is the biggest challenge for Commerce International digital management due to reason the organization cannot compromise the product quality.

#### **OTHER SOME SPECIAL CHALLENGES,**

- > Complexity
- Consistency
- Time management
- > Integrity

**Complexity** and remedies for international E-Commerce and management is capital to solve the talented the organization has Increase the trade product line be the must change to conditions and the situation of the real discuss the formula cannot be match.

#### Consistency

The protectivity and sale of the products profit. In this reason the respect organization can change the policies to short time profit earning formulas system the advertising product to be which all over the country which day short time to reach the product and make the market monopoly consent organization has follow some statics so, the form can be check them often in much more importance system.

#### Feedback

Collecting feedback, the business next the phone can collect the feedback of only and know the product features also consumer preference. This way is used to point out the indirect position of our product. updating the technology regarding position of the firm it means save the time and source.

#### CONCLUSION

The discussion above showed that digital as the main change agent since it involved digital commerce and management as income generating and organization developmental activities which also raised worldwide . the digital commerce is not defined as acquiring the ability to rule over the others, but rather as having the ability to work with others to achieve change.

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### IMPACT OF DIGITAL MARKETING ON CONSUMER BUYING BEHAVIOR Ms.K. Mynavathi, Assistant Professor of Commerce. Mr.R.Kanimozhi,& Mr.V.Dinesh II M.Com MuthayammalMemorial College of Arts and Science,Rasipuram.

#### **ABSTRACT:**

The purchasing behavior of buyer is changing at a quicker rate in the client situated market condition. Purchases conduct contrast when it's gone to the items, value, place, advancement, highlights, quality, building, purchasing conduct, status, age, age of the clients and so forth. Not with standing, youth is the most confounded gathering to compare with the changing indignations of the current day youth influences the purchasing behavior since they for the most part follows the beat by design and the taste as indicated by the evolving time. The purchasing conduct and standard of conducts of youth has a more prominent impact in the buying conduct, subsequently in this examination, effect of advanced promoting on buyer purchasing conduct is engaged as the center issues. This examination uncovers the greater part of the youngsters of the current age approach the computerized mindfulness about its deal use.

Keywords: Marketing, advertisement, shopping

#### **INTRODUCTION**

Digital promoting is characterized as purchasing and selling of products, items and services by means of PC systems or web. Web and electronic trade innovations are changing the whole economy and changing the plans of action, income streams, client bases, and flexibly chains. New plans of action are rising in each industry of the new economy. Travel industry and ticketing has seen an adjustment in the most recent decades. One evaluation proposes that online travel industry contributes about 76% of net trade in India.

Online retailers are presently pushing countless classes, for example, hardware and white products. In these rising models, elusive resources, for example, connections, information, individuals, brand and framework are taking focus stages.

The effect on retailing has been significant and subsequently numerous organization are changing the channels they use to sell their products and the administrations. In certain pieces of the world, retailers have been fast to react in building up their own exclusively market web based business stores, while in different parts the e-commercial centre commands.
### ADVANCED MARKETING IN INDIA

India is the world second biggest web populace. After the multiplication of web, promoting methodology has taken an off root connect the general population. In this manner, there's blasting web showcasing industry in India. In India online life is the determined the reception of advanced promoting.

India is a relative's tenderfoot to the online revaluation bit it is anticipated that online deals will develop by half every year in the following five years. The nation is now the second biggest country of web client with more than 120 million and the quick take-up of portable business is predicated to expand the quantity of clients to more than 330 million by 2015. Among the mainstream item online are books, purchaser hardware, voyaging, budgetary administrations, attire and excellence care. Web based shopping action is moved in major urban commitment with Mumbai being the fundamental focused followed by Delhi and Kolkata.

### **BUYING BEHAVIOUR OF THE CONSUMER**

Buying conduct of an individual assume an overwhelming hob in the purchasing conduct, all in all and among the adolescent specifically. Purchasing conduct advertising is a procedure of building up connections between items offered in the market and focused on purchasing conduct gatherings. It includes fragmenting the market based on purchasing conduct measurements, situating the item in the way that interests to the exercises, premiums and assessments of the focused on market and undertaking explicit special crusades which adventures purchasing conduct offers the market estimation of the offered item. In India web is around 20 years of age. India is among the main 3 populace of web client with 145 million customers. The advanced advertising is having only 3-4% of sorted out retailing. This uncovers a few components are the obstacle in the thriving of web based promoting in India. The hazard apparent by the young in India is one of them. The sorted out retailing can't reach to the provincial piece of Indiaeffectively though online retailers are finding their purchasers in urban areas including towns if across India.

### NEED AND SCOPE OF THE STUDY

Digital Marketing has gotten astounding changes the manner by which the advertisers showcase the item and the manner by which the clients are purchasing the equivalent. Purchasing conduct of an individual impact numerous variables, and these components perpetually influences the advertisers to coordinate the requirements of the clients as a rule and the adolescent specifically. So it is understood that there is a need to examine advanced promoting and its effect onpurchasing conduct of the shoppers.

### LITERATURE REVIEW

1. Khasgiwala Vishal and Sainy Monika (2014); In their investigation titled "Factor influencing consumer buying behavior towards bikes among Indian youth". Hasty purchasing conduct is tested. Rash purchasing is a typical conducts today and can happen in any setting. It isn't deliberately arranged, however rises quickly upon showdown with the specific upgrade India being a conventional economy specialized help, for example, TV shopping channels and to web

exhaust customers. Motivation buying openings expanding both the availability to the items and administrations and the case with which drive buy can be made.

- 2. Dr.venugopal and Swamynathan.c (2016); in their examination titled "A study on the lifestyle of youth and its impact on online shopping". Purchaser conduct contrasts with regards to the items, value, highlights, quality, bundling, way of life, stats, age, age of the client and so on. The changing inclination on the current day youth influences the purchasing behavior since they for the most part follow the beat of style and taste as per the evolving time. In this manner, the current age is increasingly intrigued with the internet shopping that the regular purchasing.
- 3. Sharma M. and Mahlawal Seema (2018); In her article discovers that India's childhood are driven, innovation arranged and certain. By 2018, Indians under 20 will make up 55% of the populace and employ proportionately higher spending power. In the west, the young fragmenthas quite often been set in opposition to their seniors. Defiance was the key beginning stage. Experience, music and other image of 'cool' turned into an ideal formula for making cliquebrand that revitalized against the framework.

# LIMITATION OF STUDY

- The analysis is done strictly based on the response given by the several respondents.
- The study did not focus on any specific brand, product and service.
- The study has not been done with respect to any specific sectors.
- The data received from the respondents only from Salem city. **OBJECTIVE OF THE STUDY**

The objectives of the study are as below;

- 1. To distinguish the variables impact of buying behavior of the customers.
- 2. To inspect the changing purchasing conduct of the young and their effect on advanced advertising.

# **RESEARCH METHODOLOGY**

The primary point is to discover the impression of the shoppers towards computerized showcasing. The example here utilized is the person.

# • SAMPLE SIZE

The quantity of test units choose from the all-out populace is called test size. Test size chose for this examination is 100.

# • SOURCE OF THE DATA

Basically primary as well as secondary data is used for doing this research work.

**PRIMARY DATA;** It refers to that data which is collected by investigator himself. One of the very best tools of the primary data collection is questionnaire filling method.

**SECONDARY DATA**; It refers to the data which is not collected by the investigator himself. Rather the investigator takes help old data and extract necessary information according to his need. The tools of secondary data collection are magazines, newspaper, journals etc.

# DATA ANALYSIS Gender Table 1

S.NO	Particular	Respondents	Percentage
1.	Male	47	47
2.	Female	49	49
3.	Transgender	4	4
	Total	100	100

#### (Source- Primary Data)

From the above table here we can see easily to know about digital market. Male is more as compare to the female and transgender. In this table the respondents of the male 47. If we talk about the female respondents the numbers their percentage is 49. and remaining respondents comes into transgender. So male are more interested in digital marketing buying behaviour.

Age			
S.NO	Particular	Respondents	Percentage
1.	Less than 20 years	17	17
2.	21 to 25 years	55	55
3.	26 to 30 years	6	6
4.	31 to 35 years	12	12
5.	36 to 40 years	10	10
6	Above 40 years	14	14
	Total	100	100

Table 2

#### (Source - Primary data)

According to this data, here the number of people who belong to age of 21 to 25 year is 55. They are more interested to online shopping. When we talk other age group here who belong in the age group 26 to 30 year. Here by this table we find youngsters are more interested to buy online products.

### Table 3

Area			
S.NO	Particulars	Respondents	Percentage
1.	Rural	30	30
2.	Urban	70	70
	Total	100	100

# (Source- Primary data)

According to this table, here we find which area's people are more interested to buy online products so we find the urban area's people are more as compared to rural area. The percentage of urban area's people is 70%.

Table	4

# Occupation

S.NO	Particulars	Respondents	percentage
1.	Students	48	48

2.	Professionals	28	28
3.	Government employee	10	10
4.	Self employee	9	9
5.	Others	5	5
	Total	100	100

#### (Source-primary data)

According to this data, here we find in which class people are more interested to buy the online products, from this data involvement of the students is more than other and expect students the profession are more than interested to buy the online products. The number percentages of the students are 48% and the professional employees are 28%.

Table

5

Motivation factors			
S.NO	Particulars	Respondents	Percentage
1	Easy payment	60	60
2	No hidden cost	5	5
3	Wide range of product	20	20
4	No travel to shop	10	10
5	Discount and offer	5	5
	Total	100	100

#### (Source- primary data)

According to this table, here we find the motivation factors toward online shopping. From this data we find the easy payment who makes more motivation toward online shopping and the other motivation factors is wide range of the product and customer check/see the offer and discounts. The number percentage of the easy payment factor is 60% and wide range of the products is 20%.

#### Table 6

Preference				
S.NO	Particulars	Respondents	Percentage	
1	Books	27	27	
2	Musical instruments	12	12	
3	Groceries	12	12	
4	Clothing	10	10	
5	Mobile and accessories	10	10	
6	Cosmetics	9	9	
7	Personal health care	4	4	
8	Sportitem	3	3	
9	Fast food	5	5	
10	Others	8	8	
	Total	100	100	

#### (Source – primary data)

According to this data, here we find the essential things which prefer more the customers. By the question mobile and accessories have more consumer/customer to purchase throughonline channels? The percentage of the respondents of mobile and accessories are 10%. And the second popular items are fast food whose percentage is 5%.

Omme Sites			
S.NO	Particulars	Respondents	Percentage
1.	Ebay	10	10
2.	Amazon	25	25
3.	Flipkart	15	15
4.	Alibaba	2	2
5.	Leysbuy	4	4
6.	Mytra	10	10
7.	Snapdeal	5	5
8.	Ajio	6	6
9.	Jabong.com	5	5
10.	Quicker	10	10
11.	Others	8	8
	Total	100	100

Table	7
Online site	es

#### (Source-primary data)

According to this data, here we find the site which is prefer more as compare to the other site. In this question we have provide eleven sites in which the amazon and flipkart are more use during the online shopping of the products. The percentage of the amazon is 25% and flipkart is 15%. By this question we find there are no any respondents on letsbuy and ajio site.

-8

Table

		•		
	online shopping			
S.NO	Particulars	respondents	percentage	
1.	Search engine	22	22	
2.	Personal recommend action	10	10	
3.	Special offers and advertising	20	20	
4.	Online advertisement	18	18	
5.	TV advertisement	8	8	
6.	Reference group/friend	10	10	
7.	Others	12	12	
	Total	100	100	

### (Source-Primary data)

According to this table, here we find the motivation factors towards online shopping. We find that special offers and advertisement factors are more attracted to the customers the percentage of the respondents towards this factors is 20%.

Table 9Payment of internet

S.NO	Particulars	respondents	Percentage
1.	Debit/credit card	30	30
2.	Internet banking	15	15
3.	Paypal/paytm	8	8
4.	Google wallet	13	13
5.	Cash on delivery	24	24
6.	Others	10	10
	Total	100	100

#### (Source-Primary data)

According to this table, we find the mode of payment by the respondents.

- <b>I</b> <sup>*</sup>									
S.NO	Particulars	respondents	Percentage						
1.	Once in week	23	23						
2.	Once in month	40	40						
3.	Twice in week	8	8						
4.	Twice in month	15	15						
5.	More than two times in week	8	8						
6.	More than two times in month	6	6						
	Total	100	100						

### Table 10 Time period

#### (Source-Primary data)

According to this table we find the interest of the customer toward online shopping. We checked the number of the customer who purchase online product how many time in week and month.

Over an Sausiaction								
S. NO	Particulars	Respondents	Percentages					
1	Highly satisfied	11	11					
2	Satisfied	40	40					
3	Neutral	35	35					
4	Non satisfied	9	9					
5	Highly non satisfied	5	5					
	Total	100	100					

Table 11 Over all Satisfaction

#### (Source- primary data)

As per the data, 40% of respondents are satisfied with online shopping whereas, 5% of respondents are highly dissatisfied. The percentage of neutral respondents is 35%.

S. NO	Particulars	Respondents	Percentage
1	Very good	32	32
2	Good	36	36
3	Neutral	18	18
4	Bad	9	9
5	Very bad	5	5
	Total	100	100

Table 12 Expectations

### (Source- primary data)

As per the data, 32% of respondents have a very good future expectation with online shopping whereas 5 of respondents do not agree with online shopping.

Reuson for using internet							
S.NO	Particulars	Respondents	Percentage				
1	Fun	15	15				
2	Work	12	12				
3	Information	40	40				
4	Email	10	10				
5	Shopping	7	7				
6	Others	16	16				
	Total	100	100				

Table 13Reason for using internet

#### (Source - primary data)

As per the data, 40% of respondents use internet for information whereas others respondents use it for fun, work etc

Table 14
<b>Comparing price structure</b>

S.NO	Particulars	Respondents	Percentage
1	Strongly agree	34	34
2	Agree	12	12
3	Neutral	20	20
4	Disagree	18	18
5	Strongly disagree	16	16
	Total	100	100

#### (Source - primary data)

Table 15

**Product Information** 

S.NO	Particulars	Respondents	Percentage

1.	Product information	36	36
2.	Price information	7	7
3.	Celebrities and famous people	11	11
4.	Discounts and deals	27	27
5.	Customers review	15	15
6.	Others	4	4
	Total	100	100

### (Source-primary data)

According to the analyzed data, maximum respondents who are up to 36% look for product information in mobile phone advertisement, followed by price information, discount and deals etc. **CONCULSION** 

The study conducted was done for the academic purpose and it demonstrated the impact of internet based life of the people. In this survey we focused to known the behavior of the customer those who buy the product through online channel i.e. e-commerce apps, search engine, and taste messaging etc. method. By this survey we find the youngsters are widely exists in these markets. They are interested and easily aware the relevant information terms and polices etc. **REFERENCES:** 

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# A STUDY ON IMPACT OF TRAINING AND DEVELOPMENT ON FARMERS PERCEPTION AMONG VALUE ADDED OF MILLE PRODUCTS ON HOUSEHOLD IN SALEM DISTRICT

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#### **ABSTRACT:**

Consumption of millets has growing day by day due to the fact millets have wide variety of health advantages whilst compared to Millet. In view of this present observe changed into achieved to assess the impact of training development on farmer notion among cost brought of millets products on residence preserve. Millet is appeared to be five times extra nutritious than rice and wheat. Due to lack of knowledge on dietary importance of millets and strategies of cost Addition, the consumption of millets is low in some areas of the district. Schooling is taken into consideration as a part of approach for development and boom of the employer and vital factor of entrepreneurship improvement. Regardless of the truth that millets make a contribution to ten persentage of India's food grain basket and has an annual manufacturing of 18 million tones, it isn't consumed in the equal percentage as mainstream cereals. Millets have many advantages together with, it's far high in nutrients, calcium and proteins in comparison to other ingredients. The goal of the have a look at is to take a look at the diploma of know-how many of the households in Salem district about millet grain and its nutritional advantages.

Keywords: Millets, Training, Value addition, Farmer perception.

#### INTRODUCTION

Millets are small seeded annual grasses which are cultivated as grain vegetation. It's far used as both human food and fodder. Millets are power residence of nutrients. They've very excessive dietary fee and rich in vitamins, proteins, minerals and fibers. There many forms of millets particularly, Finger millet, pearl millet, Foxtail millet, Sorghum millet, Little millet, Kodu millet, Barnyard millet, Proso millet. Consuming millets in our everyday weight loss program is an age-vintage concept and it helps us to hold a balanced eating regimen. Millets requires little water and ground fertility. Even, it's miles very low cost by price, so it also has another call" terrible guy's food grain". Millets are very substantial via nutritionally and economically.

Despite the fact that the exercise of adding millets had been reduced among households because of several motives. The factor of patience and time taken for cooking millets might also have an effect on the use of millets within the demanding life. Because of those new practice of following junk foods and fast foods, has evolved many new illnesses. The ailment like diabetics, obesity and hormonal imbalances have become usual. There's a need to enhance every day eating regimen through which include millets. But it is a difficult task in this speedy-transferring era. The introduction of value-introduced products of millets has made a drastic trade in eachperson's pathway. Price introduced millet products are the products made from the use of millets as its important element. Price introduced products of millets has removed the constraints of millets.

Cost introduced millet products. Are smooth and equipped to use. It reduces the time taken to prepare dinner and even it provides all of the health benefit as like the millet gives. Itcan be even taken by way of kids and adults. These merchandise will not compromise in the flavor too. There are many sorts a number of the cost-introduced millet merchandise like. The millet-based totally biscuits, cakes, pastas, Vermicelli and toddler foods. Those merchandise willsuit anyone, who desires to preserve up their time and to have introduced a healthy diet. The fee- introduced millet products have modified the demanding life-style into healthy lifestyle.

#### TRAINING AND DEVELOPMENT OF MILLET PRODUCT:

The millets are rich in mineral sources that which become an historic and still cultivated agriculture crop. The greatest cereal grain harvest for domestic intake motive. Compare to the rice, millets are having greater minerals and nutritious. The fee-introduced merchandise from millets have more health benefits. With a purpose to develop talents amongst family and small and micro marketers, the TNAU is offering this schooling on education of price-brought products from millets. The schooling and improvement program will assist to increase theneighborhood intake of small millets in addition to enhance the health and nutrition popularity ofhousehold maximum of the household are learning how to making of meals like Pasta, Bakery products and instant food mixes all the usage of various millets. The credible information from government and efforts like mini kit demonstration and nation degree schooling applications are to be carried out to beautify motivational purpose in adopting millet farming notably. Those initiatives might popularize to pick out newly released high yield sorts

#### FARMERS PERCEPTION ABOUT MILLETS:

Farmers perception about millets are unlike rice and wheat that require many inputs in phrases of fertilizer and water, millets develop properly in day areas as rain-fed vegetation. Millets are enormously nutritious, non-glutinous and rice in fiber, they're smooth to digest. The millets are raving possibly the first cereal grain to be local for domestic functions, the typically grown millets, Barnyard millets, Foxtail millets, Kodu millers, Proso millets and little millets. The exemplified through comparing the quantity of water required by way of a single millets plant of maximum varieties. So, there are numerous elements that make millets extra appropriate as vegetation. Farmers are used to grow the little millets during the kharif (April to October) season as a combined crop in conjunction with groundout and other vegetation most agricultural technology come as integrated systems which are appropriate for soil situations their combination of inputs are to analyzed for a hit output and it's miles crucial that, farmers are capable of observe all the authorities guide schemes to attain the meant productiveness.

#### VALUE ADDED OF MILLET PRODUCTS:

Millets were perhaps the first cereal grain consumed at home because they are one of the oldest food grains known to mankind. Millets are being utilised to create a wide range of premium goods, including cookies, cakes, pasta, and infant foods, which are attracting the attention of the affluent and health-conscious segments of society. The hulled and pearled kinds of millet are the

most prevalent. Millets are tasty grains that have a somewhat sweet, nutty flavour. Millets are better sources of protein, dietary fibre, calories, and minerals than rice. Although the prices of these millets vary, their consumption has declined since they must use the same processing techniques in order to compete with the best cereals, despite the fact that their prices vary. Little millets have replaced the products that were previously commonly organised by farmers utilising grains in order to broaden their uses. Due to their notably smaller size and quick hydration, millets are best suited for the creation of flakes and popped goods.

#### **IMPACT OF HOUSEHOLD:**

The millets have on vital truth in nutrients and wealth primarily based on millets. It allows in nutrients and global region economic wealth. This targets to give interest to the consumer who've been the use of millet food, their health scenario. Shopping for particular type of food, and reason for this buying product can be company dialogue by using way of this, weget a concept shopping for of the goods is based totally on customer's mind-set. Every character us of a has character sports of meals, so instance in India they agree to devour millets. The milletintake is over dependency on rice and wheat, which may additionally provide over 50 percentageof the average Indian family's caloric intake. Nowadays, great modifications in from cereals nutritional pattern of household across the country had been determined from cereal to excessive cost food commodities inclusive of cattle products. Processing of millets for consumption at household stage is tedious and frequently time consuming. Which the tastes and choice of more youthful generations are shifting far from millets. Although the human consumption demand is probable to play a primary function inside the improvement of millets. Maximum of the household are opting for millets products for their family because it incorporates more minerals and vitamins. **OBJECTIVES:** 

- To know the impact of training and development on farmer's perception among value added of millet products on household.
- To create awareness of millet food products.
- To know the sources of purchasing the millet products.
- To finalize the further suggestion to the study. **SCOPE:**
- This study examines the impact of training and development farmer's perception. among valued added millet products.
- This findings of the study will be useful for researcher's business planners and Government to provide more training and development.
- Acceptance of households towards these value added products of millet helps to provide potential recommendations for implementing positive changes for good market reach. **LIMITATIONS:**
- The study is limited to the area covered under the study and it may not be applicable in other area.

- Size of the sample is 100 which is of course small in comparison to entire population.
- Farmers are spread over Salem district, thus gathering and analysing information is time consuming and difficult.
- Subsequently farmer response was highly higher in suburban and suburban areas, the researcher needed to journey to remote places, so the far flung rural regions ought to be explored with much less journey canters.

#### ANALYSIS

#### **Occupation- A Criterion to Create Training of Millet Food Products**

	Occupation									
Factors	Government Employee		Private Employee		Farmer		Business man		ANOVA	Р
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Finger millets	4.57	0.83	4.62	0.76	4.68	0.56	4.60	0.57	1.10	0.347
Pearl millets	2.54	1.44	3.44	1.54	4.08	1.25	4.05	1.22	81.82	<0.001**
Foxtail millets	3.17	1.32	3.85	1.23	4.08	1.17	4.32	0.86	48.11	<0.001**
Sorghum millets	4.42	1.00	4.61	0.71	4.50	0.71	4.58	0.58	3.40	0.017*
Little millets	4.06	1.18	4.38	0.94	4.30	0.90	4.44	0.67	8.55	<0.001**
Kodu millets	4.14	1.12	4.44	0.82	4.27	0.93	4.47	0.65	7.56	<0.001**
Barnyard millets	3.92	1.25	4.22	1.07	4.19	0.96	4.42	0.72	9.28	<0.001**
Proso millets	3.67	1.32	3.95	1.23	4.09	1.05	4.22	0.97	10.85	<0.001**

#### \* Significant at 5 %; \*\* Significant at 1 %

For 'Foxtail millet' Government employees' mean score was  $(3.17 \pm 1.32)$ , Private employees' mean score was  $(3.85 \pm 1.23)$ , Farmers' mean score was  $(4.08 \pm 1.17)$ , Businessmen's mean score was  $(4.32 \pm 0.86)$ .

For 'Sorghum millet' Government employees' mean score was  $(4.42 \pm 1.00)$ , Private employees' mean score was  $(4.61 \pm 0.71)$ , Farmers' mean score was  $(4.50 \pm 0.71)$ , Businessmen's mean score was  $(4.58 \pm 0.58)$ .

For 'Little millet' Government employees' mean score was  $(4.06 \pm 1.18)$ , Private employees' mean score was  $(4.38 \pm 0.94)$ , Farmers' mean score was  $(4.30 \pm 0.90)$ , Businessmen's mean score was  $(4.44 \pm 0.67)$ .

For 'Kodu millet' Government employees' mean score was  $(4.14 \pm 1.12)$ , Private employees' mean score was  $(4.44 \pm 0.82)$ , Farmers' mean score was  $(4.27 \pm 0.93)$ , Businessmen's mean score was  $(4.47 \pm 0.65)$ .

For 'Barnyard millet' Government employees' mean score was  $(3.92 \pm 1.25)$ , Private employees' mean score was  $(4.22 \pm 1.07)$ , Farmers' mean score was  $(4.19 \pm 0.96)$ , Businessmen's mean score was  $(4.42 \pm 0.72)$ .

Regarding '**Proso millet**' Government employees' mean score was  $(3.67 \pm 1.32)$ , Private employees' mean score was  $(3.95 \pm 1.23)$ , Farmers' mean score was  $(4.09 \pm 1.05)$ , Businessmen's mean score was  $(4.22 \pm 0.97)$ .

The majority of survey participants selected Finger millet and Pearl millet, while businesspeople favoured Foxtail millet, Proso millet, Little millet, Kodu millet, and Barnyard millet, while private employees preferred Sorghum millet, according to the study's findings. The results of the ANOVA test, which determines whether there is a significant difference between the mean scores, are shown in a table. Because the P value is less than 0.01, the difference between the mean scores is substantial and significant.

Place where nurchase	Ye	es	No		Total	
Thate where purchase	N	%	N	%	TUtal	
From Farms	615	55	497	45	1112	
From Farmers	482	43	630	57	1112	
From the market	634	57	478	43	1112	
From the Super market	379	34	733	66	1112	
From the grocery store	836	75	276	25	1112	
From the traditional pharmacy	494	44	618	56	1112	

#### Sources of purchasing the millet products

The Table shows that 55% of the respondents purchase millet products from Farms, 43% from Farmers, 57% from the market, 34% from the Super market and 75% from the grocery store, and 44% from the traditional pharmacy. Hence, majority of them purchased from grocery stores. **Age-wise Awareness Level of Millet Food Product** 

To study about the influence of Age, in having general awareness about millet food product is shown in the following table 4.6.1. It could be noted from the table '**Finger millet**' awareness with respect to the age group of 20-30 years, the mean score obtained was  $(4.56 \pm$ 

0.85), with 30-40 years the mean score was  $(4.70 \pm 0.59)$ , the mean score for the age group of 40-50 years was  $(4.64 \pm 0.64)$  and the mean score for those above 50 years was  $(4.65 \pm 0.60)$ .

'**Pearl millet**' showed for 20-30 years the mean score obtained was  $(2.84 \pm 1.52)$ , for 30-40 years the mean score was  $(3.17 \pm 1.59)$ , for 40-50 years mean score obtained was  $(4.03 \pm 1.23)$  and the mean score for those above 50 years was  $(3.99 \pm 1.31)$ .

For '**Foxtail millet**' with respect to the Age group of 20-30 years the mean score obtained was  $(3.40 \pm 1.33)$ , for 30-40 years the mean score was  $(3.65 \pm 1.35)$ , the mean score for the age group of 40-50 years was  $(4.04 \pm 1.12)$  for those above 50 years was  $(4.18 \pm 0.98)$ .

	Age in years									
Factors	20-3	30	30-4	40	40-	50	Abov	e 50	ANOVA	Р
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Finger millet	4.56	0.85	4.70	0.59	4.64	0.64	4.65	0.60	2.31	0.075
Pearl millet	2.84	1.52	3.17	1.59	4.03	1.23	3.99	1.31	42.92	<0.001**
Foxtail millet	3.40	1.33	3.65	1.35	4.04	1.12	4.18	0.98	21.37	<0.001**
Sorghum millet	4.44	0.95	4.64	0.70	4.45	0.70	4.55	0.70	3.39	0.017*
Little millet	4.13	1.14	4.30	1.00	4.30	0.82	4.42	0.81	4.09	0.007**
Kodu millet	4.22	1.06	4.37	0.94	4.26	0.87	4.38	0.83	1.98	0.115
Barnyard millet	4.02	1.20	4.16	1.13	4.13	0.95	4.30	0.89	2.87	0.036*
Proso millet	3.81	1.27	3.82	1.31	4.01	1.04	4.12	1.09	3.47	0.016*

Age wise Impact of millet food product

#### \* Significant at 5 %; \*\* Significant at 1

For '**Sorghum millet**' with respect to the age group of 20-30 years the mean score was  $(4.44 \pm 0.95)$ , for the Age group of 30-40 years the mean score was  $(4.64 \pm 0.70)$ , the mean score for those between 40-50 years was  $(4.45 \pm 0.70)$  and the mean score obtained by above 50 years was  $(4.45 \pm 0.70)$ .

'Little millet' shows mean score as  $(4.13 \pm 1.14)$  for the age group 20-30 years, for those in the age group of 30-40 years the mean score was  $(4.30 \pm 1.00)$ , the mean score of 40-50 years was  $(4.30 \pm 0.82)$  and the mean score of those above 50 years was  $(4.42 \pm 0.81)$ .

'Kodu millet' shows for the age group 20-30 years the mean score was  $(4.22 \pm 1.06)$ , for 30-40 years the mean score was  $(4.37 \pm 0.94)$ , the mean score of 40-50 years was  $(4.26 \pm 0.87)$  and the mean score of those 50 years was  $(4.38 \pm 0.83)$ .

'**Barnyard millet**' shows for the age group of 20-30 years the mean score was  $(4.02 \pm 1.20)$ , for the age group of 30-40 years the mean score was  $(4.16 \pm 1.13)$ , the mean score of 40- 50 years was  $(4.13 \pm 0.95)$  and the mean score of those above 50 years was  $(4.30 \pm 0.89)$ .

'**Proso millet**' with respect to the age group of 20-30 years the mean score was  $(3.81 \pm 1.27)$ , for those in 30-40 years the mean score was  $(3.82 \pm 1.31)$ , the mean score of 40-50 years was  $(4.01 \pm 1.04)$  and the mean score of those above 50 years was  $(4.12 \pm 1.09)$ .

Thus, it is inferred from the above analysis that majority of those who opted Finger millet was those in the age group of 30-40years, Pearl millet was opted by those in the group of 40-50 years, Foxtail millet by those above 50 years, and Sorghum millet by respondents in the age group of 30-40 years, Little millet was chosen mostly by those above 50 years, Kodu millet also by those above 50 years and Barnyard and Proso millet were also the choices of the respondents above 50 years.

Further to test the significant difference between the mean score of the respondents with respect to Age group the ANOVA test has been used and the result is shown in table Since the P value is less than 0.05 for Pearl millet, Foxtail millet, Sorghum millet, Little millet, Barnyard millet, and Proso millet hence, there is high significant difference in the mean scores

#### SUGGESTIONS: Millets have enormous nutritional val

- Millets have enormous nutritional value and budget friendly too, even the percentage of including millets is to not appreciable.
- The marketing strategy for value added products of millets can be made more attractive.
- The awareness among the people about the millets are less. Awareness. Campaigns about millets and the value added products of millets cans be done.
- The government can provide additional schemes and regulate policies to grow grains like millets. It also helps for the economic development of country.
- The production of value added millet products can be supported and enhanced by the government and by the people.
- Households should get aware about the millets and its value added products. So, that everyone can lead a healthy life. Adding millets in our daily diet makes it balanced. **CONCLUSION:**

In this luscious lifestyle, everyone is living a life to run behind something. But, they fail to take care about their own health. We earn money to fulfill the basic need of our life and body. The Basic need of our body is healthy food and sufficient water. The food we intake should have all the nutrients at a meal. But, due to lack of time to cook such healthy foods in home rather we switch to fast food. "Food is medicine, medicine is food", the food like millets more nutritious and affordable than rice and wheat. The value added products of millets are making magic in the organic industry. These products contain much amount of vitamins, proteins, calcium, and fibers. Through this study, we can consider that, the society is becoming aware about the millets and its nutritional values. The statistics implies a healthy of people and millets. **REFERENCES:** 

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# JOB SATISFACTION OF SPINNING MILL WORKER IN NAMAKKAL TALUK Mr.T.Jeeva, Asst.Professor, Department of Commerce, Ms.N.Swedha, II.M.Com& Mr.M. Anandhamanivasan, I.M.Com Muthayammal Memorial College of Arts and Science,

#### **ABSTRACT:**

Human resource is an important asset of any organization. In this era of competitive world, success of any organization depends on its human resource. If they are highly satisfied with the job they produce more which is profitable for the organization. So in this competitive environment, the essential thing is to know the views of workers toward their hob and to measure the level of satisfaction with various aspects of job satisfaction.

Key words: Job satisfaction, Workers needs, Performance.

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#### **INTRODUCTION**

Human resource is an important asset of any organization. In this era of competitive world, success of any organization depends on its human resource. If they are highly satisfied with the job they produce more which is profitable for the organization. So in this competitive environment, the essential thing is to know the views of workers toward their hob and to measure the level of satisfaction with various aspects of job satisfaction.

The term 'job satisfaction' means individual emotional reaction to job. It is a positive emotional state that occurs when a person's job seem to fulfill important job values provided. The objective of our study is to measure the level of satisfaction of workers in spinning mill workers. If workers do not trust the organization or interviewer, however, responses may not be entirely honest. Businesses with low job satisfaction who fear being let go may find the workers reluctant to discuss the situation since they may fear it could negatively affect them in the future. **SCOPE OF THE STUDY** 

Quality of work life is the major significant factors for the employee in the organization. The study covers employees' of private spinning mills workers. A satisfied employee will be having a positive attitude towards his or her job and would go beyond the normal expectation in his other job.

#### **NEED FOR THE STUDY**

The study may encourage the employees and management to bring changes in the perception necessary for effective and efficient performance.

### **OBJECTIVE OF THE STUDY:**

**4** To understand the measure of job satisfaction amongst spinning mill workers.

+ To identify various components contributing towards the job satisfaction.

**REVIEW OF LITERATURE** 

Pidikoti (et.al) (2014) analyzed and pointed, maslow's need hierarchy theory, a motivation theory, laid the foundation for job satisfaction theory which explains that people seek to satisfy five specific needs in life – physiological needs, safety needs, self - esteem needs and self actualization needs. This model served as a good basis from which early researchers could develop job satisfaction theories. Job satisfaction can also be seen with in the broader context of the range of issues which affect on individual experience of work, or their quality of work in life. Job satisfaction can be understood in terms of its relationship with other key factors such as general well being, stress at work and control at work, home-work and interface workingcondition.

Agrawal (et.al) (2015) in a research work with many potential causal models, explains this correlation, one possibility is that the satisfaction-performance relationship is actually spurious, advocating the correlation is due to common causes of both constructs. Common causes in the study includes the job complexity and cognitive ability, in association with the personality traits, like conscientiousness, extraversion, agreeableness and core self evaluations. The meta-analytic correlation matrix, through its structural equation modeling, suggests a residual correlation of 16 job between job satisfaction and performance.

#### SAMPLING DESIGN

A sample of 80 respondents has been drawn from the various socio-economic divisionsat different term and having different educational qualification and belongs to different age groups on the line of "convenience sampling" method. In this method, the sample units are chosen primarily on the basis of the convenience to the researcher.

#### SAMPLE SIZE

Subjects of the current study were particular from managerial and non-managerial staff of spinning mill industry. In this researcher our sample size is 80 simple random sampling was used to collect the data.

#### **Primary data**

Under this study primary data was collected by using structured questionnaire. The primary data has been collected through the questionnaire by means of personal interview.

#### Secondary data

The secondary data are sourced from various telecommunication websites, magazines, books and periodical survey etc.,

#### STATISTICAL TOOL USED FOR THIS STUDY

The data has been mainly analyzed by using the following methods and test. Percentage analysis and Chi-square test.

#### Data analysis and findings

#### Table 1: Gender wise classification

S. No	Gender	No. of.	Percentage
		Respondents	
1	Male	47	66

2	Female	33	34	
	Total	80	100	

#### Source: primary data

For the purpose of the above table 1 that gender has been classified into two categories. The sample consists of 66% malerespondentsand34% female respondents.

S. No	Age	No. of. respondents	Percentage
1	Below 20	19	18
2	21-40	37	54
3	Above 40	24	28
	Total	80	100

#### Table 2 Age wise classification

#### Source: Primary data

Table clearly shows 2 that 54% of the respondents are in age group of 21-40 years, 28% falls under the age group of 40 and 18% of the respondents are in age group of below 20 years

S. No	Age		Level of opinion		Total
		Low	Medium	High	
1	Below 20	5	6	8	19
		(26%)	(32%)	(42%)	
2	21-40	9	12	16	37
		(24%)	(32%)	(44%)	
3	Above 40	5	8	11	24
		(21%)	(33%)	(46%)	
	Total	19	26	35	80
		(24%)	(32%)	(44%)	

#### Table 3- Age and level of satisfaction

#### Source: primary data

It was clear from the table 3 that out of 80 respondents of 37 respondents are in the age group of 21-40 have medium level of satisfaction.

#### Hypothesis testing:

There is no significant relationship between age and satisfaction level. Chi-square test has been applied to the **hypothesis**.

#### Null hypothesis (H0):

There is no significant relationship between

Degree of freedom	=(c-1)(r-1) = (31)(3-1) = 4
Calculated value of x2	=0.774
Table value of x2 0.05	=9.49

Since, the calculate value 0.0774 is less than the table value 9.491. so hypothesis is accepted. Chisquare test proves there is no significant relationship between the gender of the respondents and the level of satisfaction.

S. No	Income	No. of. respondents	Percentage
1	Below 5000	29	36
2	5001-10000	32	40
3	10001-15000	17	21
4	Above 15000	2	3
	Total	80	100

**Table 4: Income wise classification** 

#### Source: primary data

Table clearly shoes that 40% of the respondents are in the income group of 5001-10000, 36% falls under the income group of below 5000 and 3% of the respondents are n income group of above 5000

S. No	Degree	No. of. respondents	Percentage
1	Very satisfied	19	24
2	Satisfied	37	46
3	Undecided	24	30
4	Less satisfied	0	0
5	Dis satisfied	0	0
	Total	80	100

 Table 5: Degree of job preference

### Source: primary data

The table 5 shows that out of 37 workers, 46% workers are satisfied with their job and only 24% of the workers are very satisfied with their job and the rest 30% workers are undecided about their satisfaction level.

#### Table 6; Co-workers cooperation

S. No	Degree	No. of. Respondents	Percentage
1	Very satisfied	40	50
2	Satisfied	17	21
3	Undecided	23	29
4	Less satisfied	0	0
5	dissatisfied	0	0
	Total	80	100

#### Source: primary data

From the table 6, it is inferred out of total 17 workers, 21% workers are satisfied with their co-workers cooperation and only 50% workers are very satisfied with their co-workers cooperation and other 29% workers are in indecision about their satisfaction level.

### Table7: working environment

S. No	Degree	No. of. respondents	Percentage
1	Very satisfied	25	31
2	Satisfied	35	44
3	Undecided	20	25
4	Less satisfied	0	0
5	Dis satisfied	0	0
	Total	80	100

#### Source: primary data

Working environment is the major factor for the level of job satisfaction. As far as satisfaction level of the respondents, 31% workers are just satisfied with their working environment and 44% employees are very satisfied with their working environment and rest 25% workers are in indecision about their satisfaction level.

. No	Degree	No. of. Respondents	Percentage
1	Very satisfied	26	32
2	Satisfied	30	37
3	Undecided	16	20
4	Less satisfied	5	7
5	dissatisfied	3	4
	Total	80	100

rable of menale rachines	Table	8:	welfare	faci	lities
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#### Source: Primary data

From the above table, researcher fined outs the various satisfaction level of the workers to which they belong. It inferred 37% of the respondents are satisfied with their welfare facilities, 20% workers are indecision about their satisfaction level, 5% workers are less satisfied with their welfare facilities and rest of the 3% workers are in dissatisfied about their satisfaction level. **CONCLUSION**:

Every organization depends upon their manpower of success and development. In fact if workers work properly, the organization can easily achieve the target. While studying the job satisfaction level of spinning mill workers, the finding is that on average they were satisfied with their work. Although z some weakness exist in content of co-worker cooperation, work environment and welfare facilities. The results of the study indicates the layoff threats, quick turnover, less welfare schemes, and less scope for vertical growth increase job dissatisfaction. On the other hand, secure job environment, welfare policies, and job stability increase the degree of job satisfaction.

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# E-COMMERCE AND DIGITAL MARKETING Ms.K.S. Haripriya&Ms.V.K.Harini, II M.Com, Pavai Arts and Science College for Women.

#### **ABSTRACT:**

Electronic commerce is process of doing business through computer networks. It is a boom in the modern business. E-commerce is a paradigm shift influencing both marketing and the customers. Rather e-commerce is more than just another way to boost the existing business practices. It is leading a complete change in traditional way of doing business. E-commerce involves conducting business using modern communication instruments are telephone, fax, e-payment etc. And the Digital marketing is the act of promoting products and services through digital channels, such as social media, SEO, e-mail and mobile .It is a form of marketing that helps businesses to reach the target audiences, build relationships, and boost sales through digital channels .It can be done both online and offline and both kinds matter for a well rounded digital marketing strategy .In digital marketing ,social media will help to gain website traffic and connect with those individuals which comes as an important part of our customer service and brand strategy. **Keywords: E.Commerce, Digital, Marketing.** 

#### INTRODUCTION

E-commerce (electronic commerce) is the buying and selling of goods and services, are the transmitting of funds or data, over an electronic network, primarily the internet. This business transactions occurs either as business - to - business (B2B), business - to - consumers (B2C), Consumer - to - consumer or consumer - to - business. In the 1960's very early on in the history of e-commerce, its terms e-commerce is often used interchangeably. It can include the sale of physical goods, digital products, and services. E-commerce can take place on computers, tablets, smartphones, and other smart devices.Digital marketing is the promotion of products and services to customers though digital channels and electronic technologies. Digital marketing is a components of marketing that uses the internet and online based digital technology such as desktop computers, mobilephones and other digital media&communication.

#### **GROWTH IN E-COMMERCE AND DIGITAL MARKETING:**

#### **GROWTH OF INTERNET:**

In e-commerce the internet has seen a tremendous growth in the past five years making it a potential place for communicating to many customers both efficiently as well as cost effectively.Digital marketing is increasing the global internet penetration means more people are online, providing a vast and accessible audience for digital marketing efforts

#### **CONVENIENCE FACTORS:**

The customers opt for electronic transaction more due to the convenience associated with the process of shopping itself thus reducing the snag of commuting to the high street shops and eliminating congestion in busy places like London.People may finds it convenient thus eliminating the major issue of time keeping and scheduling more important activities effectively

and the Digital marketing is that consumers appreciate the convenience of online shopping and easy access to information. It caters to these preference, making it more likely that consumers will engage with brands online.

### **DATA SECURITY AND PROTECTION :**

The presence of strict laws enforcing the data protection and privacy of information along with the legal restrictions and guidance to conduct transaction over the internet in a secured fashion in the major accelerating force for the growth of electronic commerce especially by providing the customers with the confidence and faith of severe action against any fradulents activities. While data privacy regulations, like GDPR and CCPA, have introduced challenges, they have also led to more transparent and ethical marketing practices.

### **COST EFFECTIVE:**

E-commerce avoids the expenses of maintaining stores or warehouse for the products.Digital marketing often offers better return on investment (ROI) compared to traditional marketing methods. It can be more cost effective, especially for small business with limited budgets.

#### **PERSONALIZATION:**

With the help of data analytics e-commerce sites track this information to show the product desired to your needs.Personalized marketing is made easier through digital channels, enabling businesses to tailor content and offers to individual preference, increasing customer engagement and loyalty. **BENEFITS OF E-COMMERCE AND DIGITAL MARKETING** 

# Electronic commerce can increase cales and decrease costs. Advertising

Electronic commerce can increase sales and decrease costs. Advertising done well on the web can get even a small firm's promotional message out to potential consumers in every country in the world. A firm can use electronic commerce to reach narrow market segments that are geographically scattered. The web is particularly useful in creating virtual communities that become ideal target markets for specific types of products or services. A virtual community is a gathering of people who share a common interest, but instead of this gathering occurring in the physical world; it takes place on the internet. The digital marketing advantage is global reach. Traditional marketing is restricted by geography and creating an international marketing campaign can be hard, expensive, as well as labour-intensive. Even a very small local business owner has the ability to reach an international audience with an online store. This would never bepossible with traditional marketing or would cost a whole lot of money to do so. However, digital marketing and ecommerce happens on the Internet, which means that the reach you can achieve with it is immense.

# **OBJECTIVES OF E-COMMERCE AND DIGITAL MARKETING: BUSINESS REACH:**

How economic forces have created a business environment that is developing the second way of electronic commerce.Digital marketing helps businesses reach a larger audience and build a strong brand presence.

# **INCREASING SALES :**

E-commerce expand market reach and sell products or services online ,thereby increasing sales and revenue opportunities.Digital marketing also helps increase sales ,which is directly connected to growing business .

# **CUSTOMER SATISFACTION:**

E-commerce platforms can personalize user experience, offer product recommendation, and provide efficient customer support, thereby enhancing overall customer satisfaction and loyalty. Digital marketing provide better customer support and address customers queries and concerns.

# E-COMMERCE AND DIGITAL MARKETING CAN HELP BUSINESSES:

E-commerce is the buying and the selling of goods or services online .digital marketing is the promotion of brands and services online .

-It helps drive traffic to online stores and digital marketing also sales to their online stores .

-It convert website visitors into customers, reach a global audience .

-It provides a personalized shopping experience and access new market and opportunities.

-It increase brand awareness and engagement.

-Digital marketing serves has the compass that guide e-commerce business towards success . it is not enough to have a great product ;potential customers need to know about it.

# SECURITY AND PRIVACY ISSUE:

There is a fear of security and privacy as all the performs are open here. Therefore, personal information, confidential information about the company may leak in the hands of hackers, there is a risk of theft. so it is importance aware of this. There are still lots of sites that do not have the advanced technology to protect sensitive information

# **TECHINICAL LIMITATIONS :**

E-commerce requires advanced technology platforms for better performance. some limitations ,such as lack of proper domain ,network and software issues .Digital marketing often involves using various tools ,platforms and technologies ,which can lead to technical challenges issues like website downtime ,broken links ,or incorrect tracking codes can negatively impact your marketing effort.

# **CYBER SECURITY THREATS:**

E-commerce business face an ever evolving landscape of cyber security risk ,including data breaches and hacking attempts .In digital marketing ,cyber security is still not that secure and that leaves a fear in the minds of the people making internet marketing vulnerable.

# MAKETPLACE STRUCTURE:

It is common to face charges associated with listing products and facilitating sales.Digital marketing is the crowded marketplace ,with business of all sizes vying for attention

# **CONCLUSION:**

E-commerce and digital marketing have changed the business sector .It can help businesses stand out in the competitive online. And it both has today developed into a large industry with companies making huge sums of money.Digital marketing is the feature of marketing and will only keep progressing with time. It plays an indispensable role for corporation ,letting them connect with customers throughout the world. **REFERENCE :** 

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#### A BIG DATA AND ANALYTICS

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#### **ABSTRACT:**

Big data analytics is an increasingly popular research area for both organisations and academia due to its usefulness in facilitating human understanding and communications. In the literature, researchers have focused on classifying big data according to data type, data security, or level of difficulty, and many research papers reveal that there is a lack of information on evidence of a real- world link of big data analytics methods and its associated techniques. Thus, many organisations are still struggling to realise the actual value of big data analytic methodsand its associated techniques. This method has various applications in plants, bioinformatics, healthcare, etc. It can be improved with various techniques such as machine learning, intelligent tools, and network analysis. With the advent of the internet of things (IoT), more objects and devices are connected to the internet, gathering data on customer usage patterns and product performance. The emergence of machine learning has produced still more data. While big data has come far, its usefulness is only just beginning. Cloud computing has expanded big data possibilities even further. The cloud others truly elastic scalability, where developers can simply spin up ad hoc clusters to test a subset of data.

Keyword : Struggling - Difficult, Bioinformatics, Biological information, Scalability,

#### **INTRODUCTION**

Big Data may well be the Next Big Thing in the IT world. Big data burst upon the scene in the first decade of the 21st century. The first organizations to embrace it were online and startup firms. Firms like Google, eBay, Linkedin, and Facebook were built around big data from the beginning. Like many new information technologies, big data can bring about dramatic cost reductions, substantial improvements in the time required to perform a computing task, or new product and service offerings. Data analytics is a discipline focused on extracting insight from data, including the analysis, collection, organisation, and storage of data, as well as the tools and techniques. It refers to the method of analyzing huge volumes of data, or big data. The big data is collected from a large assortment of sources, such as social network, videos, digital images and sensors. Big data analytics describes the process of uncovering trends, patterns, and correlations in large amounts of raw data to help make data-informed decisions. Big data analytics is the use of advanced analytic techniques against very large, diverse data sets that include structured, semistructured and unstructured data, from different sources, and in different sizes from terabytes to zettabytes. Analysis of big data allows analysts, researchers and business users to make better and faster decisions using data that was previously inaccessible or unusable. Businesses can use advanced analytics techniques such as text analytics, machine learning,

predictive analytics, data mining, statistics and natural language processing to gain new insights from previously untapped data sources independently or together with existing.

#### WHAT IS BIG DATA?

Big data is a collection of data that is huge in volume, yet growing exponentially with time. It is a data with so large size and complexity that none of traditional data management tools can store it or process it efficiently. Big data but with huge size.

"Big Data are high volume, high velocity, or high variety information assets that require new forms of processing to enable enhanced decision making, insight discovery, and process optimization."

The term big data is self-explanatory - a collection of huge data sets that normal computing techniques cannot process. Technological advancement and the advent of new channels of communication (like social networking) and new, stronger devices have presented a challenge to industry players in the sense that they have to find other ways to handle the data.

#### **TYPES OF BIG DATA**

- -Structured data
- -Semi-structured data
- -Unstructured data

#### Structured data:

Structured Data owns a dedicated data model, It also has a well-defined structure, it follows a consistent order and it is designed in such a way that it can be easily accessed and used by a person or a computer. Structured data is usually stored in well-defined columns and also Databases.

Example: Database Management Systems (DBMS)

### Semi structured data:

Semi-Structured Data can be considered as another form of Structured Data. It inherits a few properties of Structured Data, but the major part of this kind of data fails to have a definite structure and also, it does not obey the formal structure of data models such as an RDBMS.

Example: Comma Separated Values (CSV) File.

#### **Unstructured data:**

Unstructured Data is completely a different type of which neither has a structure nor obeys to follow the formal structural rules of data models. It does not even have a consistent format and it found to be varying all the time. But, rarely it may have information related to data and time. Example: Audio Files, Images etc

# **APPLICATIONS OF BIG DATA:**

#### **Retail:**

Leading online retail platforms are wholeheartedly deploying big data throughout a customer's purchase journey, to predict trends, forecast demands, optimize pricing, and identify customer behavioral patterns.

Big data is helping retailers implement clear strategies that minimize risk and maximize profit.

#### Healthcare:

Big data is revolutionizing the healthcare industry, especially the way medical professionals in the past diagnosed and treated diseases.

Effective analysis and processing of big data by machine learning algorithms provide significant advantages for the evaluation and assimilation of complex clinical data, which prevent deaths and improve the quality of life by enabling healthcare workers to detect early warning signs and symptoms.

#### **Financial Services and Insurance:**

The increased ability to analyze and process big data is dramatically impacting the financial services, banking, and insurance landscape.

In addition to using big data for swift detection of fraudulent transactions, lowering risks, and supercharging marketing efforts, few companies are taking the applications to the next levels. **Manufacturing:** 

Advancements in robotics and automation technologies, modern-day manufacturers are becoming more and more data focused, heavily investing in automated factories that exploit big data to streamline production and lower operational costs.

#### **Energy:**

To combat the rising costs of oil extraction and exploration difficulties because of economic and political turmoil, the energy industry is turning toward data-driven solutions to increase profitability.

#### **Logistics & Transportation:**

State-of-the-art warehouses use digital cameras to capture stock level data, which, when fed into ML algorithms, facilitates intelligent inventory management with prediction capabilities that indicate when restocking is required.

#### **Government:**

Cities worldwide are undergoing large-scale transformations to become "smart", through the use of data collected from various Internet of Things (IoT) sensors.

#### WHAT IS ANALYTICS ?

Data analytics is a discipline focused on extracting insights from data, including the analysis, collection, organization, and storage of data, as well as the tools and techniques Data analytics is a discipline focused on extracting insights from data. It comprises the processes, tools and techniques of data analysis and management, including the collection, organization, and storage of data. The chief aim of data analytics is to apply statistical analysis andtechnologies on data to find trends and solve problems.

### TYPES OF ANALYTICS: Descriptive analytics:

Descriptive analytics uses historical and current data from multiple sources to describe the present state by identifying trends and patterns. In business analytics, this is the purview of business intelligence (BI).

#### **Diagnostic analytics:**

Diagnostic analytics uses data to discover the factors or reasons for past performance.

#### **Predictive analytics:**

Predictive analytics applies techniques such as statistical modeling, forecasting, and machine learning to the output of descriptive and diagnostic analytics to make predictions about future outcomes. Predictive analytics is often considered a type of "advanced analytics, and frequently depends on machine learning and/or deep learning.

#### **Prescriptive analytics:**

Prescriptive analytics is a type of advanced analytics that involves the application of testing and other techniques to recommend specific solutions that will deliver desired outcomes. In business, predictive analytics uses machine learning, business rules, and algorithms.

#### **CONCLUSION:**

The availability of Big Data, low-cost commodity hardware, and new information management and ana- lytic software have produced a unique moment in the history of data analysis. The convergence of these trends means that we have the capabilities required to analyze astonishing data sets quickly and cost effectively for the first time in history. These capabilities are neither theoretical nor trivial. They represent a genuine leap forward and a clear opportunity to realize enormous gains in terms of efficiency, productivity, revenue, and profitability.

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#### IMPACT OF ARTIFICIAL INTELLIGENCE IN E-COMMERCE

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#### **ABSTRACT:**

Artificial intelligence has the effective capacity to accumulate and examine huge volumes of records and provide selections for action. E-trade is now adopting this generation to perceive styles primarily based totally on browsing, buy history, credit score checks, account statistics etc. These facts amassed then shape the premise of making custom designed pointers for every customer. Google and Microsoft are already making an investment into new AI initiatives. Many e-trade companies have commenced imposing one of kind of AI to higher recognize their customers, and offer a greater purchaser experience. This paper highlights the position of synthetic intelligence in e-trade and its software in one of kind regions of e-trade.

Keywords: Artificial Intelligence, E-Trade.

#### **INTRODUCTION**

E-commerce is filling in fame consistently, which thusly prompts expanded benefits for this area of the economy and, obviously, contest 3/4 of respondents revealed development in different market pointers at two fold digit rates (by over 10%). Hence, deals, consumer loyalty, and diminished expenses have improved. There is now no doubt, that artificial intelligence is the destiny and systematically it's going to start to persuade all spheres of human life. The principal individuals in e-commerce are on line systems that cowl an extensive variety of offerings to be had at the Internet, along with market offerings, seek engines, social networks, software stores, verbal exchange offerings, and charge systems, the fast improvement of facts era and the want to make the salemanner inexpensive for the proprietors of such business (for example, the price of paying salaries to employees, paying taxes for them, renting premises, etc.), the query of using artificial intelligence and its felony law arises. Artificial Intelligence is to increase intelligence withinside the machines or software program and offer them the capacity to suppose as humans. Artificial intelligence is primarily based totally on numerous disciplines of a technological know-how and generation along with Biology Computer Science, Psychology, Linguistics, Mathematics, and Engineering. Companies can make use of the AI machines algorithms to pick out styles and insights withinside the massive quantity of data. AI can assist them take selection quicker and enhance their function in the aggressive enterprise world. Gartner said that morethan 85% of client interactions may be managed without a human.

Artificial intelligence has 2 types:

1. Weak AI.

2. Strong AI.

#### Weak Artificial intelligence:

In vulnerable artificial intelligence, machines behave like a smart human. Machines with vulnerable artificial intelligence have all capabilities like wondering, moving, speaking however are programmed to do so. In the chess game, the gadget has the capacity to play however it does not own any wondering capacity like humans. The gadget is programmed to play chess and make clever actions to compete with different players.

#### **Strong Artificial intelligence:**

In robust AI, machines real capacity is like humans. It is primarily based totally at the idea that machines can be programmed just like the human mind. They can think, make decisions, and feature perceptions and beliefs. E.g. the artificial highbrow supercomputer "WATSON" invented through IBM. Strong AI does now no longer presently exist. It is anticipated through a few professionals that it is able to be developed through 2030 or 2045.

#### **APPLICATIONS OF ARTIFICIAL INTELLIGENCE (AI):**

#### **Banking:**

AI software additionally lies in Anti-money laundering (AML). Money launderers disguise their movements to growth their unlawful cash. This unlawful is documented so nicely so one can supply the phantasm of legally earned cash. Banking Industry internationally is transferring from conventional detection of AML to artificial intelligence primarily based totally systems. AML AI detection machine can understand styles to locate defaulters.

#### Gaming:

Machines can now compete with people in video games with artificial intelligence.AI implementation may be visible in lots of strategic video games which include poker, chess, tictac-toe, etc. Machines are empowered with capacity to consider many positions primarily based totally on heuristic knowledge. Deep Blue became the primary a chess-gambling pc evolved with the aid of using IBM.

#### Healthcare:

AI software in healthcare lies in Diabetic Retinopathy Treatment, Medical Diagnosis, Risk Prediction and Automating Drug Discovery.

#### **Expert Systems:**

The professional structures are the evolved to resolve complicated troubles in a specific domain, with the artificial intelligence. The motive of professional structures is to advise, are expecting results, propose opportunity answer and help human in selection making.

#### **Intelligent Robots:**

Robots embedded with sensors along with sound, bump, pressure, heat, mild and temperature can discover the bodily information and perform the commands through a human. They have green processors and large reminiscence to make clever choices and showcase intelligence. Intelligent Robots also are successful to research from mistakes.

#### **Music and Movie:**

Recommendation Services: AI primarily based totally apps like Spotify, Pandora, and Netflix endorse track and films primarily based totally at the pastimes of customers and their beyond choices. This information accrued is then fed into AI gaining knowledge of set of rules to signify recommendations.

#### **E-Commerce**

Electronic commerce, or e-commerce, can be described as the buying and selling of goods and services on the Internet. E-commerce is some other time period now and again utilized in region of e-commerce. Examples of e-commerce website are flip kart, eBay, infibeam.cometc. E-Commerce offers particular functions of non-cash payment, 24x7 Service availability and advanced sales. According to the Silicon Valley undertaking capital organization Kleiner Perkins Caufield Byers report, Amazon India is maximum probable to dominate the country's on-line retail marketplace withinside the lengthy run.

Following are a few e-commerce models:

- Business-to- Business (B2B)
- Business-to- Consumer (B2C)
- Consumer-to- Business (C2B)
- Consumer-to-Consumer (C2C)
- Government-to- Business (G2B)
- Government-to- Citizen (G2C)

#### **ARTIFICIAL INTELLIGENCE THREATS**

#### **Threat to Privacy:**

Natural language processing is the capacity to recognize human language via way of means of machines. AI application with the capacity to apprehend speech and is familiar with natural language is likewise successful to recognize every user communication on emails and telephones. This may include privateness of users.

#### Threat to job:

Citigroup has forecast that almost a 3rd of the roles in the banking enterprise may be misplaced withinside the decade among 2015 and 2025. The pc also can carry out a fewobligations of a doctor's job. IBM's Watson can discover lung most cancers through reading MRI scans much greater dependable than actual people. Some accountant's task also can be achieved through algorithms. Algorithms can now examine monetary information and put together accounts. Insurance agents and coverage also can be carried out through computer systems the usage of gadget studying and huge information.

#### AI for Business:

According to a study through Avanade, a survey of 500 enterprise and IT leaders from round the sector revealed that they count on to look 33% will increase in sales as a end result of clever technologies. Avanade is a joint undertaking among Microsoft and Accenture that leverages the Cortana Intelligence Suite and other answers for predictive analytics and data- based insights. **Artificial Intelligence in e-Commerce** 

AI supporting e-commerce organizations get toward their customers. With the centers of AI, e-trade systems nowadays are capping a position to make use of massive datasets concerning

patron conduct and utilization patterns. Artificial intelligence self-getting to know algorithms can create customized buying studies for online buyers.

#### Following are highlights on AI powered e-commerce:

#### Visual search:

Image popularity systems can assist e-commerce web sites visitors seek through photograph, as opposed to text, and in shape applicable merchandise to particular images. One instance of the visible seek is Pinterest's visible seek which allows customers to pick an object in any photograph online, after which ask Pinterest to show comparable items the usage of photograph popularity software.

#### **Voice Powered Search:**

Voice is slowly changing textual content primarily based totally seek in online shopping. Voice reputation accuracy is advanced than before. Almost 70% of requests are herbal or made in a conversational language with Google assistant. Some clever gadgets with voice-managed non-public assistants are Apple's Home Pod powered via way of means of Siri. Another instance is Amazon's Echo powered via way of means of Alexa. Alexa voice primarily based totally seek may be used to area an order to be shipped from Amazon.

#### **Real-time product targeting:**

E-Commerce Companies goal to provide their clients a great offline purchasing enjoys to the net space, by providing the purchasers a hassle-unfastened manner to discover the goods they're searching for. Machine getting to know can assist to offer on line consumers with personalized product recommendations, reductions and offers.

#### AI based hiring processes:

HR departments can use AI era in lots of ways. For example, the mission of screening applications, attaining out, scheduling face-to-face interviews, and locating suits may be computerized via Restless Bandit, software program as a provider product. This reduces the paintings of HR via way of means of presenting the capacity candidate for the job.

#### AI based sales process:

Integration of AI with the customer relationship management system is an powerful way to manage income. This AI enabled lets in a CRM system to answer client queries, remedy their troubles and even pick out new possibilities for the income team. The clients will not be provided products and offerings which can be irrelevant for his or her on-line shopping.

#### **Customer-Centric Advertisements:**

Artificial intelligence packages may be created to supply customer-centric advertisements. Other regions in which AI may be carried out in e – trades are:

- Sentiment Analysis
- Product Categorization
- Customer Segmentation
- Predictive Merchandising

#### **Assortment Intelligence Tool:**
Assortment making plans lets in the store to offer a quality buying enjoy and maximum profitable product blend to the consumer. Customer adjustments their shopping for taste frequently. Retailers have to consciousness on their pricing techniques and which product to market it more or drop the product. Retailers should improve their pricing techniques with the intention to maintain their client and to preserve them coming again to their on-line website. Assortment Intelligence device can help stores to have 24/7 visibility and insights into their marketplace competitor and alternate their pricing for this reason to compete in the marketplace. Retailers can examine their competitor's product blend and fees with the aid of using the device. Some examples of collection equipment are Market Track, Competitive Intelligence Services, Acute intelligence and wiser. Another instance is Upstream Commerce. It is primarily based totally on artificial intelligence, statistics mining, semantic analysis and photograph recognition. Data from retail web sites is accumulated and analysed the usage of product-statistics extractor and sitecrawler. The statistics is then analysed with the aid of using matching engine and analytics engine.

#### Virtual personal shoppers:

Virtual personal shopper can help the humans in making the clever choice approximately their purchasing, for instance Flipkart released a messaging provider called Ping. Ping has laboured as a purchasing assistant until shutdown on 2016. It turned into powered via way of means of synthetic intelligence to help clients to quick find out the objects they had been searching for. Amazon's domestic assistant, Alexa is likewise synthetic intelligence enabled virtual non-public client assistant. It gives the consumer current purchasing revel in and best desires to verify your voice sample to manner the order. Other instance of the purchasing assistant is Mona. Mona is an Artificial Intelligence powered cell purchasing assistant gives the consumer and professional assistant. Mona learns from the pattern's consumer likes, his perfect purchasing point and his favored brands.

#### **Conversational Commerce:**

Chat software program can assist the customers make purchases in a conversational textual content layout the usage of herbal language processing. Chatbots are already getting used to facilitate on-line transactions for the large manufacturers, with Taco Bot (Slack) and H&M (Kik). Famous manufacturers like Tommy Hilfiger released a Facebook Messenger Fashion Chatbot in the course of the New York Fashion Week 2016. It became the primary emblem to promote their series through Facebook Messenger.

#### **Customer Service:**

AI can have an impact on customer support thru the use of chatbots. Chatbots are laptop application advanced for Conversational commerce. Chatbots have interaction in natural human language to present the patron a private and glad patron service. Chatbots supply entrepreneurs the capacity to have interaction with the patron in actual time and study the patron wishes and supply specific prescriptive steerage and results. The concept of bots has been brought round the '50s and '60s whilst Alan Turing and Joseph Weinbaum invented the first "chatterbot" program, named Eliza. Examples of chatbot in India are Eva, HDFC is AI-primarily based totally banking

chatbot in India. It can solution patron queries across more than one channels inside no time. Yatra company fb messenger chatbot withinside the Indian on-line travel zone is every other instance of higher patron service. This wise chatbot allows the clients seek for flights and book their flights immediately from their facebook messenger.

### Virtual Assistant:

E-commerce digital assistant is a software program agent skilled in enterprise helpofferings and technical offerings. It also can carry out duties or offerings for an individual. The term "Chat Bot" also can be used to consult the digital assistant. Recently Lenovo has additionally introduced its digital assistant to compete with Google now and Cortana. CAVA assistant is primarily based totally on AI powered deep learning. It has the face and voice- recognition features that help in coping with records and different events. Some ecommerce obligations that digital assistant plays are:

- Good customer service
- Order processing
- Exchanges /Return
- Order processing
- Website maintenance

### AI fake reviews detection:

Customer evaluations have come to be critical for consumer accept as true with withinside the online shopping. According to Dimensional Research's current study, ninety percentage of respondents said that advantageous on-line evaluations motivated their buying decisions. But faux evaluations can have an effect on the buying decision.AI may be used to control this problem. Amazon additionally makes use of AI to fight faux product evaluations. Amazon's AI machinestudying machine guarantees that handiest validated patron buy evaluations are boosted. It additionally offers choice to the ones evaluations which can be marked as useful through different users.

## Sap's Guiding Principles for Artificial Intelligence

The German IT company SAP (Systems, Applications, and Products in Data Processing) has now evolved a code of ethics (SAP's guiding standards for artificial intelligence) to adjust the usage of artificial intelligence. Discussing and locating approaches to remedy complicated moral problems is of great significance to the general public good. Ethical troubles associated with the usage of synthetic intelligence withinside the area of ecommerce generally without delay continue into unique legal troubles. The guidelines on this code are by and large aimed toward defensive the hobbies of personnel, stopping discrimination against citizens (each customer of the organization and its personnel), maintaining jobs, stopping the misuse of private data and interference with privacy. So, for example, an organization offers its personnel the possibility to retrain and discover a new function if the employee's capabilities are finished via way of means of artificial intelligence.

## Legal Regulation

Talking approximately the legal thing of the want for the legal law of using artificial intelligence withinside the subject of e-commerce, the subsequent information needs to be provided. Due to the excessive relevance of the problem of developing powerful rules withinside the subject of the use and improvement of artificial intelligence, at gift at the stage of worldwide organizations, each governmental and private, in addition to withinside the medical community, many proposals are being made concerning the principal functions and probably important accents of such rules. The issue of the improvement of legal law on the usage of artificial intelligence is addressed each on the international and countrywide levels, each withinside the non-public quarter and on the stage of country and supranational bodies. First of all, regarding the home legal doctrine, it is viable to mention that the perspectives of scientists on the regulatory framework for regulating the usage of artificial intelligence withinside the area of e- trade are somewhat divided. Thus, there are 3 methods to clear up this problem. The first manner comes from the truth that the usage of new technology with inside the implementation of public relations results in the want to create new legal rules. In addition, the second one method to the problem – when the usage of new technology, there can be a small quantity of "new" varieties of social relations (which till then have been not) in conjunction with conventional social relations. In this case, it is really helpful most effective to modify, improve, and complement the already present legal norms.

## **CONCLUSION:**

As an end feasible to draw the subsequent conclusions:

Firstly, there's a tremendous advent of artificial intelligence into the e-trade subject.Nevertheless, despite the fact that the problem of the usage of artificial intelligence withinside subject of e-trade has emerged in latest years, at gift the perspectives at the opportunity of artificial intelligence differ. The last way is to attempt to settle new social own circle of relative's individuals associated with the use of artificial intelligence withinside the vicinity of ecommerce with the useful resource of the use of the legal norms already cutting-edge on the countrywide and international levels. At the identical time, it's far essential that it's far vital to strike a balance a few of the pursuits of society and individuals, together with safety and the need to enlarge innovation withinside the general public interest. AI revolution in e-trade will create loads of new information science, tool studying and engineering.AI based definitely exchange may even generate IT jobs to enlarge and keep the systems and software program software so as to be running those AI algorithms. But the confluence of AI and e-trade may additionally moreover impact humans lacking in-name for capacity set face unemployment in coming years.

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## PROSPECTS AND CHALLENGES IN COMMERCE EDUCATION - STUDENTS PERSPECTIVE

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## ABSTRACT

Commerce education is important to gain knowledge of business, trade, industry, and commerce. It provides the knowledge for various specialised and professionalised studies related to business. In India, commerce education is available after the school period. Because of this, school students were not taught commerce subjects and they didn't possess any business or finance knowledge. There are various courses available to commerce students which help themto gain knowledge and competencies required for jobs in industries. But the students did not possess the proper knowledge and competencies due to a lack of faculties and practical training provided by colleges and institutions.

## Keywords: Commerce Education, Prospects, Constraints, remedial class, Knowledge

# **INTRODUCTION**

Commerce Education, as a branch of knowledge, imparts experience of the business world at large in all its expressions. It is directly concerned with the day-to-day life of the students. Even then, it is necessary to define commerce education. According to Cheesman Abiah Herrick, "Commerce education is that form of instruction which both directly and indirectly prepare the business man for his calling". In Herrick's view, commerce education is the preparation of a businessman. It includes all types of education, which makes one person become a great businessman.

## **OBJECTIVES**

- ✤ To evaluate the prospects and challenges in commerce education
- ✤ To identify and analysis of problems faced by the commerce students
- $\clubsuit$  To offer valid suggestions to overcome the constraints faced by the students

## SCOPE OF THE STUDY

The present study aims to identify the opportunities of commerce education, in the view of commerce students. The study covers the students pursuing commerce course in and around Coimbatore district.

## LIMITATIONS OF THE STUDY

The study has been done in Coimbatore district and also covered only students pursuing commerce program.

## **RESEARCH METHODOLOGY**

The research has been carried with Simple percentile for this study. Primary and secondary data used to complete the study.

# DATA COLLECTION

The data were collected from 162 respondents studying commerce program in and around Coimbatore through google form.

O No	Category	Options	No.of.	Percentage
Q.110	Category	Options	Responses	Tereentage
		Below 18 Years	4	2%
1	Age	18 years to 20 years	58	36%
1	Age	21 years to 22 years	38	23%
		22 years and above	62	38%
2	Gender	Male	50	31%
2	Gender	Female	112	69%
		Rural	64	40%
3	Area of Resident	Urban	69	43%
5		Semi-Urban	29	18%
		Illeterate	3	2%
	Literate Level of Parent /	School Level	45	28%
4	Guardian	Under Gratuate	81	50%
		Post Graduate	33	20%
	Scope for Preferred areas of Specialization	Accounting and Finance	8	5%
		Marketing	27	17%
		Production Management	26	16%
5		Taxation	14	9%
5		Information Technology	35	22%
		Human Resource	23	1.4.0/
		Management	23	1470
		Public Relations	14	9%
		General Management	15	9%
		Excellent	35	22%
6	Professionalism in Commerce	Good	93	57%
	Education	Medium	27	17%
		Low	7	4%
	Demand for Commerce	High	59	36%
7	Graduate	Stable	98	60%
	Graduate	Low	5	3%

Table.1

	How do you rate your industrial	Excellent	16	10%
8	skill with present industrial	Very Good	61	38%
0	scenario?	Good	76	47%

		Satisfactory	10	6%
		Unsatisfactory	0	0%
	How do you gets your	Excellent	22	14%
	How do you rate your	Very Good	62	38%
9	providing remedial class and	Good	66	41%
	personal care?	Satisfactory	10	6%
		Unsatisfactory	3	2%
		Excellent	27	17%
	How do your rate your	Very Good	66	41%
10	computer lab facility provided	Good	63	39%
	by your college?	Satisfactory	12	7%
		Unsatisfactory	3	2%
	How do your rate your library facility provided by your college?	Excellent	34	21%
		Very Good	57	35%
11		Good	71	44%
		Satisfactory	5	3%
		Unsatisfactory	4	2%
		Excellent	34	21%
	How do you rate your	Very Good	51	31%
12	department on industry and	Good	73	45%
	institution tie-up level?	Satisfactory	13	8%
		Unsatisfactory	0	0%
	How do you rate your	Excellent	35	22%
	department on providing	Very Good	60	37%
13	entrepreneurship development	Good	69	43%
	program level?	Satisfactory	6	4%
	program lever?	Unsatisfactory	1	1%

## Inference

The Above table 1 shows the following Of all responses, 2% were under the age of 18, 36% were between the ages of 18-20, 38% were between the ages of 21-22, and 62% were over the age of 22. are female and 31% are male. Overall, 40% of respondents live in rural areas, 43% in metropolitan areas and 18% in semi-urban areas. Only 2% of respondents' parents or guardians are illiterate, 28% are in school, 50% are illiterate without a bachelor's degree, and 20% are college graduates. Of all respondents, 5% said they had accounting and finance experience. 17% said they have marketing experience. 16% said they have experience in production management. 9% said they had tax experience in HR management. 9% said they had PR experience.

Of all respondents, 22% said they had good professionalism in business education, 57.00% believed they had good professionalism, and 17.00% said they had moderate professionalism and

4.00% believed it to be unprofessional. A good understanding of conceptual knowledge was achieved by 37% of all respondents. The increase included him, with 30% very good, 18% good knowledge, 9% fair and 0.6% poor. Of all respondents, 48% are learning about job quality. 23% received very good information. 20% have sufficient knowledge. 7. I am satisfied. and 1. dissatisfaction. Of all respondents, 41% said their involvement in their work was excellent, 29% very good, 24% good, 5% satisfied and 1% dissatisfied. Of all respondents, 44% said they were doing a great job, 29% were very good, 22% were good, 4% were satisfied, and 1% were dissatisfied.

Of all respondents, 40% said they were good at taking risks in their job, 31% said they were very good at it, 24% said they were good at it, 3% said they were happy, 2% said they were unsatisfied. Of all respondents, 40% said they were good at taking risks in their job, 31% said they were very good at it, 24% said they were good at it, 3% said they were happy, 2% said theywere unsatisfied. Of all respondents, 48% said their management skills were excellent, 27% said they were excellent, 19% said they were excellent, and 6% were satisfied 1% said they were unsatisfied. Of all respondents, 36 feel they are good at financial management, 36% are very good, 20% are good, 7% are satisfied and 1% are dissatisfied. I was. Of all respondents, 46% said their marketing and communication skills were excellent, 28% said they were very good, 21% said they were excellent, and 5% said they were dissatisfied.

40% of all respondents felt they had good technical skills, 31% very good, 23% good, 4% satisfied and 1% dissatisfied. Overall, 47% of respondents felt they had good innovation skills, with 35% feeling very good, 15% good, 2% satisfied, and 1% dissatisfied. 41% of all respondents felt that their math skills were excellent, with 30% very good, 22% good, 7% satisfied and 0% dissatisfied. Overall, 44% of respondents felt they had good communication skills, 35% very good, 15% very good, 6% satisfied and 0% dissatisfied. Overall, 43% of respondents felt they had good problemsolving skills, with 34% very good, 20% good, 2% satisfied and 1% dissatisfied. 41% of respondents felt they had good leadership skills, with 32% very good, 22% good, 4% satisfied and 0% dissatisfied. 38% of the total number of respondents felt they had a good knowledge of tax and legal matters, 38% felt very good, 21% good, 3% satisfied and 1% unsatisfied.

## FINDINGS:

It is noted that the majority of respondents are between the ages of 18 and 20 - 36% and 22+ - 38%. Of all respondents, 69% are female and 31% are male. The majority of respondents live in urban areas, with 43% and 40% living in rural areas. The majority of respondents were undergraduates, with 50% and 28% high school graduates. The majority of respondents feel they have a spare in information technology, with 22% and 17% participating in marketing. The majority of respondents consider commercial training professionalism to be good, with 57% and 22% doing very well. The majority of respondents believe commerce demand is stable, with 60% and 36% saying it is high. The majority of respondents achieved excellent knowledge in terms of conceptual knowledge, and 30% achieved very good knowledge. The majority of respondents, 48%, got knowledge about job quality, and 23% got very good knowledge. The majority of those

surveyed say their commitment to their work is excellent, with 29% saying it is very good. The majority of respondents said they were good at getting the job done, with 29 saying they were very good at it. Most respondents say they are good at taking risks at work, with 31 saying they are very good at it. The majority of respondents said they had good management skills, with 27 saying they were very good. The majority of respondents said they had good financial skills, with 36 saying they were very good. Most of the respondents said their marketing and communication skills were excellent, with 28 saying they were very good. The majority of respondents said their marketing and communication skills were excellent, with 31% saying they have very good skills. The majority of respondents say they have good technical skills, with 31% saying they have very good skills. The majority of respondents say they have good math skills, with 30% saying they are very good. Most respondents said they had good problem-solving skills and 34 very good skills. The majority of respondents said they had good leadership skills, with 32 saying they were very good. The majority of respondents said they had good knowledge of tax and legal matters, with 38, It saying they were very good.

### **CONCLUSION:**

Commerce education plays a vital role in accounting and taxation. The exposure for the commerce students should be improved. From the above study, it is identified that the students pursing commerce program they are given enough training related to communication, accounting, problem solving, leadership skill, knowledge on taxes and laws, numerical ability, managerial, innovation and entrepreneurship etc. but even they are offered with internship, summer projects, commerce practical and project work their application knowledge in real time is not up to the mark. To exploit the various opportunities related to Banking, Finance, Accounting and management, the facilities like, library, internet, MoU's with different companies and agencies should be improved. Through planning and offering relevant and practical oriented Commerce Education, we may establish global competitiveness to our students. By enabling social awareness among commerce students, they can identify their opportunities to grow.

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## FINANCIALTECHNOLOGY

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## **ABSTRACT:**

The term "financial technology" refers to theapplication of technology from the provision offinancial service. Fin Tech companies are attractingthe interest of both financial services user and investment firms, which see them as the future of the financial sector. The fintechdocument not only reviews the current research characteristics and trajectories but also helps scholars find the appropriate research entry point and conduct in-depthresearch.

#### Keywords: Financial, AI, Customers, Services

### **INTRODUCTION**

Financial technology as an emerging technical isdriven by a variety of emerging frontiertechnologies. New technology applications, and new products and services that have a significantimpact on the financial market and supply offinancial services. The traditional development of the financial industry. Fin Tech promotes the development of the financial industry.

Fin Techstartups, technology developers, government,financial customers, and traditional. Trading and investments trategies based on artificial intelligence and big date can redefine the price discovery mechanism of the financial market.

## FINANCIAL TECHNOLOGY AND SERVICES:

#### **Crowdfundingplatforms:**

The platforms allow entrepreneurs and early-stage business to raise funds from all over theworld, allowing them to bypass geographicalboundaries and reach international market andinvestors.

#### Mobilepayments:

Mobile payment applications and gateways areone of the most prevalent uses of the fin tech.

Suchapplication allow users to carry out bankingactivities without physically visiting a bank.

#### Insuretech:

Theterminsuretechreferstotheapplicationoftechnology to the insurance model, which allowscompanies to provide tailored insurance services and data security.

#### **Reg tech:**

Regtech(regulatorytechnology)focusontheautomationofcomplianceprocessforfinancialinstitutions **BENEFITS OF FIN TECH:** 

#### **Economicopportunities:**

The industry creates jobs and attractsinvestment. While government estimate

thataround76000peoplecurrentlyworkinfintech, the

departmentofinternationaltradethatthiswillgrowby2023.

## Improvedspeedandefficiency:

Digitising and automating finance allows services that may have taken days in the past to becompleted in a matter of seconds. Slow and costly settlement processes, Such as those for reconciling payments, can be speedup by distributed ledgertechnology.

#### Improved financial inclusion:

While there is a risk that new technologies mayopenupnewformsofexclusion,fintechadvocateargue that they have the power to include morepeople in the financial system. Allowing morepeople and businesses access to credit and themany other services that a good credit scoreenables.

### Characteristicsoffinancialtechnology:Accesstoallusers:

In traditional financial services, the customeriseevaluated on the basis of his ownership of largeassets or periodic receipt of huge income, whichmakes these services limited to certain social classes, while emerging companies target all classes and groups and continuously enhance their capabilities through partnership or redesign of products designed for low-income customers.

## Flexibilityandaffordability;

Fintechstartups havesandservices, especiallyclen energy, that are differences on adaily weeklyorevenmonthlybasis.

### Speed:

Powerful analytics allow fin tech companies to movequickly with transaction completed in a fewminutes using big data , algorithms and machinelearning, and compared to traditional smallinsurance companies that can take several daysbefore a new policy is approved or a loan isapproved, this applies in lending and new whenverifying digital identity.

Datapolicyfirst,mobilephonesfirst:This policy can improve the products and services provided to design suitable services forhem. There is no doubt that powerful analyticsallowbusinessownerstomakebetterdecisionsandseizeopportunities.

 $\label{eq:constraint} \textbf{Technologies that contribute to fintech:} \\ Artificial intelligence (AI) and Machine learning (ML)$ 

Big Data and Data AnalyticsRoboticProcessAutomation (RPA)Blockchain

## **CONCLUSION:**

The advent of cutting-edge technologies coupled with customer's demand for safe and more userfriendly banking experience has led the banks and financial services to readily adopt Fintech. demonstrated Thispaper that Fintech firms have thepotentialtosignificantlychangethefinancialsectorlandscape by providing innovative products andservices that respond to users needs fortrust, speed, low cost and security. However, at thesametime, regulatory authorities need to balance carefully efficiency and stability trade-offs. Theyneed to be assured the risks of financial stabilityand integirity, which results from cyberattacks, moneylaundering, terrorismfinancingcaneffectively be managed without stiflinginnovations, Rules and standards, will need to be developed to ensure the integrity of data, systemsprocedures and platforms. International cooperations is therefore essential to ensure that effectively regulatory frameworks are developed to address the challenges posed by fintech.

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## THE ROLE OF ELECTRONIC BANKING SERVICES IN INDIAN BANKING SECTOR

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## **ABSTRACT:**

Today we have electronic payment system laterally with currency notes. India's financial sector is moving towards a scenario, where it can have new instruments along with liquidity and safety. The arrival of the card, an introduction of Electronic Clearing Service (ECS) in late 1990's, , the introduction of Electronic Funds Transfer, Real Time Gross Settlement (RTGS), an introduction of NEFT (National Electronic Funds Transfer), mobile banking, online banking are the various innovations in banking. Banks are investing heavily in the adoption of these innovations. This paper highpoints the benefits of changing banking trends.

#### Keywords: Electronic banking, Benefits, Impact and Importance, Services, India

#### **INTRODUCTION**

Banking in India has been over a long journey. Indian Banking Sector has perceived a some changes. The usage of e-banking by the enterprises came into existence in mid-90's.e banking came into existence in better numbers because of low operating costs. First, it is in the form of ATM's and phone transactions. Recently it misshapen to the internet a new channel between customers and banks which benefits both. The main aim of e-banking services is to provide the customers a much faster services with low cost. From the last twenty years, the banking sector has selected a new method of banking based on the progress of information technology. In addition to these customers, transaction and communication abilities are fastened based on information technology. Now all the banks have started with the concept of E-banking services, like ATMs, credit cards, debit cards, telephone/mobile banking, internet banking, call centres, etc. The role of banking is redefined from a mere financial intermediary to service provider of various financial services under one gable acting as a financial supermarket. Penetrating competition among the banks has redefined the concept of the entire banking system. The banks are looking for new ways not only to attract but also to retain the customers and gain the competitive advantage over their competitors.

#### **OBJECTIVES OF THE STUDY**

- 1. To understand the need of E-banking services in India.
- 2. To know the impact of E-banking services in India.

- 3. To aware the importance pertaining toE-banking services in India.
- 4. To realize the benefits of E-banking services in India.

# METHODOLOGY

Secondary data has been collected for this paper. The same has been gathered from various sources like journals, books, magazines, and reports.

## **REVIEW OF LITERATURE**

**VijayaRatnam and SugunaKumari (2005)** in their article "Customer Service in Commercial Banks in the New Era" concludes that to ensure their competitive edge in future, they have to fight with opponentsregarding quality of their service. The challenges that lie before the bankers are four fold. First, they essential to satisfy customer needs that are complex and difficult to manage. Second, they need to face up to increased competition from within the sector and from new participants coming into the financial sector market. Third, they need to address the stresses based in the supply chain. Finally, they must continually create new products and services to attract and retain the customer.

**Venkatesh and Periasamy** (2006) in their article "Role of e-Banking in Emerging Scenario" have stated that the prospects, therefore, lie in firming the package of innovative banking services already provided as well as offering complementary services where the banking and foreign exchange financial service industries should start to concentrate towards the customer- oriented outlook with positive regulations to face the 22nd century customers.

**Tammy Parker and Michael Parker (2012)**in their study investigateelectronic banking in Finland and its historical development. Data are collected for MI and GDP to calculate money velocity. Money velocity is found to substantially decrease in 1991 due to a redefinition of MI Finland, but more importantly, rapidity showed a slight downward trend before the redefinition and following the redefinitions. This downward trend goes against what we would have expected to occur in an environment of increasing technology in the banking sector.

## What is E-banking?

Electronic funds transfer means computer systems are used to achieve financial transactions electronically. The EFT is used for electronic payments and customer initiated dealings where the cardholder pays using credit or debit card.

The transaction types are, Withdrawal,deposit,inter-account transfer, inquiry, administrative transactions that covers non-financial transactions including PIN change. Electronic Fund Transfer transactions need authorization, and a means to match the card and card holder.EFT transactions require the cardholder's PIN to send online in encrypted form for validation by the issuer of the card.Electronic funds transfer transactions are initiated during e-banking procedures.The different methods of e-banking are

- Online banking
- Short message service banking
- Telephone banking
- Mobile banking
- Interactive -TV banking

## **IMPORTANCE OF E-BANKING:**

E-banking provides many advantages for banks and customer's .e-banking has made life much calmer and banking much faster for both customers and banks.Main advantages are as follows.

- It saves time spent in banks
- It provides ways for international banking.
- It provides banking throughout the year 24/7 days from any place have internet access.
- It provides well-organized cash management for internet optimization
- It delivers convenience regarding capital, labor, time all the resources needed to make a transaction.
- Taking advantage of integrated banking services, banks may compete in new markets, can get new customers and grow their market share.
- It provides some security and privacy to customers, by using state-of-the-art encryption and security technologies.

## IMPACT OF E-BANKING SERVICES IN INDIA

Technology has been one of the most significant issues for the development of the nation. Information and communications are a significant part in the field of technology which is used for accessing, processing, storage and broadcasting of information electronically. E-banking is one of the emerging trends in the banking and is singing a unique role in strengthening the banking sector and cultivating service quality. It has enabled the banks to handle the payments electronically and inter-bank settlement faster and in large volumes. Customers can view the accounts, get account statements, transfer funds, purchase drafts by just making a few key punches. Availability of ATMs and plastic cards, EFT, electronic clearing services, internet banking, mobile banking, and phone banking to a large extent avoid customers going to branch premises and has provided a broader range of services to the customers.

## **BENEFITS OF E-BANKING**

- Account Information: Real-time balance information and summary of day's transaction.
- Fund Transfer: Manage your Supply-Chain network, effectively by using our online hand transfer mechanism. We can effect fund transfer on a real time basis across the bank locations.
- > Request: Make a banking request online.
- > Downloading of account statements as an excel file or text file.
- Customers can also submit the following requests online: Registration for account statements by e-mail daily/weekly/fortnightly/monthly basis.
- Stop payment or cheques
- Cheque book replenishment
- Demand Draft/Pay-order
- An Opening of fixed deposit account
- An Opening of Letter of credit
- Customers can integrate the System with his own ERP
- Bill Payment through Electronic Banking

- The Electronic Shopping Mall
- Effecting Personal Investments through Electronic Banking
- Investing in Mutual funds
- Initial Public Offers Online

# LIMITATION OF E-BANKING

- Safety situations around ATMs.
- Misuse of bank cards by fraudsters at ATMs.
- > The Danger of giving your card number when buying on-line.

# **E-BANKING SERVICES IN INDIA**

In India, since 1997, when the ICICI Bank first offered internet banking services, today, most new-generation banks proposal the same to their customers. All major banks provide e-banking services to their customers. The following vital E-banking services are provided the Indian banking sector.

# Popular services under e-banking in India

- ATMs (Automated Teller Machines)
- Telephone Banking
- Electronic Clearing Cards
- Smart Cards
- EFT (Electronic Funds Transfer) System
- ECS (Electronic Clearing Services)
- Mobile Banking
- Internet Banking
- Telebanking
- Door-step Banking

# CONCLUSION

With time, the thought of internet banking has got attention in the Indian context. Most of the banks have already executed the e-banking facilities, as these facilities are beneficial to both, i.e., banks as well asconsumers. The banks are facing many challenges, and many opportunities are available with the banks. Many financial innovations like ATMs, Credit cards, RTGS, Debit cards, Mobile banking, etc. have completely changed the face of Indian banking. Thus, there is a model shift from the seller's market to buyer's market in the industry, and finally, it affected atthe bankers level to change their approach from "conventional banking to convenience banking" and "mass banking to class banking." The shift has also increased the degree of accessibility of a mutual man to the bank for his variety of wants and requirements. In years to come, e-banking will not only be an acceptable mode of banking but will be favoured mode of banking.

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#### **RISK MANAGEMENT**

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#### ABSTRACT.

Risk management is an activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. Some traditional risk managements are focused on risks stemming from physical or legal causes (e.g. natural disasters or fires, accidents, death). Financial risk management, on the other hand, focuses on risks that can be managed using traded financial instruments. Objective of risk management is to reduce different risks related to a pre-selected domain to an acceptable. It may refer to numerous types of threats caused by environment, technology, humans, organizations and politics. The paper describes the different steps in the risk management process which methods are used in the different steps, and provides some examples for risk and safety management.

Key word: Recognition ,Action of recognizing, Environment, Living and Non living elements, Technology, Obtaining and transformation

#### **Introduction :**

Risk can be defined as the chance of loss or an unfavorable outcome associated with an action. Uncertainty does not know what will happen in the future, the greater the uncertainty, the greater the risk. For an individual, risk management involves optimizing expected returns subject to the risks involved and risk tolerance. Risk is what makes it possible to make a profit. If there was no risk, there would be no return to the ability to successfully manage it. For each decision there is a risk return tradeoff. Anytime there is a possibility of loss (risk), there should be an opportunity for profit.

#### **Definition of Risk Management :**

Risk management is an integrated process of delineating (define) specific areas of risk, developing a comprehensive plan, integrating the plan, and conducting the ongoing evaluation'

– Dr. P.K. GUPTA

# Risk Management is the process of measuring, or assessing risk and then developing strategies to manage the risk'

– Wikipedi

Managing the risk can involve taking out insurance against a loss, hedging a loan against interest rate rises, and protecting an investment against a fall in interest rates'

- Oxford Business Dictionary

When an entity makes an investment decision, it exposes itself to a number of financial risks. The quantum of such risks depends on the type of financial instrument. These financial risks might be in the form of high inflation, volatility in capital markets, recession, bankruptcy, etc. So, in order to minimize and control the exposure of investment to such risks, fund managers and investors practice risk management.

#### **RISK MANAGEMENT PROCESS :**

#### **1.Establish the Context :**

The purpose of this stage of planning enables to understand the environment in which the respective organization operates, that means the thoroughly understand the external environment and the internal culture of the organization. You cannot resolve a risk if you do not know that it is. At the initial stage it is necessary to establish the context of risk. To establish the context there is a need to collect relevant data. There is a need to map the scope of the risks and objectives of the organization.

#### 2. Identification :

After establishing the context, the next step in the process of managing risk is to identify potential risks. Risks are about events that, when triggered, will cause problems. Hence, risk identification can start with the source of problems, or with the problem itself. Risk identification requires knowledge of the organization, the market in which it operates, the legal, social, economic, political, and climatic environment in which it does its business, its financial strengths and weaknesses, its helplessness to unplanned losses, the manufacturing processes, and the management systems and business mechanism by which it operates. Any failure at this stage to identify risk may cause a major loss for the organization. Risk identification provides the foundation of risk management. The identification methods are formed by templates or the development of templates for identifying source, problem or event. The various methods of risk identification are – Brainstorming, interview, checklists, structured 'What-if' technique(SWIFT), scenario analysis, Fault Tree Analysis (FTA), Bow Tie Analysis, Direct observations, incident analysis, surveys, etc.

#### 3. Assessment :

Once risks have been identified, they must then be assessed as to their potential severity of loss and to the probability of occurrence. These quantities can be either simple to measure, in the case of the value of a lost building, or impossible to know for sure in the case of the probability of an unlikely event occurring. Therefore, in the assessment process it is critical to make the best educated guesses possible in order to properly prioritize the implementation of the risk management plan. The fundamental difficulty in risk assessment is determining the rate of occurrence since statistical information is not available on all kind of past incidents. Nevertheless, risk assessment should produce such information for the management of theorganization that the primary risks are easy to understand and that the risk management decisionsmay be prioritized. Thus, there have been several theories and attempts to quantify risks.

## 4. Potential Risk Treatments :

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four major categories.

#### a) Risk Transfer :

Risk transfer means that the expected party transfers whole or part of the losses consequential to risk exposure to another party for a cost. The insurance contracts fundamentally involve risk transfers. Apart from the insurance device, there are certain other techniques by which the risk may be transferred.

#### **b) Risk Avoidance :**

Avoid the risk or the circumstances which may lead to losses in another way, includes not performing an activity that could carry risk. Avoidance may seem the answer to all risks but avoiding risks also means losing out on the potential gain that accepting (retaining) the risk may have allowed. Not entering a business to avoid the risk of loss also avoids the possibility of earning the profits.

#### c) Risk Retention :

Risk retention implies that the losses arising due to a risk exposure shall be retained or assumed by the party or the organization. Risk retention is generally a deliberate decision for business organizations inherited with the following characteristics. Self-insurance and Captive insurance are the two methods of retention. A 'captive insurer' is generally defined as an insurance company that is wholly owned and controlled by its insured's; its primary purpose is to insure the risks of its owners, and its insured's benefit from the captive insurer's underwriting profits.

#### d) Risk Control :

Risk can be controlled wither by avoidance or by controlling losses. Avoidance implies that either a certain loss exposure is not acquired or an existing one is neglected. Loss control can be exercised in two ways –

- (i) Create the plan and
- (ii) Risk Control.

#### (i).Create the Plan :

Decide on the combination of methods to be used for each risk. Each risk management decision should be recorded and approved by the appropriate level of management. For example, a risk concerning the image of the organization should have top management decision behind it. Whereas, IT management would have the authority to decide on computer virus risks. The risk management plan should propose applicable and effective security controls for managing the risks. Example – An observed high risk of computer viruses could be mitigated by acquiring and implementing antivirus software.

#### (ii). Risk Control :

Once the risk is evaluated, it has to be controlled. In the case of the worker working under the machine that will fall any moment on top of him, risk control implies primarily moving the worker from under there and then fixing the machine so as it does not fall on anyone. Thus the steps involved are immediate directions preventing the risk and isolating or better removing the hazard to eliminate the risk. Avoiding the risk is the decision of either proceeding in the planned direction or opts for an alternate route which has less risk and is in line with the final objective. Reducing the risk occurrence probability or impact of its consequences or both can be considered while facing a risk. Transferring the risk is another option, mostly done through buying insurance. Other ways include lease agreements waivers, disclaimers, tickets, and warning signs. Retaining the risk can be another strategy where one knows that it is an inherent part of the event.

#### 5. Review and evaluation of the plan :

Initial risk management plans will never be perfect. Practice, experience and actual loss results, will necessitate changes in the plan and contribute information to allow possible different decisions to be made in dealing with the risk being faced. Risk analysis results and management plans should be updated periodically.

There are two primary reasons for this - To evaluate whether the previously selected security controls are still applicable and effective and To evaluate the possible risk level changes in the business movement.

#### An integrated approach to Corporate Risk Management :

Corporate risk management refers to all of the methods that a company uses to minimize financial losses. Risk managers, executives, line mangers and middle managers, as well as all employees, perform practices to prevent loss exposure through internal controls of people and technologies. Risk management also relates to external threats to a corporation, such as the fluctuations in the financial market that affect its financial assets.

#### a) Protecting shareholders :

A corporation has at least one shareholder. A large corporation, such as a publicly traded or employee owned firm, has thousands, or even millions, of shareholders. Corporate risk management protects the investment of shareholders through specific measures to control risk. For example, a company needs to ensure that its funds for capital projects, such as construction or technology development, are protected until they are ready to use.

#### b)Types of risk :

Consider the types of risk that corporation must address every day. A corporation may become insolvent if it has not bought insurance, implemented loss control measures and used other practices to prevent financial loss. Insurance is no substitute for successfully identifying measures to prevent losses, such as safety training to prevent worker injuries and deaths. Risks can include hazard risks, financial risks, personal injury and death, business interruption / loss of services, damage to a corporation's reputation, errors and omissions and lawsuits.

### c) Probability and consequences :

To prevent financial losses, a corporation engages in a certain amount of speculation. A risk manager calculates the probability of each type of event that would damage the firm's financial position and the consequences. Calculating the likelihood that something will happen and its associated costs enables a risk manager to recommend ways to address the most probable risks to senior management, the board of directors and owners of the corporation.

#### d)Solutions :

A corporate risk manger is a multi disciplinary professional with an understanding of internal business processes and many financial instruments. This professional might have a background in business management, finance, insurance or actuarial science. He might suggest solutions to a corporation to protect its assets. For instance, he might recommend buying millions of dollars in commercial liability insurance coverage. Some risks that he calculates, as potentially damaging to the corporation, are ignored while others are covered by this liability policy.

## **Risk Management Approaches and Methods :**

If you are a business leader, then you already know the importance of risk control. It is imperative that your business has a formal policy to limit the loss of assets and income. Here are the6 techniques associated with risk management.

### a) Avoidance :

Avoidance is the best means of loss control. This is because, as the name implies, you are avoiding the risk completely. If your efforts at avoiding the loss have been successful, then there is a 0% probability that you will suffer a loss. This is why avoidance is generally the first of the risk management techniques that is considered. It is a means of completely eliminating a threat.

### **b)** Loss Prevention :

Loss prevention is a technique that limits, rather than eliminates, loss instead of avoiding a risk completely, this technique accepts a risk but attempts to minimize the loss as a result of it. For example, storing inventory in a warehouse means that it is susceptible to theft. However, since there really is no way to avoid it, a loss prevention program is put in place to minimize the loss. This program can include patrolling security guards, video cameras, and secured storage facilities. **c) Loss Reduction :** 

Loss reduction is a technique that not only accepts risks, but accepts the fact that loss might occur as a result of the risk. This technique will seek to minimize the loss in the event of some type of threat. For example, a company might need to store flammable material in a warehouse. Company management realizes that this is a necessary risk and decides to install state-of-the-art water sprinklers in the warehouse. If a fire occurs, the amount of loss will be minimized.

#### d) Separation :

Separation is a risk management technique that involves dispersing key assets. This ensures that if something catastrophic occurs at one location, the impact to the business is limited to the assets only at that location. On the other hand, if all assets were at that location, then the business would face a much more serious challenge. An example of this is when a company utilizes a geographically diversified workforce.

## e) Duplication :

Duplication is a risk management technique that essentially involves the creation of a backup plan. This is often necessary with technology. A failure with an information systems

server should not bring the whole business to a halt. Instead, a backup or failover server should be really available for access in the event that the primary serve fails. Another example of duplication as a risk management technique is when a company makes use of disaster recovery service.

## f) Diversification :

Diversification is a risk management technique that allocates business resources to create multiple lines of business that offer a variety of products and / or services in different industries. With diversification, a significant revenue loss from one line of business will not cause irreparable harm to the company's bottom line. Risk management is a key component in any sound company strategy. It is necessary to ensure long term organization sustainability and profitability.

### **Risk Reporting Process :**

Risk reporting is communication of risk and risk management outcomes for the purpose of comparing the results with the policy. An organization should ensure that information about risks derived from the risk management process is adequately reported, and used as a basis for decision making at all relevant levels. For this, clear reporting line mechanisms and strong interdepartment knowledge sharing should be established in order to encourage accountability of risk, and to ensure reports are delivered in an accurate, consistent and timely manner. Inadequate risk reporting can lead to a failure to fully integrate identified risks into strategic and operational decisions. The organization should report on progress against the risk management plan by proving how well the risk management policy is being followed, to ensure that risk management is effective and continues to support organizational performance.

More specifically : The results from risk

The results from risk monitoring and review should be recorded and reported internally and externally, if appropriate. Development in implementation of risk treatment plans should be incorporated into the organization's overall performance management. Enhanced risk management includes continual communications with external and internal stakeholders.

The quality and success of risk reporting depends on the following factors -

## a) Target audience.

- b) Input and processes.
- c) Frequency
- d) Content
- e) Format

## f) Dissemination channels.

There are two areas of risk reporting -

## A. Reporting to internal audiences

## B. Reporting to external audiences.

The reporting of risks is essential for internal decision makers to integrate risk evaluation into their operational and investment strategy, to review performance and to review compensation / reward decisions. External risk reporting has rapidly developed in recent years,

corporate governance reports also focus attention on internal control, and a review of risks is generally included in the annual reports.

Inputs' and 'processes' are also critical. The most important inputs are represented by -

- $\checkmark$  The various risks an organization is facing.
- $\checkmark$  The stakeholder risk reporting requirements and expectations.
- ✓ The organization's existing risk management governance that provides the context for establishing risk reporting processes.
- ✓ The organizational resources (such as individuals with the necessary skills and experiencefinancial resources, and access to required information). Decision must be taken on which risksto report in what detail, and with what reporting frequency.

#### a) Internal Reporting :

The organization should establish internal reporting mechanisms in order to support and encourage accountability and ownership of risk. These mechanisms should ensure that, key components of the risk management framework, its effectiveness and the outcomes and any subsequent modifications, are properly disseminated, relevant information derived from the application of risk management is available at appropriate levels and times, and there are processes for consultation with internal stakeholders. These mechanisms should, where appropriate, include processes to consolidate risk information from a variety of sources, and mayneed to consider the sensitivity of the information. Internal risk reports can either be real-time or periodic. The main purpose of periodic internal risk reports is to provide aggregate information about various relevant organizational risks, with trend indicators and periodic comparisonshighlighting changes in risks. Periodic internal risk reporting contributes to strategic oversight and decision making, as well as improved operational business decisions. Risk information may be organized around specific key risk categories rather than around phases of the risk management process. Residual risk reporting involves comparing gross risk (the assessment of risk before controls or risk responses are applied) and net risk (the assessment or risk, taking into account any controls or risk responses applied) to enables a review of risk response effectiveness and alternative management options. Risk reporting to the board and committees should be madeat least quarterly.

#### **b) External reporting :**

Organizations are under increasing pressure for greater transparency, mandated or voluntary, and a better alignment of externally reported information with that which is reported internally. Stakeholders expect intensified corporate dissemination regarding risk, and awareness of the critical role of proper risk management. In view of this, an organization should provide accurate, timely and high quality reports to meet the external stakeholder's needs. Specifically, it should periodically conduct a review of the effectiveness of the risk management system and report to stakeholders on that, and a robust assessment of the principal risks, describing them and explaining how they are being managed or mitigated.

## **Risk Management Organization Structure :**

Organizational structure is the framework that holds an organization together and defines the lines of authority within a company, nonprofit organization or governmental agency. A well defined organizational structure provides a clear path for risk assessment procedures. Before risk assessment teams can begin to work, each member of the team must have a good working understanding of how the company is organized. The organizational structure will show team members who is responsible for each area or operation being evaluated.

#### a) Traditional Structures :

Traditional organizational structures typically show clear lines of authority that emanate from a central manager at the top of the organization. The authority vested in each department is clearly defined by its place within the organizational structure. Risk assessment operations can become bogged down when assessment operations are required to strictly follow established lines of authority in the company. The management of risks that cross these established lines can become a complicated process requiring intervention from the senior leadership.

#### **b) Modern Structures :**

Modern organizational structures are arranged around teams, organizational processes, organizational functions and virtual operations. These types of organizational structures allow companies greater flexibility to react and adjust to changing market conditions and advancing technology. Risk assessment teams may find modern organizational structures difficult to understand because there may not be clear lines of authority for reporting identified risks. In response to these changing business realities, many organizations are turning to enterprise risk management systems to evaluate and control risks. Effective Risk Management (ERM) helps management define how risk factors are interrelated in an organization.

#### **CONCLUSION:**

Risk assessment may find modern organizational structures difficult to understand because there may not be clear lines of authority for reporting identified risks. In response to these changing business realities, many organizations are turning to enterprise risk management systems to evaluate and control risks.

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## A STUDY OF CONSUMER BUYING BEHAVIOR TOWARDS TWO-WHEELER IN REFERENCE TO THE ARTS COLLEGE STUDENTS RASIPURAM TALUK

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## **ABSTRACT:**

This study is founded to classify the factors that inspires the consumer buying behaviour of the two-wheeler Bikes at Rasipuram taluk of Namakkal District. The investigation is mainly focused on the college students buying behaviour of the consumer that motivates them to purchase the two-wheeler bikes.

## Keywords:Two-wheeler, consumer buying behaviour, products

## **INTRODUCTION**

India is the second largest country in the world which has been comprised lots of lower-and middle-class segments. As transportation is still one of the biggest challenges in many parts of country many look forward towards the two wheelers industry. The two-wheeler industry is classified into various ranges named as motor bikes, scooters and mopeds which come up from affordable till the classy costly one. The two-wheeler has deep connection with most of theIndian family over a period of time. The two- wheeler can be classified based on the segments which are categorized according to the power and style. Two-wheelers are known to be one of the most convenient modes for personal commuting which is very flexible in operations with comfort and immense look.

Two-wheeler's demand is very rapidly increasing in Indian society and the market is increasing because of which India becomes one of the biggest markets for two-wheelers in the world. The factors for which the demand is increasing include the rise of the standard of living, rapid development in the cities, villages, etc., change in the government policies and so on. The power, performance and maintenance cost are the primary factors which most of the two-wheelerbuyers considered. Bikes are considered to be the favorites among the youth generation, as they help in easy communication, styling and mileage and have more aesthetic appeal. It is quite evident that knowing consumer needs and desires is a road to success for the marketer, but the question is how? It is not a simple task. At the first instance, we can feel that whatever the consumer is telling may be perceived as correct but actually he may not act otherwise. They may respond to the message but may be influenced at the last moment by their friends, family members or by other reference groups.

Consumer behavior is the study of how people buy, what they buy, when they buy and why they buy. consumer behavior is the psychology behind marketing the behavior of consumer's in the marketing environment. Two major psychological disciplines come into play when observing and trying to explain consumer behavior. The first is cognitive psychology which is a study of all knowledge related (mental) behavior. The attention, perception memory and decision making are

the various aspects of cognitive psychology that play an important role in consumer behavior. The second psychological discipline that has theories to explain certain phenomena of consumer behavior is social psychology. It is the study of the manner in which the personality, attitude, motivation and behavior of an individual influence and are influenced by groups.

#### **OBJECTIVES OF THE STUDY**

1. To identify the socio-economic characteristics of the respondents

2. to find out the buying behavior of consumers for two-wheeler, the main influences and the determinants of decisions.

#### **REVIEW OF LITERATURE**

Relevant literature review has been conducted as per below:

Khan and Rao (2018) study on the subject of "Motorcycle Consumer Behavior, Customer Satisfaction "The main study specializes in the characteristics of the impact of customer satisfaction on consumer performance. Demographics that induce the impact of the independent variable selected in this survey on customer satisfaction. The impact of academic variables on customer satisfaction was investigated: the survey passed a select brand and the knowledge collected a sampling of customer using 600 vehicles in Hyderabad, the hypothesis test was age, gender, economic status, duration of use, it shows that there was no impact on the demographic variable praising full ownership.

Singh and Sharma (2018) researched Panipat's market with the research title of a motorcycle purchase advertisement by women. Data with a sample size of 30 were also collected and shared and analyzed. Information analysis has shown that as many individuals as possible own a bike and most buy it to match ads and word-of-mouth. Finally, most customers are happy with the carthey bought and are happy with the company's sales service.

Yogi (2019) in his study he is focusing on capturing the hearts of customers is the outstanding main design of any business organization in a global business environment. In his paper, they have described customer preferences when purchasing a motorcycle segment to achieve research objectives using the Hierarchical Analysis (AHP) and the Order Preference Method (TOPSIS) by Similarity to the Ideal Solution as a multi-criteria decision- making tool. A survey was conducted to analyze the various criteria to consider when buying a motorcycle among respondents using a structured questionnaire according to the SAATY scale. Based on the research so far on the fuzzy logical approach to the experience of the product quality of the motorcycle and the customer's purchase intention, when purchasing a motorcycle, the operational performance, economy, brand value, and maintenance aspects are taken into account as the customer's decision criteria.

#### **RESEARCH METHODOLOGY**

#### **Research Design**

The study has been conducted through descriptive research as it will help identifying the cause of something that is happening. A structured instrument used to measure the characteristics described in the research questions using approach.

#### 3.3. Sample Design

One set of questionnaires was prepared for the study. The respondents' research was the customers who have already bought two-wheelers and taking the measure on which basis they bought. The sample technique used for the research project is done by non- probability convenience. The date collection size is 120 respondents collected through questionnaire.

#### SOURCES OF DATA

**Primary Data:** The primary data collection of the data research project was on a structured questionnaire. The data were collected using questionnaires online which can be filled by the selected respondents conveniently. Questionnaires were distributed to the customers who owned two –wheelers randomly and this was used for further analysis.

**Secondary Data:** The secondary data is obtained from the internet, journals and the existing research and other common.

## 3.5. Data Collection Tools/ Instruments

Structured questionnaire technique using Google from through online is used for data collection study and questionnaire was distributed to the respondents with a given before filling. **RESULT AND DISCUSSION** 

S.	Gender	Frequency	Percentage	
No				
1	Male	58	48	
2	Female	42	35	
3	Transgender	20	17	
	Total	120	100	
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 Table 1. Gender Distribution of Respondents

#### Source: Primary Data

Table 1 and figure 2 describe the gender distribution of respondents, shows 48% of the respondents are male and 35% are female respondents and no transgender.

		8	
S. No	Age group	Frequency	Percentage
1	19-21	5	4
2	22-24	58	48
3	25-28	43	36
4	29 and Above	14	12
	Total	120	100

**Table 2. Indication of Ages** 

#### **Source: Primary Data**

Table 2 shows the age distribution of the respondents and figure 1 shows the breakup in percentage of age group of the respondents. 4% are the age between 19-21 years, 48% are the age between 22-24 years, and 36% are the age between 25-28 years and 12% falls within the age 29 and above years. From the outcome it can be seen that the majority of the respondents were between groups of 22-24 years.

#### Table 3. currently owned two-wheeler

S. No	Two- wheeler	Frequency	Percentage
1	Bike	53	44
2	Scooter	35	29
3	Moped	18	15
4	E- Scooter	14	12
	Total	120	100

#### **Source: Primary Data**

Table 3 labels the two- wheeler owned by the respondents and figure 3 shows that 44% owned bike, 29% owned scooter and 15% owned moped and E-scooter. etc

S. No	Two- wheeler	Frequency	Percentage
	Brand		
1	Hero	3	2
2	Bajaj	2	2
3	Honda	8	7
4	Yamaha	31	26
5	Royal Enfield	20	17
6	Mahindra	3	2
7	TVS	18	15
8	Suzuki	27	22
9	Aprilia	2	2
10	KTM	4	3
11	Vespa	1	1
12	Kawasaki	1	1
	Total	120	100

Table 4. currently owned two-wheeler brand

#### **Source: Primary Data**

Table 4 and figure 4 shows the two-wheeler brand in which 26% owned Yamaha followed by Suzuki with 22%, 17 owned Royal Enfield product, TVS also having good market in the town with 15%, 7% of the respondents also owned Honda, and 3% owned KTM, 2% owned bajaj. 2% owned Aprilia and Mahindra from the respondents and 1% owned Vespa, Kawasaki, and Hero. From it can be interpreted that the majority of the respondents' i.e., 26% love and own Yamaha two-wheelers.

S. No	Engine Capacity	Frequency	Percentage
1	Less than 100cc	1	1
2	100cc to 150cc	66	55
3	151cc to 250cc	23	19
4	251cc to 300cc	3	2.5

**Table 5. Engine Capacity** 

5	Above 300cc	27	22.5
	Total	120	100
a			

**Source: Primary Data** 

Table 5 classifies the engine capacity and figure 5 shows that 55% of the respondents choose the engine capacity between 100cc to 150cc, 1% choose less than 100cc, 19% choose enginecapacity between 151cc to 250cc, 2.5% choose between 251cc to 300cc engine and 22.5% choose the engine capacity between 100cc to 150cc with 55%.

	I choose my two-wheeler on look and style				
S. No	Particulars	Frequency	Percentage		
1	Strongly Agree	7	6		
2	Agree Disagree	63	52.5		
3	Not sure	18	15		
4	Disagree	28	22.5		
5	Strongly Disagree	4	4		
	Total	120	100		

Table 6. I choose my two-wheeler on look and style

**Source: Primary Data** 

From table 6 and figure 7 it is shown that the majority of the respondents i.e., 63 agree that they have chosen their two-wheeler based on looks and style and 7 strongly agree on it. At the same time 27 disagree and 7 strongly disagree on it. But 18 are not about whether they choose based on look and style. From the findings results it is clear that majority of youth two-wheeler buyer ensure about the look and style of the two-wheeler.

Satisfaction level for the product				
S. No	Particulars	Frequency	Percentage	
1	Dissatisfied	1	1	
2	Neutral satisfied	18	15	
3	Satisfied	70	58	
4	Strongly satisfied	31	26	
	Total	120	100	

 Table 7. Satisfaction level for the product

## Source: Primary data

The table 7 and figure describe the satisfaction level of the product bought by the respondents. From the graph it is clear that 7 respondents are satisfied with the two-wheeler i.e. product they bought and 31 strongly satisfied of the same. 25 are neutral regarding the product they bought which means that they are still confuse whether they are satisfied or dissatisfied. Only I respondent with least rated dissatisfied with the product bought. From the above findings we can know that most of the buyers always buy/choose products which will satisfy them and were happy with the product.

S. No	Satisfied because of	Frequency	Percentage
1	Riding comfort	111	79.9
2	Smooth Engine	96	69.1
3	Availability of spare parts	94	67.6
4	After sales service	64	48.2
5	Good resale value	47	47
6	Good mileage	66	47.5
7	Brand loyalty	69	49.6
8	Good looks and design	74	53.2
9	Tubeless tyres	53	38.1
10	Matches my figure	61	43.9

Table-8

Table 8 and figure 20 shows the reason of satisfaction which were given to select more that one option to the respondents and from it shows that majority of the respondents that is 111 out of 120 i.e. 79.9% select riding comfort as first preference pattern and second highest preference pattern goes to smooth engine which is selected by 96 out 120 (69.1%) and the third highest preference goes to the availability of genuine parts with 67.6% with 94 respondents out of 120 followed by the goods look and design as the fourth preference with 53.2% having 74 respondents and fifth comes up the brand reliability which is also preferred by 69 respondents with 49.6% and the sixth one is after sales service having 67 respondents that is 47.5% and 43.9% i.e. 61 respondents also prefer matches the figure as the eight preference and 38.1% look for tubeless tyres as preference with the second least respondents i.e. respondents and the least preference of the respondents is good resale value with 38.8% having 47 respondents only out of 120.

		Which two	TOTAL			
		Scooter	Bike	Moped	E-scooter	
Gender of	Male	30	57	1	3	91
respondents						
	23	1	3	2	29	
Total		53	58	4	5	120

## 9. Relationship between Gender and two-wheeler owned currently cross tabulation

#### Source: Primary Data

To determine whether there is significant relationship between the gender by the respondents towards two-wheeler association Chi square test was applied the null hypothesis H0: There is no

relation between two- wheeler and various gender of the respondents at 5 percent level of significance.

The calculated value of chi square value at 5 percent level of significant for 3 degree of freedom is 28.7, table value of chi square is 7.815. Hence we accept null hypothesis at 5% level of significance i.e. There is no relationship between gender and two-wheeler owned currently tabulation of the respondents at 5 percentage level of significance. Thus, we can conclude that two-wheeler puts almost similar types of impact on it's viewers regardless of their gender.

## CONCLUSION:

The study reveals that the preference pattern plays an important role when it comes to buying of two-wheeler. However the male are more interested in the two-wheeler and the perception ae different from female. The explanatory research is done to examine the unexamined area of the two-wheeler owners especially focusing the youth of Rasipuram. The participation of the two-wheeler owners in the research helps us knowing the purpose of the buying two-wheeler and let us know that the preference pattern matters a lot. The market of two-wheeler will be more in favor of the additional features which will be much more likely to be eco-friendly and pollution free.

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# A STUDY ON CUSTOMER'S SATISFACTION TOWARDS ATM CARD HOLDERS WITH SPECIAL REFERENCE TO SBI ATM SERVICES IN RASIPURAM TOWN Mr. N.Vaitheeshwaran& Mr. J.Kavinraj, II M.Com

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#### ABSTRACT

This paper attempts to find out the satisfaction level of rural customers in ATM services in Rasipuram. ATM service plays a very important role to the customer point. Even though there are huge development still there are more issues arise while serving the customer for example machine repair, cash surplus, queue and other reasons make the customer uncomfortable at that point of service and made them to wait. For this purpose primary data was collected from 100 respondents of different bank ATM users of Rasipuram.

### Key-words - ATM, Customer Satisfaction, Problems

### **INTRODUCTION**

In the present day world, the service sector is growing at a phenomenal rate. For the developing countries, the need of the hour is to assign due to weight age to the development of service sectors. Automated teller machine is a computerized system that enables the customer to do financial transactions easily. It is an electronic banking outlet that enables customers to perform financial transaction without the need of their bank branch representative and teller. ATMs are a convenient and safe means of managing your fund and doing financial transactions.

It enables customers to check the balance of their bank account, deposit or withdraw money, print account statements, transfer of money between your accounts etc. Use of ATM have revolutionized the whole banking process and has also simplified and reduced the workloadof the banking industry. It saves the customers from visiting their bank branch personally; standing in queues there and filling up of various slips for accessing their bank accounts.

#### **OBJECTIVES OF THE STUDY**

1. To study the socio-economic factors of SBI ATM card holders.

2. To study the factors influencing the level of satisfaction of rural customers using SBI ATM card holders.

3. To study the problems faced by the rural customers while using SBI ATM card holders. **REVIEW OF LITERATURE** 

**1.Adeniran and Junaidu**, (2014), investigated that the extent to which Automated Teller Machine (ATM) services in terms of their ease of use, availability of money, transaction cost and service security affect the customer satisfaction It also indicates that customers are satisfied with the ATM ease of use, transaction cost and service security but not satisfied with the ATM availability of money.

**2.V. Yuvaraj**, (2019), Conclude this article most of the customers are satisfied with the ATM service but the causes which made the customers wait for getting ATM service influenced their

behavior in opinion of level of satisfaction. The educational qualification does not influence the opinion of level of satisfaction. So the bank should take necessary steps to avoid those issues in ATM counters and need to set more ATM machines to avoid long queue in much needed places whereas the surplus cash at ATM counters also need to be solved then the bank can avoid the customers arriving bank for withdrawal.

## **RESEARCH METHODOLOGY**

This study covers both primary data as well as secondary data.

Primary data is a well structured questionnaire was prepared and distributed to the customers of State Bank of India (SBI) in Rasipuram Taluk.

Secondary data was collected from the various published and unpublished reports including books, periodicals, magazines, government reports, journals and websites, etc.

#### **AREA OF THE STUDY**

The area of the study was State Bank of India (SBI) bank branches in Rasipuram Taluk.

#### SAMPLE SIZE

The primary data was collected by interview method through the structured questionnaire. For the purpose of the study the data has been collected in different places of the Rasipuram Taluk, ATM centers and State Bank of India (SBI).One hundred ATM holders were randomly selected for the study as sample. That is the sample size is 100 ATM user of State Bank of India (SBI) in Rasipuram Taluk.

### SAMPLING METHOD

Simple Random sampling method was followed.

## TOOLS USED FOR ANALYSIS

The data collected was analyzed through Percentages, and Weighted Average Method is applied for the analysis of data.

#### **RESULTS AND DISCUSSION**

S.No. Sex		Respondents	Percentage	
1.	Male	56	56.00	
2.	Female	44	44.00	
Total		100	100.00	

Table.1 Sex wise classification

#### Source: Primary data

The above table 1 explains about the gender of the respondents. 56 percent of the respondents are male and the remaining 44 percent of the respondents are female.

 Table -2 Age wise classification

S.No.	Age	Respondents		Total	Percentage
		Male	Female		
1.	Upto 25	10	9	20	20.00
2.	26-35	15	15	30	30.00
3	36-45	13	8	21	21.00

4	46 - 55	12	7	18	18.00
5	Above 55	6	5	11	11.00
	Total	56	44	100	100.00

#### Source: Primary data

The table 2 clearly shows that the age wise classification of people 26-35 years are very high in (30.00) percentage. On the other hand majority of the respondents (21.00) percentage are under the age group of 36-45, (20.00) percentage of the respondents are below 25 age group, (18.00) percentage of the respondents are 46-55 age group and (11.00) percentage respondents are above 55 age group.

The respondents are classified on the basis of marital status and the results are presented in

S.No.	Marital Status	Respondents		Total	Percentage
		Male	Female		
1	Married	35	20	55	55.00
2	Un-married	20	25	45	45.00
	Total	55	45	100	100.00

## Table.3 Marital status of customer

### Source: Primary data

The table 3 shows that 55 percent of the respondents are married, while 45 percent of the respondents are un-married.

## **Table.4 Educational Qualification**

S.No.	Educational	Respondents		Total	Percentage
	Qualification	Male	Female		
1	School Level	14	11	25	25.00
2	UG/Diploma	18	14	32	32.00
3	PG	15	11	26	26.00
4	Professional/Others	9	8	17	17.00
	Total	56	44	100	100.00

#### **Source: Primary Data**

From Table 4, it is observed that 32.00 percent respondents are UG/Diploma, whereas 26.00 percent have PG Level, 25.00 percent of the respondents were School Level, 17.00 percent have Professional/others category.

#### **Table.5.Employment Status**

S.No.	Employment	Respondents		Total	Percentage	
	Status	Male	Female			
1	Business	18	10	28	28.00	
2	Govt Employee	13	12	25	25.00	
3	Private Employee	15	6	21	21.00	
4	Professionals	9	7	16	16.00	
5	Others	7	3	10	10.00	
		Total	62	38	100	100.00
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The Table. 5 shows the occupation of the respondents. Out of 100 respondents, 28.00 percent of respondents are doing Business, 25.00 percent of respondents are Govt Employees. 21.00 percent of respondents are Private Employees, 16.00 percent of respondents are Professionals and 10.00 percent of respondents are others.

S.No.	Monthly Income	Respondents		Total	Percentage
		Male	Female		
1	Less than 10,000	14	12	26	26.00
2	10,000 - 20,000	9	8	17	17.00
3	20,000 - 30,000	14	11	25	25.00
4	30,000 - 40,000	9	13	22	22.00
5	Above 40,000	8	2	10	10.00
	Total	54	46	100	100.00

**Table.6 Monthly Income** 

#### Source: Primary data

The above table.6 reveals that 26 percentage of the respondents are less than Rs.10,000, 25.00 percentage of the respondents are Rs.20,000-30,000, 22.00 percentage of the respondents are between Rs.30,000-40,000, 17.00 percentage of the respondents are between Rs.10,000-20,000 and 10.00 percentage of the respondents are Above Rs.40,000

S.No.	Type of Cards	Respondents		Total	Percentage
		Male	Female		
1	Visa Card	20	17	37	37.00
2	Master Card	18	15	33	33.00
3	Other cards	19	11	30	30.00
	Total	57	43	100	100.00

#### Source: Primary data

From the above table.7, we can ascertain that 37.00 percentage of the respondents have Visa Card, 33.00 percentage of the respondents have Master Card, and 30.00 percentage of the respondents have Other Cards.

		1	8	
S.no	Purpose of ATM	<b>Total Score</b>	MEAN	RANK
1	Cash Withdrawal	356	3.56	Ι
2	Balance enquiry	350	3.50	III
3	Transfer of Funds	352	3.52	II
4	Utility bills payments	338	3.38	IV
5	Other services	337	3.37	V

Table 8. Purpose of using ATM

Source: Primary data

The above table 8 indicates the purpose of using ATM services in scheduled commercial banks. Cash withdrawal, transfer of funds and balance of enquiry various services are the top ranked problems as per the mean scores of the respondents. The problems are treated as most vicious based on the mean scores strength. The problem named other services stands last with low mean score.

Sl.No	Problems of ATM Service	Total Score	Mean Scores	Rank
1	Network failure	528	5.28	Ι
2	ATM card damage	491	4.91	IV
3	Forgot ATM PIN number	473	4.73	VI
4	Machine out of order	455	4.55	VII
5	No printout of statement	422	4.22	VIII
6	No power pack up	503	5.03	III
7	Less No. of ATMs	506	5.06	II
8	Transactions take more times	480	4.80	V

**Table 9- Problems of ATM Services** 

#### **Source: Primary Data**

The above table 9 indicates the problems faced while adopting ATM services in scheduled commercial banks. Network failure, less no. of ATMs and no power pack up ofvarious services are the top ranked problems as per the mean scores of the respondents. The problems are treated as most vicious based on the mean scores strength. The problem named no printout of statement stands last with low mean score.

S.No	<b>Customers'</b>	SA	Α	Ν	DA	SDA	Total	Mean	Rank
	Satisfaction	5	4	3	2	1		Score	
1	Availability of	45	33	12	7	3	410	4.10	Ι
	Cash								
2	Convenience	29	49	11	6	5	391	3.91	III
3	Efficiency	35	37	13	8	7	395	3.95	II
4	Responsiveness	25	43	17	9	6	329	3.29	VII
5	Security & Privacy	31	47	10	7	5	345	3.45	VI
6	Reliability	33	35	15	10	7	377	3.77	IV
7	Technology and	27	37	17	11	8	364	3.64	V
	Service Quality								

 Table.10.Customers' Satisfaction towards ATM

#### **Source: Primary Data**

The above table 10 indicates Customer's satisfaction towards ATM services in scheduled commercial banks. Availability of cash, efficiency and convenience of various services are the top ranked problems as per the mean scores of the respondents. The problems are treated as most vicious based on the mean scores strength. The problem named no printout of responsiveness stands last with low mean score.

#### CONCLUSION

The study provides necessary input to the bank management to increase customer satisfaction through improving ATM service quality. The customers prefer ATM with time and cost utility which provides efficient services. Despite drawbacks in ATMs, it is still preferred as it benefits the bank, employees and customers. It is thus, imperative for banks to ensure that undisrupted and efficient ATM service is provided to customers for best results. Banks should focus on important aspects of security and privacy as well as efficient operation of ATMs.

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#### CONSUMER BUYING BEHAVIOUR TOWARDS SOFT DRINKS IN METTUR TALUK

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#### ABSTRACT:

This study is to categorize the consumer buying behaviour and the problems faced by the respondents while drinking coco cola. The data has been collected from 200 consumers in mettur taluk by applying convenient sampling technique. Statistical tools such as weighted average analysis have been used to analyse the data. The study has attempted to cast light on the consumer buying behaviour also this study has necessitated the coco cola company to increase the awareness about its different varieties of products which are high in quality when compared to others brands. **Key words: Soft drink, consumer behaviour, brand** 

#### **INTRODUCTION**

It is a beverage that normally comprises water (often but not always carbonated water), aflavouring component. A soft drink (also known as soda, pop, coke, soda pop, fizzy drink, tonic, seltzer, mineral, sparkling water, lollipop water or carbonated beverage) in the case of sugar, high-fructose corn syrup (HFCS), fruit juice or sugar replacements (for diet beverages), the sweetener may be any or all of these. Caffeine, colourings, preservatives and other substances may also be included in soft drinks. In contrast to "hard drinks," soft drinks are referred to as "soft" (alcoholic beverages).

#### **OBJECTIVES OF THE STUDY**

- > People's preferences for soft drinks are to be studied.
- > To learn what variables affect soft drink consumption among consumer
- To find out what people think about the flavour, pricing, advertising and celebrity endorsements of soft drink products and brands.

#### **REVIEW OF LITERATURE**

**Abhay Goyal, (2019)** conducted a study on enhancing consumer preference towards soft drinks. The study aims to analyze the Indian consumer behaviour trends and their current purchase patterns of fruit based beverages. The study indicated that the intrinsic psychological factors can influence a consumer's preference towards purchase of soft drink products.

**Naufal Iza Aberdeen**, (2016) conducted a study of carbonated drink brand awareness and image on consumer perceived quality and purchase intension. The two carbonated drink brands were investigated, i.e., Coca cola and big cola. The results show that coca cola and big cola carbonated drinks shows that brand awareness, brand image and perceived quality directly affects the consumer purchase intention.

## **RESEARCH DESIGN**

The research design is the blueprint for the fulfilment of objectives and answering questions. It is a master plan specifying the method and procedures for collecting and analysing needed information.

#### **DATA COLLECTION**

A source of data includes primary and secondary data sources.

#### **PRIMARY DATA**

A primary data is a data which is collected for first time for the particular interest to collect more information. In this study, the primary data was collected using questionnaire

#### SECONDARY DATA

Secondary data consist of information that already exists somewhere, having been collected for some other purpose. In this study, the secondary data was collected from studies, magazines, journals and websites.

#### SAMPLE DESIGN

Sample design is definite plan determine before any data is actually obtaining for a sample from a given population. The researcher must decide the way of selecting a sample. Samples can be either probability samples or non-probability samples.

#### SAMPLE SIZE

The sample size selected for this study is 200 respondents.

#### PERIOD OF THE STUDY

The study was conducted for the period of three months, the study was collected and it took one month time period. The review of literature and discussions with the field experts in the species board took another one month. Data analysis and interpretation was carried for a period of one month and final period of the report took the remaining period.

## LIMITATION OF THE STUDY

- > Time is a major limitation extensive study was not possible mainly due to time constrain.
- > The study is confined to mettur taluk only.
- > The sample size taken for the study is limited only to 200 respondents.
- > The respondent views and opinions may hold goods for the time being and may vary.

## DATA ANALYSIS AND INTERETATION

S. No	Gender of the Respondents	No.Of the Respondents	Percentage			
1	Female	80	40			
2	Male	115	57.50			
3	Transgender	5	2.50			
	Total	200	100			

#### Table 1: Gender of the respondent

#### Source: Primary data

Table 1 shows that 80 of female respondent, 115 of male respondent and 5 is an transgender respondent the survey conducted for 200 members in the organization on the bases of gender.

S.NO	Age of the Respondents	No. Of the	Percentage
		Respondents	
1	18-25	112	56
2	26-35	46	23
3	36-45	29	14.50
4	More than 45	13	6.50
	Total	200	100

Table 2 shows that 112 respondents are in the age group of 18-25 years, 46 respondents in the age group of 26-35 years, 29 respondents in the age group of 36-45 years.

S.NO	<b>Marital Status</b>	No. Of the	Percentage
		Respondents	
1	Married	122	61
2	Un married	66	33
3	Divorce	12	6
	Total	200	100

#### Table 3: Marital status

## Source: Primary data

Table 3 shows that 122 respondents are married, 66 respondents are unmarried, 12 respondents are divorce.

S.NO	Education of the	No. Of the	Percentage			
	Respondents	Respondents				
1	Under matric	76	38			
2	Matric	25	12.5			
3	Higher study	37	18.5			
4	Graduation	48	24			
5	Post graduate and above	14	7			
	Total	200	100			

#### **Table 4: Education**

#### Source: Primary data

From the above table, it can be interpreted that education given 76 respondents are under matric, 25 respondents are matric, 37 respondents are highly study, 48 respondents are graduation, 14 respondents are post graduate and above.

#### Table 5: Occupation

S.NO	Occupation	No. Of the Respondents	Percentage
------	------------	------------------------	------------

1	Employee	51	25.5
2	Business	43	21.5
3	House wife	15	7.5
4	Student	91	45.5
	Total	200	100

Table 5 is shows that occupation, 51 respondents are employee, 43 respondents are business, 15 respondents are house wife, and 91 respondents are student

Table o: Income						
S.NO	Income	No. Of the Respondents	Percentage			
1	Below 10000	46	23			
2	10000-20000	52	26			
3	20000-30000	64	32			
4	Above 30000	38	19			
	Total	200	100			

#### Source: Primary data

Table 6 is shows that income, 46 respondents are below 10000, 52 respondents are 10000-20000, 64 respondents are 20000-30000 and 38 respondents are above 30000.

**Table 7: Frequency of consumption** 

S.NO	Frequency Of Consumption	No. Of the Respondents	Percentage
	Of Soft Drinks		
1	Daily	15	7.5
2	2 to 3 times	20	10
3	More than 4 time	45	22.5
4	Once in a week	70	35
5	Very rare	50	25
	Total	200	100

#### Source: Primary data

Table 7 shows when the frequency of consumption of soft drink was studied among 200 respondents, the result was showed that 15 of the preferred to drink daily, 20 of them preferred to drink 2 to 3 times, 45 of them drink more than 4 time in a week, 70 of them drinks once in a week, 50 of them drink very rarely so it shows that more people consume the soft drink weekly.

#### Table 8: Occasions where soft drink are consumed

S.NO	Factors	1(5)	2(4)	3(3)	4(2)	5(1)	TOTAL	Mean
								Score

1	Feeling thirsty	60	52	38	30	20	200	
		300	208	114	60	20	702	3.51
2	Without any reason	76	25	31	26	42	200	
		380	100	93	52	42	667	3.33
3	Parties &	62	36	25	42	35	200	
	celebration	310	144	75	84	35	648	3.24
4	Mixing of alcohol	38	36	53	26	47	200	
		190	144	159	52	47	592	2.96
5	For digestion	76	37	65	10	12	200	
		380	148	195	20	12	755	3.77
6	Affordable price	48	62	37	28	25	200	
		240	248	111	56	25	680	3.40
7	Others	41	34	36	51	38	200	
		205	136	108	102	38	589	295

Table 8 shows that the reasons for select a occasion where soft drinks consumed with respective mean score. Digestion is highest meanscore of 3.77 which is followed by feeling thirsty with a mean score of 3.51 affordable price has been scored third with a mean score of 3.40 which is followed by without any reason with a mean score of 3.33. Parties and celebration has been scored fifth with mean score of 3.24. Mixing of alcohol has been scored sixth with the mean score of 2.96 and followed by others which scored least with the mean score2.95.

S.NO	Factor Including To Purchase The	1	2	3	4	5	6	TOTAL
	Soft Drink							
1	Price with quantity	40	44	28	39	16	33	200
2	Health drink	48	26	37	34	28	27	200
3	Status symbol	21	35	30	43	38	33	200
4	Taste	27	30	35	28	46	34	200
5	Variety	34	37	26	40	39	24	200
6	Advertisement	30	28	44	16	33	49	200
	Total	200	200	200	200	200	200	

#### Source: Primary data

Garret ranking score analysis	
Factors influence to purchase the soft	drinks

S.NO	ng To Purchase the soft drink	Total Score	Average score	Rank
1	Price with quantity	10509	52.55	II
2	Health drink	10553	52.77	Ι

3	Status symbol	9585	47.93	V
4	Taste	9631	48.16	IV
5	Variety	10188	50.94	III
6	Advertisement	9534	47.67	VI

S.NO	To What Extent	No. Of the	Percentage
	Advertisement Affect Your	Respondents	
	Purchase		
1	To greater extend	40	20
2	To great extend	30	15
3	Neutral	30	15
4	To lesser extend	50	25
5	To less extend	50	25
	Total	200	100

#### Advertisements affect your purchase

## Source: Primary data

The result of analysis presented in the table 10 show that 40 of them says that grater extend, 30 of them are great extended, 30 of them are neutral, 50 of them are less extended, 50 of them are less extended **Table 11: preference of soft drink** 

S.NO	Preference Of Soft No. Of the		Percentage
	Drink	Respondents	
1	Coca cola	90	45
2	Pepsi	60	30
3	Maaza	25	12.5
4	Limca	25	12.5
	Total	200	100

#### Source: Primary data

The result of survey shows that 90 of them are preferred to drink coco cola, 60 of them preferred to drink pepsi, 25 of them like to drink maaza and other like to drink limca.

S.NO	Prefer Of Same Soft	No. Of the	Percentage
	Drink	Respondents	
1	Yes	45	22.5
2	No	165	82.5
	Total	200	100

	Table	12:	Prefer	of	same	soft	drink
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Source: Primary data

The result depicted from the result that shows that 160 of them are using the same soft drink to drink and rest 45 are using different soft drinks.

S.NO	Flavoured Drink Most	No. Of the	Percentage
		Respondents	
1	Mango	30	15
2	Apple	70	35
3	Orange	90	45
4	Grapes	10	5
	Total	200	100

Table 13: Flavoured drink most

#### Source: Primary data

Among the different soft drink them most of them are preferred to drink orange flavour around 90 of them, 30 of the responded that they like to drink Apple, 30 of them like to drink Mango, rest 10 of them preferred to drink Grapes.

S.NO	Does Soft Drinks Cause	No. Of the	Percentage
	Health Problem	Respondents	
1	yes	60	30
2	No	140	70
	Total	200	100

Table 14: does soft drinks cause health problem

#### Source: Primary data

The result of survey presented in the table 14 it shows that 140 of respondent says no and rest 40 of them are saying yes to this question so according to more people it does not causes any health problems in this survey.

#### **CONCLUSION:**

According to respondents, weather/coldness/temperature was the most important factor in deciding which soft drink to buy. As a result, soft drink markers must demonstrate creativity in the packaging they utilise. Ideally, they should develop and employ packaging materials that can maintain a product's ideal temperature for an extended period of time.

In light of the fact that soft drinks will remain a staple of the beverage market for the foreseeable future research is required. This research was primarily concerned with the influence of a soft drink brand's internal elements on customer choice. Literature also implies that brand choice is also influenced by elements that are internal to the person. As a result, more research is needed to better understand how personal, psychological and environmental aspects influence a consumer's decision to purchase a soft drink brand.

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## PROBLEMS OF E-BANKING SERVICES TO RURAL CUSTOMERS – A STUDY WITH SPECIAL REFERENCE TO RASIPURAM TALUK, NAMAKKAL DISTRICT. Mr. K.Gobinath, Assistant Professor of Commerce.

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#### ABSTRACT

Banking sector plays a significant responsibility in the improvement of a country. It is the lifeline of an economy. A well-built and strong banking system is significant requirement for financial growth. The change from traditional banking to e-banking has been a remarkable modification. Electronic banking is the most serious service offered by the banks, many activities are handled electronically due to the getting of sequence technology at home as well as at work place. Slowly but steadily, the Indian customer is moving towards the e- banking. In this research paper, an attempt is made to empirically evaluate the status of customer satisfaction with various service performances of banks in the study area Rasipuram Taluk, Namakkal District. **Key words**: Customer Satisfaction, Problem, Perception.

#### **INTRODUCTION**

The Information Technology (IT) revolution has brought stunning changes in the business environment. Perhaps no other sector has been so influenced by advances in the technology as much as banking and finance. As a result, the banking pose a totally new look today in the name of e-banking i.e., Electronic banking. Electronic funds transfer, Electronic clearing system, Automated Teller Machines (ATM), Corporate Banking Terminal (CBT), Tele- banking, Mobile banking & Internet Banking are the e-banking products widely in use. The process of doing banking functions deploying information Technology is a definition of electronic banking. However, with the phenomenal advancement in computer technology, the scope and reach of ebanking has undergone a complete revolution. This, now, includes the whole gamut of automation that is seen not only in the bank branches / offices, but also a plethora of delivery channels that are made available by the technological revolution.

In this study, electronic banking is defined as private banking via an electronic device such as computer, mobile phone, traditional telephone and ATM, the concept, electronic banking, comprising present transactions such as payment; account transfers investments and taking out insurances. As stated, the motivations for this study arouse out of the rapid development of electronic banking delivery channels in India. In the beginning of mid-1990s, there has been a more towards using personal computers in private banking. In particular, the emergence of the Internet has had a significant impact on the diffusion of electronic banking. As a result, electronic banking, especially internet banking, is the latest delivery channels to be offered by banks and there is a wide agreement that this channel will have a significant impact on the bank market. After the launch of the first internet, a banker has grown at an enormous pace. The main

delivery channel for electronic banking today is the Internet and the growth of electronic banking as a delivery channel depends heavily on the development of the Internet.

## **OBJECTIVES OF THE STUDY**

1. To identify the factors influencing the adoption and usage of E-Banking services.

2. To identify the Problems of customers in E-Banking services.

## **REVIEW OF LITERATURE:**

**1.Vandana Tandon Khanna,Neha Gupta (2015),** The study shows the factors such as Technology acceptability, safety, availability, user friendliness and accessibility highly depends on the demographic profile of the population size. Most of marketing decision in terms of enhancing the effectiveness of delivery channels can be taken by considering these factors.

**2. Panda, S. K. and Dr. Misra, D. P.(2017),** conducted a study on Customers Perception On E-Banking: An Empirical Study On Rural Banks In The Selected Districts OF ODISHA, In order to know the customers perception towards e-banking services, the present paper has made an attempt to study the e-banking facilities offered by the rural banks of selected districts of Odisha. For this purpose, a survey was conducted and 57 rural banks having e-banking facilities and 375 customers of these banks were included in the survey. The study reveals that most of thecustomers of rural banks are satisfied with the e-banking facilities particularly the security and privacy.

**3.** Dr. S. Sangeetha, K. Myilswamy ,(2020),Customers Satisfaction Towards E-Banking Services With Special Reference to Coimbatore City conclude this article Electronic Banking technology is useful to customers as well as banks and other organizations. To increase efficiency, service quality of banks, safety, integrity, E-Banking can be used in a rightful way. Based on the results, there is no significant difference between personal factors like age, profession, annual income and category of the bank chosen and the satisfaction level of the customers. Also there is no significant difference between personal factors like age, profession, annual income and category of the bank chosen and the satisfaction level of the study shows that customers' are using only few facilities of various E-Banking services available.

#### METHODOLOGY

**Primary Data:** The present study is an empirical survey and data collected through questionnaire technique. Convenience sampling method, one of the non probability sampling techniques is adopted and 125 respondents constitute the sample for the survey.

**Secondary Data:** Secondary data are collected from Magazines, Books, and Journals and from the relevant websites.

#### **Tools For Analysis**

- Percentage
- Weighted rank

## **RESULTS AND DISCUSSION**

## 1. Sex Composition

## Table.1 Sex wise classification of Street Vendors

Sl.No.	Sex	Respondents	Percentage
1.	Male	70	56.00
2.	Female	55	44.00
Total		125	100.00

The above table 1 explains about the gender of the respondents. 56 percent of the respondents are male and the remaining 44 percent of the respondents are female.

Sl.No	Age	Resp	Respondents		Percentage
		Male	Female		
1.	Up to 25	13	12	25	20.00
2.	26-35	17	14	31	24.80
3	36-45	25	16	41	32.80
4	Above 45	15	13	28	22.40
	Total	70	55	125	100.00

 Table -2 Age wise Street Vendors

#### Source: Primary data

The table 2 clearly shows that the Very young people below 25 years are very low in20 percentage. On the other hand majority of the respondents (57.40) are under the age group of 26- 45 above, and reaming 22.40 percentage age group between above 45.

#### **Table.3 Marital status of customer**

Sl.No	Marital Status	Respondents		Total	Percentage
		Male	Female	-	
1	Married	40	35	75	60.00
2	Un-married	30	20	50	40.00
	Total	70	55	125	100.00

#### Source: Primary data

The table 3 shows that 60 percent of the respondents are married, while 40 percent of the respondents are un-married.

**Table.4 Educational Qualification** 

SUNA	Educational	Respo	ndents	Total	Domontogo	
51.190	Qualification	Male	Female	Total	rercentage	
1	Illiterates	08	07	15	12.00	
2	Primary School	12	12	24	19.20	
3	Secondary School	17	11	28	22.40	
4	HSc	14	10	24	19.20	
5	Degree	13	10	23	18.40	
6	Professional	06	05	11	08.80	
	Total	70	55	125	100.00	

From Table 4, it is observed that 12 percent respondents are Illiterates, whereas 19.20 percent have Primary school, 22.40 percent of the respondents were Secondary School, 19.20 percent have, Hsc, 18.40 percent of the respondents have Degree and reaming 8.80 percent have Professionals.

SLNo	Employment	Respondents		Total	Demonstrage
51.INU	Status	Male	Female	Total	rercentage
1	Business	15	13	28	22.40
2	Employee	14	12	26	20.80
3	Professionals	16	14	30	24.00
4	Students	13	08	21	16.80
5	Agriculture	12	08	20	16.00
	Total	70	55	125	100.00

#### **Table.5.Employment Status**

#### Source: Primary data

The Table. 5shows the occupation of the respondents. Out of 125 respondents, 16 percent of respondents are Agriculturist, 16.80 percent of respondents are students. Remaining 24 percent of respondents are Professional, 20.80 percent of respondents are Employee and 22.40 percent of respondents are Businessmen.

#### Table.6 Annual Income

SI No	Annual Income	Respondents		Total	Dorcontago
<b>31.1</b> 10		Male	Female	Total	rercentage
1	Less than 1,00,000	25	20	45	36.00
2	1,00,000-2,00,000	21	17	38	30.40
3	2,00,000-3,00,000	14	10	24	19.20
4	3,00,000-4,00,000	10	08	18	14.40
	Total	70	55	125	100.00

#### Source: Primary data

The above table.6 reveals that 36 percentage of the respondents are less than Rs.1,00,000, 30.40 percentage of the respondents are between Rs.1,00,000-2,00,000, 19.20 percentage of the respondents are between Rs.2,00,000-3,00,000 and 14.40 percentage of the respondents are between Rs.3,00,000-4,00,000 annual income

Table.7.	Туре	of Acc	count
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Sl.No	Type of Account	Respondents		Total	Percentage
		Male	Female	-	
1	Savings	30	18	48	38.40
2	Current	20	16	36	28.80
3	Recurring Deposit	15	13	28	22.40

4	Fixed Deposit	5	8	13	10.40
	Total	70	55	125	100.00

From the above table.7, we can ascertain that 38.40 percentage of the respondents have savings account, 28.80 percentage of the respondents have current account, 22.40 percentage of the respondents have recurring deposit and 10.40 percentage of the respondents have fixed deposit accounts. **Table-8 Levels of Satisfaction** 

Sl.No	Level of Satisfaction E-	Respondents		Total	Percentage
	banking services	Male	Female		
1	High level	27	19	46	36.80
2	Moderate Level	25	20	45	36.00
3.	Low level	18	16	34	27.20
	Total	70	55	125	100.00

#### **Source: Primary Data**

Table 13. Shows that about 36.80 percent of customers were satisfaction about their high level satisfaction E-banking services, 36.00 percent of customers were expressing Moderate Level about their E-banking services and 27.20 per cent were expressing Low level satisfaction in this E-banking services.

Sl.No	Problems	Mean	Rank
		Scores	
1	Inadequate knowledge	6.512	Ι
2	Inaccurate information	6.298	II
3	Improper Instruction	5.968	III
4	Poor Network	5.584	IV
5	Uneasy entry and exit	5.504	V
6	Lengthy Procedure	5.248	VI
7	Security Reasons	5.072	VII
8	Technical Barriers	4.872	VIII
9	Poor response from bank complaints	4.768	IX
10	Service Charges	4.64	Х

#### **Table 9-Problems of E-Services**

#### **Source: Primary Data**

The above table 9 indicates the problems faced while adopting the e-banking services in scheduled commercial banks. Inadequate knowledge, inaccurate information and improper instruction of various services are the top ranked problems as per the mean scores of therespondents. The problems are treated as most vicious based on the mean scores strength. The problem named service charges stands last with low mean score.

#### CONCLUSION

This study is an attempt to identify the factors that contribute to customer problem with E- banking services. Dimension of services, assurance and empathy have shown more or less a great impact on customer problems with E- banking services. It has been reported in the study that customers were satisfied with the E- banking services being rendered by their respective banks. **REFERENCES** 

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## INFLUENCE OF TV ADVERTISEMENT OF FMCG'S ON BUYING BEHAVIOUR OF CONSUMERS

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#### **ABSTRACT:**

The main objective of this paper is to study the influence of TV advertisements of FMCG's on buying behaviour of consumers. Fast moving Consumer Goods are an essential part of our daily life. TV advertisements influence consumer's behaviour towards the buying decisions for FMCG's. For this study the primary data has collected from 150 respondents of Rasipuram Taluka with structured questionnaires. The secondary data has been collected from various Journals, Books, Articles and Websites. Before conducting the formal studying a survey was conducted in the form of questionnaires and interviews. After getting feedback an improved questionnaire was developed and distributed among 120 consumers.

## Keywords: TV Advertisement, FMCG, Consumer Buying Behaviour

#### INTRODUCTION

In earlier times because of poor means of transportation and communication products were manufactured in the villages and they were consumed in the same nearby villages. If one product was manufactured in excess the product was advertised by word of mouth. But due to industrialization, the production of goods increased but the sale could not be increased to match with the quantity of goods produced. So, need of advertisement aroused.

Today the advertising industry employs huge number of people and influence the purchase behaviour of consumers. Besides creating awareness about goods and services the advertising performs an important role in influencing buying behaviour of consumers and finally making them to act accordingly.

By the passage of time advertising and advent of technology has been moving from oral to print media to electronic specially Television advertising thus making mass communication possible and result oriented. In the present days due to increase in TV channels the scope of television advertising has increased.

#### **Television advertisement**

Now a days TV is found in almost all the houses. Television is viewed at large by all. Almost all people from all sections of the society view television. Most of the people watch TV more as compared to any other media. The television advertisements influence the buying behaviour of consumers by using sound, motion, and colour in them. TV advertisement use catchy jingles or melodies or punch lines which make them more effective in influencing buying decisions of consumers. Television advertising also helps in increasing degree of trustworthiness of viewers with the advertisements of the various products.

#### A. FMCG'S

Fast moving consumer Goods (FMCG) include soaps, shampoos, hair oil, cosmetics, toothpaste, detergents, shaving products, packaged foodstuff besides many others. These items are consumed daily and bought by people at regular intervals. These are generally low priced and can be afforded by rich and poor both. Profit margin per unit is relatively low but huge turnover make the cumulative profit high. Smaller pack sizes and single use sachets have made FMCG affordable by even poor. The growth in FMCG sector has played a vital role in the growth and economic development of the country.

#### B. Influence of TV advertisement of FMCG's on buying behaviour of consumers

Buying behaviour is one of the most important components of marketing. Though various advertising media are available but in the present-day scenario due to availability of large number of TV channels the buying behaviour of consumers is influenced largely by TV advertisement. TV advertisement not only make people aware about the product but also influence their choice and buying decision. It also influences the thought process of consumers.

#### **REVIEW OF LITERATURE**

The study is focused on influence of Television Advertising of FMCG's on buying behaviour of consumers. It is an upcoming and growing field of marketing. Research findings related to the topic of the study have been reviewed as under:

1.Halford, J. C and et.al (2004) observed the impact of television (TV) advertisements on children's eating behaviour and health. In their paper "Effect of television advertisements for foods on food consumption in children".

2. Malik, Garima (2015) attempted to study the television advertisement and sales promotion impact the on FMCG sector in India and the overall potential of the market. Due to the social and backward condition, personal selling efforts have a challenging role to play in this regard. The word of mouth is an important message carrier in rural areas. The low rate of finance availability has also increased the affordability of purchasing the costly products by the rural people. Marketers should understand the price sensitivity of a consumer in a rural area.

**3.**Sivagami T (2016) in his study highlighted the consumer purchase decision behaviour towards Cosmetics. He said that due to the increase in purchasing power and disposable incomes of the Indian consumer the market for cosmetics has grown in the last decade. He also observed that many consumers have started using aurvedic based cosmetics against others.

4. Chang, Angela Ya-ping (2017) studied the effects of sales promotion on consumer involvement and purchase intention. The study results present the significant correlations between sales promotion and consumer involvement, consumer involvement and purchase intention, and sales promotion and purchase intention.

5. Prabakaran, D. J. (2018). In the market where more options and substitutes for a product are available customers exercise the option to choose the best. The study talks about the relationship between different age segments, gender of the respondents and advertising He concluded that advertising serves as an important tool for creating product awareness and help potential users in making purchase decision.

#### **OBJECTIVES OF THE STUDY**

The objectives of the study include:

- To examine the influence of TV advertisements of FMCG's on buying behaviour.
- To study the level of trustworthiness attached to TV advertising.

## DATA BASE AND METHODOLOGY

#### A. Nature of Data

The most important factor on which the results of any research depend is the source of data to be collected. The present study on primary data.

#### **B.** Sources of Data

Primary data was collected through a questionnaire. Question containing Likert scale, dichotomous type and multiple choices were used. In order to make the sample representative respondents from different area of Rasipuram taluka with different demographic characteristics were contacted. A pilot survey of 50 respondents was improved and modified accordingly. The data was analysed using statistical tools like mean, weighted average score, chi- square test etc. a sample of 120 respondents was selected on the basis of stratified sampling, random sampling and judgement sampling methods. Respondents having TV sets were contacted. As the study was exploratory respondents were chosen from a wide cross section of the population.

#### DATA ANALYSIS

Table 1. Gender wi	ise distribution
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S. No.	Gender	No of respondents	Percentage
1	Male	63	52.5
2	Female	57	47.5
	Total	120	100

#### **Source: Primary Data**

Both male and female respondents were part of this study. Table 1 shows gender wise distribution of the respondents. It reflects that 63 (52.5 percent) respondents were male and 57 (47.5 percent) respondents were female. Both the gender was almost in same proportion reflecting gender wise balanced distribution.

#### Table 2. Age wise distribution

S. No	Age in years	No. of Respondents	Percentage
1	16-25	32	26
2	26-35	35	29
3	36-45	29	25
4	Above 45	24	20
	Total	120	100

#### Source: primary Data

Age – wise details include respondents between 16-25 years, between 26-35 years, between 36-45 years and above 45 years. Table 2 shows age-wise distribution of the respondents. It reflects

that 32 (26 percent) of the respondents belong to the age group between 16-25 years, 35 (29 percent) respondents belong to the age group between 26-35 years, 29 (25 percent) respondents belong to the group between the age group of 36-45 years and 24 (20 percent) respondents were above 45 years of age. Majority of the respondents belong to 26-35 years of age group closely followed by 16-25 years, 36-45 years and above 45 years.

S. No	Educational level	No of respondents	Percentage
		respondents	
1	Under matric	6	5
2	Matric	9	7.5
3	Higher study	21	17.5
4	Graduate	52	43
5	Post graduate and above	32	27
	Total	120	100

#### Table 3. Education wise distribution

Source: primary data

The educational qualifications were categorized as Under Matriculation, Matriculation, Higher study, Graduation, Post graduation and above. Table 3 reflects education wise details of respondents. It reflects that 6 (5 percent) were Under matriculation, 9 (7.5 percent) were matriculation, 21 (17.5 percent) were Higher study, 52 (43 percent) were Graduation, and 32 (27 percent) Post graduated above. The majority of respondents were graduates followed by post graduates and above qualified, Higher study and matriculation categories.

S. No	Occupation	No of respondents	Percentage
1	Service	44	37
2	Business	30	25
3	Housewife	24	20
4	Student	22	18
	Total	120	100

#### Table 4. Occupation wise details

#### Source: primary data

From this table it can be observed that larger part of the respondents belong to service class 44 (37 percent) followed by 30 (25 percent) business class, 24 (20 percent) housewife, 22 (18 percent) students.

S. No	Income in Rupees	No. of respondents	Percentage
1	Below 10000	32	27
2	10000-30000	16	13
3	30000-50000	54	45
4	Above 50000	18	15
	Total	120	100

 Table 5. Income wise distribution

From the table 5 it can be analysed that larger part of respondents surveyed were having income between Rs.30,000-50,000 with 54 (45 percent) respondents followed by income below Rs.10000 with 32 (27 percent) respondents (this is because it includes students and housewives), between Rs.10,000 to 30,000 with 16 (13 percent) respondents above Rs.50000 with 18 (15 percent) respondents.

S.	No of	No of respondents	Percentage
No	Advertisements		
1	Less than 10	6	5
2	11-20	28	23
3	21-30	56	42
4	Above 30	36	30
	Total	120	100

Table 6. Frequency of TV advertisements of FMCG's seen per week

## **Source: Primary Data**

From the table 6 reflects the frequency of TV advertisements of FMCG's seen by consumers per week. It can be observed that less than 10 TV advertisements per week were seen by 6 (5 percent) 11-20 TV advertisements by 28 (23 percent) 21-30 TV advertisements by 50 (42 percent) and above 30 TV advertisements by 36 (30 percent) respondents.

The majority of respondents watch around 21-30 TV advertisements per week followed by 30 plus TV advertisements, 11-20 TV advertisements and very few watch less than 10 TV advertisements per week.

S. No	Particulars	No. of respondents	Percentage
1	Most often	24	20
2	Often	60	50
3	Rarely	32	27
4	Never	4	3
	Total	120	100
Common	Duimany Data		•

Table 7. TV Advertisements of FMCG's catch our attention

#### Source: Primary Data

From table 7 it can be seen that 24 (20 percent) respondents believe that TV advertisements of FMCG's catch their attention most often, 60 (50 percent) respondents believe that TV advertisements of FMCG's catch their attention often, 32 (27 percent) respondents believe that TV advertisements of FMCG's catch their attention rarely, 4 (3 percent) respondents believe that TV advertisements of FMCG's catch their attention. The majority of respondents believe that often TV advertisements of FMCG's catch their attention respondents was against this belief.

Table 8. TV Advertisements of FMCG's creates the need for the product

S. Particulars No of respondents Perc	entage
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No			
1	Most often	6	5
2	Often	62	52
3	Rarely	40	33
4	Never	12	10
	Total	120	100

From Table 8 it can be seen that only 6( 5 percent) respondents believe that most often TV advertisements of FMCG's are successful in creating the needs for the product, 62 (52 percent) respondents believe that often TV advertisements of FMCG's are successfully creating the need for the product, 40 (33 percent) respondents believe that rarely TV advertisements of FMCG's are successful in creating the need for the product and 12(10 percent) respondents believe thatTV advertisements of FMCG's are never successful in creating need for the product.

The majority of respondents believe that TV advertisements of FMCG's are successful in creating the need for the product and only four respondents believe that TV advertisements of FMCG's are never successful in creating the need for the product.

S. No	Particulars	No. of	Percentage
		respondents	
1	Most often	14	12
2	Often	40	33
3	Rarely	58	48
4	Never	8	7
	Total	120	100

Table 9. TV Advertisements of FMCG's provide relevant information about products

Source: primary data

From table 9 it can be seen that only 14(12 percent) respondents believe the most often TV advertisements of FMCG's provide relevant information about products, 40(33 percent) respondents believe that often TV advertisements of FMCG's provide relevant information about products, 58(48 percent) respondents believe that rarely TV advertisements of FMCG's provide relevant information about products and 8(7 percent) respondents believe that TV advertisements of FMCG's never provide relevant information about products.

The majority of respondents believe that rarely TV advertisements of FMCG's provide relevant information about products and a four respondents believe that often or most often TV advertisements of FMCG's provide relevant information about products. Only 7 percent respondents were of the believe that TV advertisements never provide relevant information.

Table 10.	<b>Frequency</b> of	of purchase	of FMCG after	watching a	TV	advertisement
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S. No	Frequency of purchase	No. of respondents	Percentage
1	Most often	12	10
2	Often	45	37.5

3	Rarely	60	50
4	Never	3	2.5
	Total	120	100

From table 10 it can be seen that only 12 (10 percent) respondents purchase FMCG most often watching TV advertisement, 45 (37.5 percent) respondents purchase FMCG often after watching TV advertisement, 60 (50 percent) respondents purchase FMCG rarely after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement. The majority of respondents have purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement and there was respondent never purchased FMCG after watching TV advertisement.

S. No	Particulars	No. of respondents	Percentage
1	Most often	9	7.5
2	Often	45	37.5
3	Rarely	60	50
4	Never	6	5
	Total	120	100

Table 11. Effect of TV advertising on brand switching

#### **Source: Primary Data**

From table 11 it can be seen that only 9(7.5 percent) respondents switches a brand most after watching TV advertisement, 45(37.5 percent) respondents switches a brand often watching TV advertisement, 60(50 percent) respondents switches a brand rarely after watching TV advertisements and 6(5 percent) respondents never switched to another brand of FMCG after watching TV advertisement. The response of respondents regarding brand switching of FMCG after watching TV advertisements is mix and only 6 (5 percent) respondents who never switched to another brand of FMCG after watching TV advertisements.

market				
S. No	Particulars	No. of respondents	Percentage	
1	Yes	90	75	
2	No	5	41	
3	Can't say	25	21	
	Total	120	100	

 Table 12. TV Advertisements make consumers aware of variety of goods available in the market

#### **Source: Primary Data**

From table 12 it can be seen that 90(75 percent) respondents believe that TV advertisements of FMCG's make consumers aware of variety of goods available in the market, 5(4 percent) respondents were against this belief that TV advertisements of FMCG's make consumers aware of variety of goods available in the market and 25(21 percent) respondents were unable to comment on this. The majority of respondents believe that TV advertisements of FMCG's make

consumers aware of variety of goods available in the market. Only 5(4 percent) respondents were against this belief and three respondents were unable to comment on this.

io woring price				
S. No	Particulars	No. of respondents	percentage	
1	Yes	57	47.5	
2	No	45	37.5	
3	Can't say	18	15	
	Total	120	100	

 Table 13. TV Advertisements promotes competition which benefits the consumer in lowering price

#### **Source: Primary Data**

From table 13 it can be seen that 57(47.5 percent) respondents believe that TV advertisements of FMCG promotes competition which benefits the consumer in lowering price, 45(37.5 percent) respondents where against this belief that TV advertisements of FMCG promotes competition which benefits the consumer in lowering price and 18(15 percent) respondents were unable to comment on this.

The response of respondents regarding the belief that TV advertisements of FMCG promotes competition which benefits the consumer in lowering price is mix and three respondents were unable to comment on this

Table 14. Use of celebrity in TV advertisements of FMCG influences consumer buy	ving
behaviour positively	

S. No	Particulars	No. of respondents	Percentage
1	Yes	85	71
2	No	10	8
3	Can't say	25	21
	Total	120	100

#### **Source: Primary Data**

From table 14 it can be observed that 85(71 percent) respondents believe that use of celebrity in TV advertisements of FMCG influences consumer buying behaviour positively, 10(8 percent) respondents were against this belief that use of celebrity in TV advertisements of FMCG influences consumer buying behaviour positively and 25(21 percent) respondents were unable to comment on this.

The majority of respondents believe that use of celebrity in TV advertisements of FMCG influences consumer buying behaviour positively, 10(8 percent) respondents were against this belief and 25(21 percent) respondents were unable to comment on this.

S. NO	Trustworthiness	Frequency	Percentage		
1	Excellent	50	42		
2	Good	31	26		
3	Poor	39	32		

Table 15. Trustworthiness of TV Advertising

	Total	120	100
So	urce: Primarv Data	ì	

From the table 15 we can observe that 42 percent of the respondents have high levels of confidence in the TV advertising, which is very closely followed by moderate levels of trust by 26 percent respondents and 32 percent respondents have shown low levels of trust in TV advertising.

# Relationship between Trustworthiness Attached to TV Advertising and the Age of the respondents

S.NO	Age	Most	Often	Rarely	Total
		often			
1	Less than 10	4	1	1	6
2	11-20	9	12	7	28
3	21-30	28	12	20	50
4	Above 30	19	6	11	36
	Total	50	31	39	120

#### Source: primary data

To determine whether there is significant relationship between the trustworthiness attached by the respondents towards TV advertising and age of the respondent's association Chi square test was applied the null hypothesis H0: There is no relation between trustworthiness attached to TV advertising and various age groups of the respondents at 5 percent level of significance.

The calculated value of chi square value at 5 percent level of significance for 6 degree of freedom is 14.29, table value of chi square is 12.592. Hence we accept null hypothesis at 5% level of significance i.e. There is no relation between trustworthiness attached to TV advertising and various age groups of the respondents at 5 percentage level of significance. Thus, we can conclude that television advertising puts almost similar types of impact on its viewers regardless of their age.

## CONCLUSION

Most of the respondents watch TV advertisements and believe that often TV advertisements of FMCG's catch their attention. Majority also believe that TV advertisements of FMCG's are successful in creating the need for the product and provide relevant information about products which has lead to the purchase of FMCG after watching TV advertisement. As far as brand switching is concerned the response of respondents after watching TV advertisement is mix TV advertisements of FMCG's make consumers aware of variety of goods available in the market. TV Advertisements of FMCG also promotes competition which benefits the consumer in lowering price. The celebrity in TV advertisements of MCG influences consumer buying behaviour positively. Majority of the respondents from all age groups have moderate to high levels of trust attached with TV advertising.

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## A STUDY ON CUSTOMERS PREFEERENCES TOWARDS FAST FOODS WITH REFERENCE TO NAMAKKAL CITY Mr. K. Karthik, Assistant Professor of Commerce. Ms. P. Kavibharathi, &Ms. E. Jeevitha II M.Com Muthayammal Memorial College of Arts and Science, Rasipuram.

#### **ABSTRACT:**

The fast-food market in India is growing rapidly in India with changing habits and agile lifestyles. The study at hand aims to bring out the factors influencing Customer Satisfaction in the tech enabled Indian Fast-Food industry, through an exploratory analysis. To find out the various type of factor motivates the people to eat fast food. The study shows that taste is the most important factor attracts the people towards fast food. The analysis exhibits many respondents would like to go regular restaurants to eat fast food. Evening is the most convenient time to take fast from outside and eating of fast food culture goes on an increasing trend in the modern society. It is suggested that Good housekeeping is to be kept and maintained at the time of preparation of fast food and Good consumer relationship should be maintained to improve sales. **Keywords:Customer Satisfaction, Fast Food, Food Habits, Health, Nutrition, Restaurant** 

#### **INTRODUCTION**

The modern history of fast food is connected with the history of the hamburger, as the earliest fastfood outlets old ham-burger as their primary product. The American company white castle is generally credited with opening the fast-food outlet in 1921, selling hamburgers for five cents a piece. White castle was successful from its inception and spawned numerous competitors. McDonald's largest fast-food chain in the world and the brand most associated with the term opened is san Diego. Ray kroc, the distributor of an industrial milkshake mixer that the original McDonald's used, joined the founders of McDonald's in 1954 and began expanding the franchise. Wendy's founded in 1972, is credited with pioneering the use of the "drive thru" window to allow consumers to purchase fast food without having to park or exit their cars.

#### **NEED FOR THE STUDY:**

There has been a rise in the consumption of fast food and also there is an expected rise in the growth of the fast food industry in the coming years. This study has been carried out so that the actual needs and preferences of the public are found out through the questionnaires provided to them and suggestions can be made to the owners of the fast food outlets for their improvement. This study might help the owners of the fast food outlets to increase the customer satisfaction in the future. The findings of the study as well as the suggestions given by the public if implemented

are sure to benefit the fast food industry and also satisfy the customers.

#### **OBJECTIVES OF THE STUDY:**

- > To analyze the customers opinion towards fast foods.
- > To analyze the customer service rendered at the fast food outlets.
- > To know the customer's awareness about the various fast food outlets in the city.

## SCOPE OF THE STUDY:

Marketers must study their target customer's wants, perceptions, preferences and buying behaviour. Such study will provide clues for developing new varieties, features, prices, channels, messages, and other marketing mix elements in the fast food industry.

An analysis of consumer's attitude is a pre-requisite for the decision makers of a planned economy because it enables them to have an understanding of the current and future demand to match and supply with changing pattern of demand.

#### LIMITATIONS OF THE STUDY:

- > The respondent of this study belongs to Namakkal City.
- > The limitation of convenience sampling method is applied to this study.
- > The time period of the study was limited.

## METHODOLOGY OF THE STUDY: AREA OF THE STUDY:

The area of the study refers to Namakkal City.

## **REASON FOR THE AREA OF STUDY:**

The city of "NAMAKKAL" is called as "TRANSPORT AND EGG CITY OF SOUTH INDIA" with a salubrious climate. The city is endowed with a large number of educational institutions, textile mills, foundries and agro based industries. So it is easy to reach Namakkal. It is the third largest city in Tamilnadu.

#### SOURCE OF DATA:

The study used only primary data. The data was collected from 150 respondents by using questionnaire method. The questionnaire had been prepared in such a way that the respondents were able to answer in useful manner

#### **SAMPLING DESIGN:**

For the purpose of the study, 150 respondents were selected. Convenience sampling method was administered in this study.

## **TOOLS FOR ANALYSIS:**

The following statistical tools were used in the study.

Percentage analysis

Chi-square analysis

Analysis of variance (ANOVA)

#### ANALYSIS AND INTERPRETATION:

#### Table.1. Showing gender distribution of respondents

S. NO	Gender	No. of respondents	Percentage
1	Male	98	65.3%
2	Female	52	34.7%

Total	150	100

The majority of the respondents were males (65.3%)

Table.2. Showing age distribution of respondents

S. NO	Age	No. Of respondents	Percentage
1	18-20	38	25.3%
2	20-25	45	30%
3	25-35	36	24%
4	35& Above	31	20.7%
	Total	150	100

#### **Source: Primary Data**

The majority of the respondents were in the age group of 20-25 years (30%)

S.	Occupation	No. of	Percentage
NO		respondents	
1	Student	57	38%
2	Employed	28	18.7%
3	Business	38	25.3%
4	Housewife	27	18%
	Total	150	100

Table.3. Showing occupational distribution of respondents

#### **Source: Primary Data**

The majority of the respondents were students (38%)

## Table.4. Showing marital status of respondents

S.	Marital status	No. Of respondents	Percentage
NO			
1	Married	61	40.7%
2	Unmarried	89	59.3%
	Total	150	100

#### **Source: Primary Data**

The majority of the respondents were unmarried (59.3%)

 Table.5. Showing monthly income of respondents

S. NO	Monthly income	No. of	Percentage
		respondents	
1	Below 5000	12	8%
2	5000-10000	47	31.3%
3	10000-20000	46	30.7%
4	20000& Above	45	30%
	Total	150	100

**Source: Primary Data** 

S.NO	Source	No. Of	Percentage
		respondents	
1	Friends	99	66%
2	Relatives	23	15.3%
3	Others	28	18.7%
	Total	150	100

The majority of the respondents were in the income group of 5000-10000(31.3%) **Table.6. Showing the source of awareness of the respondents about fast food outlets** 

#### **Source: Primary Data**

The majority of the respondents were aware of the outlets through friends (66%).

#### Table.7. Source of awareness of the respondents about fast food outlets through media

Source of	No. Of	Percentage
awareness	respondents	
Print media	40	26.7%
Outdoor media	39	26
Boardcast media	36	24
Display media	26	17.3%
Internet	9	6
Total	150	100
	Source of awareness Print media Outdoor media Boardcast media Display media Internet Total	Source of awarenessNo. Of respondentsPrint media40Outdoor media39Boardcast media36Display media26Internet9Total150

#### Source: Primary Data

The majority of the respondents were aware of the outlets through print media (26.7%)

#### Table.8. Showing awareness of the respondents about fast food outlets of respondents

S. NO	Name of the outlet	No. Of	Percentage
		respondents	
1	Dominos	10	6.67%
2	Nilgiris	24	16%
3	Blue Bells	20	13.33%
4	Hot Chips	18	12%
5	Caramel	22	14.67%
6	Marry Brown	16	10.67%
7	Adayar Ananda Bhavan	26	17.33%
8	Pizza Hut	11	7.33%
9	Rich Foods	3	2%
	Total	150	100

#### Source: Primary Data

The majority of the respondents were aware of adayarananda bhavan (17.33%

 Table.9. Showing respondents preference towards fast food outlets

S. NO	Name of the outlet	No. Of	Percentage
		respondents	

1	Dominos	12	8%
2	Nilgiris	29	19.3%
3	Blue Bells	20	13.3%
4	Hot Chips	11	7.3%
5	Caramel	22	14.7%
6	Marry Brown	9	6%
7	Adayar Ananda Bhavan	31	20.7%
8	Pizza Hut	10	6.7%
9	Rich Foods	6	4%
	Total	150	100

The majority of the respondents were prefer of adayarananda bhavan (20.7%) **Table.10. Showing an opinion about age and service rendered in the fast food outlets** 

S.	Service	18-20	20-25	25-35	35&	Total
NO					Above	
1	Satisfied	20	22	20	19	81
2	Highly satisfied	5	5	3	2	15
3	Neutral	13	16	13	9	51
4	Dissatisfied	-	2	-	-	2
5	Highly	-	-	-	1	1
	dissatisfied					
	Total	38	45	36	31	150

## **Source: Primary Data**

The majority of the respondents belonging to the age group between 20-25 years (30%) are satisfied with the service rendered in fast food outlets

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Analysis of Variance: (Two-Way Anova):
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Table.11 Showing an opinion about age and reasons for choosing the favourite fast food

items	

S.	Reason	18-20	20-25	25-35	35&	Total
NO					Above	
1	Cost	3	5	6	6	20
2	Taste	13	10	8	1	32
3	Flavour	10	9	4	2	25
4	Less preparation	5	8	5	5	23
	Time					
5	Familiarity	1	3	2	4	10
6	Quality	4	5	7	5	21
7	Quantity	2	5	4	8	19
	Total	38	45	36	31	150

## Showing an opinion about reasons for choosing the favourite fast food items with the age

S. NO	Source of variation	Sum of Square	Degree of Freedom	Mean square	F
1	Between columns	13	3	4.33	.649
2	Between rows	65	6	11	1.649
3	Residual	120	18	6.67	
	Total	198	27		

#### **Between columns:**

Degree of freedom (3, 18)

Table value of F= 3.1599

Calculated value of F=.649 which is less than the table value.

Therefore we accept the hypothesis that there is no significant difference between the reasons for choosing the favourite fast food items.

Showing an opinion about reasons for choosing the favourite fast food items with the age

groups							
S. NO	Source of variation	Sum of	Degree of Freedom	Mean square	F		
		Square					
1	Between columns	13	3	4.33	.649		
2	Between rows	65	6	11	1.649		
3	Residual	120	18	6.67			
	Total	198	27				

#### **Between columns:**

Degree of freedom (3, 18)

Table value of F= 3.1599

Calculated value of F=.649 which is less than the table value

Therefore we accept the hypothesis that there is no significant difference between the reasons for choosing the favourite fast food items.

## FINDINGS:

- > The majority of the respondents were in the age group of 20-25 years (30%)
- > The majority of the respondents were males (65.3%).
- > The majority of the respondents were students (38%).
- > The majority of the respondents were unmarried (59.3%).
- > The majority of the respondents were in the income group of 5000-10000 (31.3%)
- $\blacktriangleright$  The majority of the respondents were aware of the outlets through friends (66%).
- > The majority of the respondents were aware of outlets through print media (26.7%)
- > The majority of the respondents were aware of adayaranandha bhavan (17.33%)

- > The majority of the respondents were preferadayarananda bhavan (20.7%).
- The majority of the respondents belonging to the age group between 20-25 years (30%) are satisfied with the service rendered in fast food outlets
- Therefore we accept the hypothesis that there is no significant difference between the reasons for choosing the favourite fast food items
- Therefore we accept the hypothesis that there is no significant difference between the reasons for choosing the favourite fast food items

## **SUGGESTIONS:**

The fast food industry depends on their customers for their existence. They should therefore aim at satisfying their customers. To do so they should understand what the customers needs and fulfil their expectations, some of the suggestions based on the study.

- > The awareness of certain outlets such as dominos and rich food is less compared to the other outlets.
- > Advertisements through display and internet may be improved to attract more customers.
- > The fast food outlets must be more hygienic.
- > The cost of the fast food items may be made reasonable.
- > The preservation of food items may be improved.

## **CONCLUSION:**

Any customer survey is a means of getting valuable inputs from the customer and interpreting then to provide valuable feedback to the users of the information. This study is done with that objective only. From the study it can be concluded that the overall of satisfaction of the respondents with regard to the service rendered at the fast food outlets is satisfactory. The study has brought out the customer preference of fast food and fast food outlets and also the factorsthat need to be improved.

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## ELEVATING ENGAGEMENT: HARNESSING THE POWER OF GAMIFICATION IN TODAY'S BUSINESS LANDSCAPE

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#### **ABSTRACT:**

Digital is revolutionizing marketing by increasing use of automation and allied technologies. Gamification is the advanced marketing technique in which design elements are used to attract and retain the customers. The Gamification in marketing incorporates common game elements such as scoring points, levelling up, or earning virtual currency into marketing campaigns to boost user engagement and drive conversions. This paper delves into the transformative potential of experiential gamification as a new frontier in modern marketing, offering insights into its applications, benefits, and the profound impact it has on shaping consumer behaviour and brand loyalty. (Keywords: Digital Marketing and Gamification )

#### **INTRODUCTION**

The term "gamification" was coined by British computer programmer Nick Pelling, but it first gained widespread usage in 2010. Although the trend may have become commonplace in marketing circles in recent times, the concept of gamification and its influence on humanbehaviour has always been there. Gamification marketing is a strategy that involves integrating game-like elements, mechanics, and dynamics into marketing campaigns and experiences. In simple words, it is the use of game elements in non-game activities or making boring thingsmore fun. It utilizes elements of gameplay to engage and motivate consumers, encouraging them to participate, interact with a brand, and take desired actions.Gamification taps into the fundamental principles of human psychology and motivation. It leverages elements such as rewards, challenges, achievements, and competition, which are known to drive engagement and encourage desired behaviors. Gamification marketing aims to enhance user engagement, create memorable experiences, and drive specific behaviors or outcomes. By tapping into people's natural inclination for competition, achievement, and rewards, gamification marketing can capture attention, increase participation, and foster a sense of enjoyment and satisfaction.

According to shopping preference surveys, 70% of shoppers want gaming elements in online shopping, and 36% would like gaming elements while shopping in-store. The global gamification market size was estimated at USD 10.5 billion in 2021 and it is expected to reach around USD 96.8 billion by 2030. To express these concepts, six elements inspired by game will be explored.

**Play:** Facilitating the freedom to explore and fail within boundaries.

**Exposition:** creating stories for participants that are integrated with the real–world setting and allowing them to create their own.

Choice: Developing systems that put the power in the hands of the participants

**Information:** using game design and game display concepts to allow participants to learn more about the real world context.

**Engagement:** encouraging participants to discover and learn from other interested in the realworld setting

**Reflection:** assisting participants in finding other interests and past experiences that can deepen engagement and learning.

This six elements of gamification marketing have already tried in international brands

Elon Musk's Tesla partnered with Tencent during the launch of Model 3 and Model X in China. The two companies entered into a partnership for Tesla cars to be included in PUBG, which is rebranded as 'Game of Peace' in China. This marketing campaign allowed players of the game to actually drive the new special edition Tesla electric vehicles within matches. This type of gamification marketing is also known as Brandification, which is as simple as advertising real-world products within video game spaces.

In 2010, when M&M's launched the pretzel-flavored version of the candy, they incorporated an eye spy game into their marketing campaign, where users had to find? a single pretzel hidden in the sea of M&M's. This simple gamification strategy garnered 25,000 new likes on the brand's Facebook page, in addition to 6,000 shares and 10,000 comments.

Duolingo: The language-learning app gamifies the process of acquiring new language skills through interactive lessons, progress tracking, and rewards. Users earn points, streaks, and virtual trophies, making learning a language enjoyable and addictive.

Salesforce Trailhead: Salesforce's training platform gamifies the learning experience for employees and customers alike. Users can earn badges, level up their skills, and compete in challenges, driving engagement and expertise in Salesforce products.T-Mobile Tuesdays: T-Mobile's loyalty program gamifies customer engagement by offering weekly rewards, contests, and exclusive deals. Customers earn points for interactions and purchases, leading to increased brand loyalty and advocacy.

India is a land of games. Many games, including Chess, Polo, Snakes and ladders, have been born in India and are recognized globally. So, it should come as no surprise that India is one of the leading countries when it comes to gamification. Plus, with the Indian gaming industry valued at \$2.6 billion in 2022 and expected to grow four-fold by 2027, the rise of gamification marketing will also be unstoppable. In India, there are avenues awaiting implementation of gamification such as the edtech market. Levels, points, badges, awards, quick feedback, time limitations, challenges, contests, avatars, leader boards, and rankings can completely change the way people learn.

Gamification should be used by a brand for a variety of reasons, including that it provides an immersive experience that extends the brand's storytelling; it enables the creation of innovative and personalised customer journeys that keep customers' attention; it enlists loyalty from the customers; and, also, engagement is high, as are conversion and transformation rates.

#### MOVING AHEAD IN THE GAME
The global gamification market size was valued at USD 12.6 billion in 2022. It is projected to reach USD 109.8 billion by 2031, growing at a CAGR of 27.2% during the forecast period (2023–2031), The cloud segment is the highest contributor to the market and is expected to growat a CAGR of 26.92% during the forecast period.

Healthcare Gamification Market Summary 2024-2031":The global Healthcare Gamification market size was valued at USD 896.75 million in 2023 and is expected to expand at a CAGR of 41.6% during the forecast period, reaching USD 7227.77 million by 2031. The worldwide gamification business is quite cutthroat, with several large competitors concentrating on growing their customer bases abroad. Strategic collaborative initiatives are being used by businesses like Microsoft Corporation, Cognizant, and MPS Interactive Systems Ltd to boost their market share and profitability.

Gamification in businesses is used to increase stickiness, content creation, and purchases. Top retailers, e-commerce sites, and consumer brands including Samsung and Dannon are already adopting gamification to increase their annual revenue and improve their customer profit margins. Sectors such as healthcare, nonprofits, and human resources also increasingly usegamification to drive engagement and spread awareness and learning.

Gamification has evolved into a desirable and incredibly effective tactic for product-focused brands and merchants. It has made the routine, repeated act of buying things every day into something considerably more pleasurable. Gamification strengthens any online business and brand strategy by enticing customers to explore new "levels," interact for longer periods of time, and receive a psychological reward that has tangible advantages.

The market for healthcare gamification was predicted to be worth \$25.3 billion in 2020 and is anticipated to expand at a CAGR of 14.6% between 2021 and 2027. Apps created for self- managed medication, fitness and nutrition, physical therapy, and emotional health have all been strongly inspired by healthcare gamification.

Several fitness brands have also employed gamification to make fitness more enjoyable. For example, Nike+ gives its more than 100 million users the ability to measure their activities, establish goals, evaluate their progress, and perform better. By encouraging people to keep improving and leading healthy lifestyles, the company has used gamification to build a community around running and friendly competition.

# **BENEFITS OF GAMIFICATION IN BUSINESS OPERATIONS:** Enhanced Stakeholder Engagement:

Gamified initiatives grab attention and sustain stakeholder interest over extended periods. Whether it involves completing challenges, earning rewards, or rising in leaderboards, stakeholders become active participants, fostering a stronger connection with the business.

Improved Employee Performance and Satisfaction:

Incorporating gamified elements into employee training programs can boost learning retention, motivation, and job satisfaction. Achievements, progress tracking, and interactive modules make learning more enjoyable and effective.

**Data-Driven Decision Making:** 

Gamification generates valuable insights into stakeholder behaviors, preferences, and engagement levels. Businesses can leverage this data to tailor products, services, and marketing campaigns, thereby enhancing overall effectiveness.

Enhanced Customer Loyalty and Retention:

By offering personalized rewards, exclusive content, or loyalty points, businesses can foster a sense of appreciation and loyalty among customers. Positive experiences within the gamified ecosystem translate into long-term brand advocacy.

#### **Efficient Training and Development:**

Gamified training programs streamline onboarding processes, enhance skill development, and encourage continuous learning among employees. Interactive modules and progress tracking ensure a more engaged and productive workforce.

Report Metric	Details
Market Size by 2031	USD 109.8 Billion
Market Size in 2022	USD 12.6 Billion
CAGR	27.2%
Historical Data	2020-2021
Base Year	2022
Forecast Period	2023-2031
Forecast Units	Value (USD Billion)
Report Coverage	Revenue Forecast, Competitive Landscape,
	Growth Factors, and Trends
Segments Covered	Component, Deployment, Organization Size, End
	User
Geographies Covered	North America, Europe, Asia-Pacific, LAME and
	Rest of the World
Key Companies Profiled/Vendors	Ambition, Aon, Axonify Inc., BI WORLDWIDE,
	Centrical, Hoopla, IActionable, Influitive, IO,
	Microsoft, SAP, Scrimmage, Tango Card, Verint
Key Market Opportunities	Adoption Of Gamification Solutions Using
	Artificial Intelligence (AI)
Key Market Drivers	SMEs Are Increasingly Utilizing Cloud-Based
	Gamification Solutions
	Improved Customer Experience is Required

**REPORT SCOPE** 

#### **KEY HIGHLIGHTS**

✓ The global gamification market size is projected to reach USD 109.8 billion by 2031, growing at a CAGR of 27.2% during the forecast period (2023–2031).

- ✓ Based on components, the global gamification market is bifurcated into solutions and services. The solutions segment is the highest contributor to the market and is expected to grow at a CAGR of 27.4% during the forecast period.
- ✓ Based on deployment, the global gamification market is bifurcated into on-premise and cloud. The cloud segment is the highest contributor to the market and is expected to grow at a CAGR of 26.92% during the forecast period.
- ✓ Based on organization size, the global gamification market is bifurcated into large enterprises and SMEs. The SMEs segment owns the highest market share and is expected to grow at a CAGR of 27.65% during the forecast period.
- ✓ Based on end users, the global gamification market is bifurcated into education, healthcare, retail, BFSI, manufacturing, telecom & IT. The telecom & IT segment is the highest contributor to the market and is expected to grow at a CAGR of 27.1% during the forecast period.
- ✓ North America is the most significant contributor to the global gamification market and isexpected to grow at a CAGR of 26.8% during the forecast period.

#### TRENDS AND PREDICTIONS IN THE GAMIFICATION INDUSTRY

The gamification industry is on a constant evolutionary path, driven by technological advancements and changing consumer preferences. As we look into the future, several trends and predictions are shaping the trajectory of the gamification landscape. One of the prominent trends is the integration of Augmented Reality (AR) and Virtual Reality (VR) technologies. As these immersive experiences become more accessible, businesses are expected to leverage AR and VR to create captivating and interactive gamified experiences. From educational simulations to brand engagement, AR and VR integration will elevate gamification to new heights. Personalization and data analytics will also play a crucial role in the future of gamification. With a growing focus on delivering personalized experiences, businesses will rely heavily on data analytics to gather and analyze user data. This approach will allow them to tailor gamified experiences to individual preferences and behaviors, boosting user engagement and satisfaction.

The social impact of gamification will also gain momentum. Non-profit organizations and initiatives will leverage gamification to raise awareness and drive positive behavioral change. From promoting eco-friendly practices to encouraging charitable donations, gamification will emerge as a powerful tool in addressing societal challenges. Social gamification will thrive as users seek connection and engagement with like-minded communities.

# Here are some of the key elements for upcoming gamification industry trends and predictions based on current gamification stats:

• Screen Time Statistics: Screen time statistics play a crucial role in understanding the effectiveness and impact of gamification marketing in the digital landscape. As technology becomes increasingly integrated into our daily lives, people spend significant amounts of time interacting with screens, making it a prime opportunity for businesses to leverage gamified experiences. According to screen time statistics 2023, the average person spends approximately 7 hours per day on screens, including smartphones, computers, and other digital devices. This extensive screen time opens up immense potential for gamification marketing to capture and

retain the audience's attention.Gamification marketing strategies are designed to engage users and create interactive experiences that keep them hooked for longer durations. With the average attention span shrinking to around 8 seconds, gamification offers a unique approach to captivate audiences and break through the digital noise.

- Viral Marketing Statistics: Viral marketing statistics demonstrate the significant impact of gamification on creating shareable and contagious experiences. Gamification strategies have been found to increase sharing behavior among users, with gamified content being shared 12 times more than non-gamified content. By infusing game-like elements such as challenges, quizzes, and competitions, gamification encourages users to share their achievements and experiences with their networks, amplifying brand reach organically.Beyond increased sharing, gamification marketing captures users' attention and keeps them engaged for longer periods. Studies reveal that gamified campaigns experience a 100%-150% increase in user engagement compared to traditional marketing approaches. The element of fun motivates usersto participate actively and share their accomplishments.
- Wheel of Fortune Statistics: The Wheel of Fortune has become a popular and engaging gamification tool in marketing strategies. As businesses seek innovative ways to connect with their audiences, the Wheel of Fortune presents a compelling opportunity to enhance user engagement and drive brand interaction. Its engaging nature allows users to participate actively, generating an increase in user interactions compared to static content. Users are drawn to spin the wheel, anticipating the potential rewards or surprises it holds. Moreover, the Wheel of Fortune keeps users engaged for longer periods. This extended time on page allows brands to introduce their message more effectively and provides additional opportunities for conversions.

# HURDLES THAT NEED TO BE OVERCOME

Like every other marketing strategy, gamification has some drawbacks of its own. But, if used effectively, this strategy can produce the best outcomes for marketing initiatives. When developing a gamification strategy, brands must keep in mind that the plan should be interactive and engaging so that consumers will want to use it. It can be difficult to create the ideal gamification for marketing efforts. The goal is to develop a game that players desire to play and that also aids the business in achieving its marketing objectives. For gamification, marketers cannot use a "one size fits all" strategy. A game that does well for one company might not do so for others. It's crucial to have a good understanding of the target market for a successfulgamification strategy. Gamification can occasionally become complicated, and it can be difficult to design a game that fulfils every marketing purpose while being suited to the organisation's target audience. These games must go beyond the benefits and prizes offered and must build an intimate and emotional bond with the players.

#### **CONCLUSION :**

Harnessing the potential of gamification, businesses can develop engaging and interactive encounters that maintain customer interest in their offerings. Through games, challenges, orother interactive means, gamification aids in cultivating enduring customer relationships, leading to sustained growth and prosperity. Ultimately, it serves as a potent strategy for businesses to reach their marketing objectives and deliver more compelling and lasting experiences to their clientele.

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# DIGITAL HORIZON TECHNOLOGIES TRANSFORMING THE LANDSCAPE INTO FUTURE ACCOUNTING

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#### **ABSTRACT:**

As we sail towards the horizon, we are confronted with new paradigms that threaten to make our domains of expertise less familiar. Finally, the metaphor is apt as it symbolizes the convergence of the physical and digital domains. In the context of accountancy, this could refer to present situations where digital ledgersvirtual financial interactions and more traditional practices seamlessly intertwine. With advancements like IoT, cyber physical systems, and augmented reality, the information from the digital world influences and drives actions in the physical world and vice versa.

Key words: Financial, Digital horizon, Advancements, Future

#### **INTRODUCTION:**

The digital horizon serves as a compelling metaphor when contemplating the future of accountancy and finance. First and foremost, it alludes to the imminent advancements in technologies, charting a course towards an ever-evolving landscape of automation, artificial intelligence, and other technologies. More than just tools and technologies, however, it also hints at the vast expanses of data that are products of our increasingly digital interactions and that serve as critical inputs for future developments. As such, it also draws attention to the ways in which our digital comprehension might be challenged. As we sail towards the horizon, we are confronted with new paradigms that threaten to make our domains of expertise less familiar. Finally, the metaphor is apt as it symbolizes the convergence of the physical and digital domains. In the context of accountancy, this could refer to present situations where digital ledgers, virtual financial interactions, and more traditional practices seamlessly intertwine. But it also looks to the extension of those circumstances and captures our move towards a blurring of the lines between the physical and digital worlds. With advancements like IoT, cyberphysical systems, and augmented reality, the information from the digital world influences and drives actions in the physical world and vice versa. This seamless integration allows for real-time feedback loops and automation that were previously unthinkable. As such, the digital horizon offers a useful means for considering how accountancy and finance professionals can anticipate and adapt to the transformative shifts on the brink of realization.

#### **TECHNOLOGIES OF THE 'DIGITAL HORIZON'**

Finance teams have a critical role to play in helping ensure that AI models are used ethically and effectively across the organisation. This requires that finance professionals keep up to date with the latest developments in AI technologies and, secondly, actively collaborate across the organisation with those teams who are driving innovative solutions around this emerging technology.

Patents are a good indicator of where major developments are not only occurring, but where commercial and other applications are being developed. AI and big data have seen an enormous increase in activity over recent years. Other digital technologies, such as connectivity and storage facilities as provided by cloud computing have received substantial interest, as have autonomous systems such as robots and self-driving cars. The Internet of Things (IoT), on the other hand, has witnessed some fall-off in activity coinciding with divestments from some large telecommunications companies such as Vodafone and Ericsson over the last three years. This may be partially reflective of current challenges in scalability and cost, but it could also be linkedsimply to the relative level of maturity of the technology, which would be expected to lead to a reduction in activity. Nonetheless, the IoT remains a crucial part of our technological future, including being part of other developments, such as 'digital twins'

#### GROWTH OF TECHNOLOGIES TRANSFORMING THE LANDSCAPE:

The growth of various digital technologies, 2016–2020, measured by patents issued -AI 718%\* Big data 699%\* Digital technologies 172%\* Cloud computing 122%\* Autonomous systems 109%\* IoT -81%

#### **Big data:**

The ability to examine large, diverse sets of data to uncover hidden patterns, correlations, and insights means that big data will continue to be important. Its significance lies in its ability to provide businesses with valuable information that can be used to identify new opportunities, improve efficiency, and make informed decisions. In the accountancy profession, big data analytics is the basis of anomaly detection, identifying inconsistencies in financial statements, predicting future revenue trends, or evaluating risk factors for audits. For example, by analysing customer transaction data, an accountancy firm can identify patterns or trends that may suggest fraudulent activity.

#### **Internet of Things :**

The term 'IoT' refers to a network of physical devices that communicate and interact with each other via the internet. Its significance lies in its ability to generate and collect vast amounts of data from various sources. IoT is a mature technology, but its applications continue to grow with advancements in connectivity and sensor technology. In accountancy, IoT can provide real-time data for improved decision-making. For instance, in asset management, IoT devices can track the use and condition of assets, providing accurate data for depreciation and maintenance expenses. **VR / AR:** 

Virtual and/or augmented reality (VR/AR) provides a simulated experience (VR) or an overlay of digital information on the real world (AR). They are significant for their potential to enhance user experiences, for example in providing immersive training and visualizing complex data. VR/AR is advancing rapidly, with growing commercial and consumer use. In accountancy, these

technologies could revolutionize the way financial data is visualised and interacted with. For example, an auditor could use AR to overlay financial data on physical assets during an audit.

#### **Digital twinning:**

A digital twin is a virtual replica of a physical system, used for simulation and analysis. This technology is crucial as it allows companies to analyse the performance of systems, predict failures, and simulate scenarios. Digital twinning is advancing and is being introduced in industries such as manufacturing and logistics. In accountancy, digital twins could be used to model a company's financial systems, allowing for scenario analysis and improved financial planning. For example, a digital twin of a company's supply chain could help accountants understand the financial impact of potential disruptions.

#### **Computer vision:**

Computer vision is a sub-field of AI that enables computers to interpret and understand visual data. Its significance lies in its ability to automate tasks that require visual understanding. It's a maturing technology, finding increased use in sectors such as autonomous vehicles and healthcare. In accountancy, computer vision could automate such tasks as receipt or invoice scanning, reducing manual data entry. For instance, it can be used to read and categorise paper receipts, aiding in expense management.

#### **Connectivity / networking:**

Connectivity/network technologies (eg, 5G) are the backbone of communication systems, ensuring fast, reliable and secure data transmission. They are essential for the functioning of an increasingly digital and interconnected world. Currently, 5G is being rolled out worldwide, offering significant improvements over previous generations. In accountancy, improved connectivity can enable faster data access and analysis, support remote work, and enhance the use of cloud-based accounting systems. For example, 5G could support real-time inventory tracking for accurate, up-to-date financial reporting.

#### **Advanced robotics:**

The term 'advanced robotics' refers to robots capable of performing complex tasks autonomously or semi autonomously. These robots are significant for their potential to automate tasks, increase productivity, and perform tasks beyond human capabilities. The technology is advancing rapidly, with increased use in industries such as manufacturing, healthcare and logistics. These advanced forms of machinery are different from robotic process automation (RPA) software used in accountancy, to automate manual tasks such as data entry and reconciliation including the process of closing books at the end of a financial period. By contrast, advanced robotics as used in a manufacturing process can vastly increase flows of data (such as diagnostics) and enhance operational efficiencies through regular monitoring and improvement. **Block chain:** 

Block chain is a type of digital ledger technology that records transactions across multiple computers in a secure and transparent manner. Its significance lies in its ability to improve the security, transparency and efficiency of transactions. It's an evolving technology with growing adoption in areas such as finance and supply chain management. In accountancy, blockchain could revolutionise auditing by providing a verifiable and tamper-proof record of transactions. For example, a blockchain-based system could be used to track the provenance of assets, providing auditors with undeniable proof of ownership and transaction history.

#### Artificial intelligence & machine learning:

AI and machine learning (ML) encompass systems that are capable of learning from data, making decisions, and improving over time with a level of autonomy. They are significant because they can automate complex tasks, make predictions, and provide insights based on vast amounts of data. These technologies are advanced but are still developing, with new models and methods being introduced regularly. Indeed, according to Stanford University's Artificial Intelligence Index Report 2022, global AI private investment doubled between 2020 and 2021 totalling US\$93.5bn in the latter year (Stanford 2022). AI and ML is a suite of technologies, enabled by adaptive predictive power that advance our ability to recognize and detect patterns, anticipate and forecast future scenarios, create rules to optimize outcomes, and make good decisions by applying rules. For instance, AI and ML can be used to automate invoice processingor to predict a company's performance using a range of structured and unstructured data.

#### **BENEFITS OF AI IN FINANCE AND AUDIT**

- AI will provide businesses with the ability to capture business activity in real time perform continuous reconciliation and make adjustments such as accruals throughout the month. This will also help reduce the burden at the end of the period. Invisible accounting refers to the development of processes with no human intervention through the use of AI to drive automation, decision making, execute processes and drive significant efficiencies, all while freeing up the workload of finance professionals.
- AI can also facilitate effective continuous audit, significantly reducing risk of financial fraud and minimise accounting errors, often caused by human interaction. The rise of online banking for instance has brought a host of advantages, but it has also created new avenues for financial crime, specifically around fraud. The chances of an unauthorised payments slipping through the net grows as the volume of data increases. That has made the accountant's compliance task muchharder to complete without the best of technology available at their fingertips to deploy. There are already many applications of AI in practice that are helping organisations address these challenges real time.
- Active insights can also play a key feature in the deployment of AI by finance teams. Companies can use predictive monitoring to perform cash flow forecasting for instance, predicting when the business might run out of money and take actions to protect against the situation ahead of time. They can identify when a customer might be about to leave and look at how to support customer service teams to take steps to encourage "at risk" customers to renew their service contracts. This all means that accountants will be able to help organisations respond to financial and business challenges before they become acute, adjusting expenditure or processes as required and help to ensure better business outcomes more generally with a potentially more expansive role in supporting their organisations.

#### **CONCLUSION:**

The digital horizon represents another turn of the cycle, another revolution in a longstanding history of innovation. As with previous cycles, while new capabilities will transform some tasks, the importance of finance professionals is unlikely to diminish.Leading innovators tend to have a more external focus, viewing technology as a competitive advantage rather than purely aninternal efficiency tool, suggesting the need for a broader perspective on how technology can be used strategically to transform an organisation and its value proposition. This is even more important given the recognition that limited technical knowledge, ability to map and identify processes, and lack of a systems approach creates roadblocks to successful innovation.

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# IMPACT OF ARTTIFICIAL INTELIGENCE IN INDUSTRY 4.0 Dr.(Ms). J.Thavamani, Principal Mrs. S. Sudha, Assistant Professor of Commerce. Ms. N.Subhiksha, Assistant Professor of Commerce Pavai Arts and Science College for Women

#### **ABSTRACT:**

Social media platforms increasingly use powerful artificial intelligence (AI) that are fed by the vast flows of digital content that may be used to analyze user behavior, mental state, and physical context. With Industry 4.0, this becomes a reality because it drives innovation and introduces new technologies on such a massive scale that it will affect our whole society. 3d-printing, sensors, and block chain are a few of the original words we need to adopt into our vocabulary. All these technologies will have a significant impact on the way we work and consume soon..Our institutional analysis does however point to the potential for negotiating trustworthy AI safeguards at a point where the collective needs of relevant data supply stakeholders can be contractually aligned contractually with AI innovation in a targeted and responsive fashion. In this way, future social media platforms may be able to maintain trust in their use of AI by committing to no datafication without representation

.Key words: Artificial intelligence, Social media, Block chain, society

#### **INTRODUCTION:**

Social media platforms increasingly use powerful artificial intelligence (AI) that are fed by the vast flows of digital content that may be used to analyze user behavior, mental state, and physical context. New forms of AI-generated content and AI-driven virtual agents present new forms of risks in social media use, the harm of which will be difficult to predict. Delivering trustworthy social media will therefore be increasingly predicated on effectively governing the trustworthiness of its AI components. In this article, we examine different approaches to the governance AI and the Big Data processing that drives it being explored. We identify a potential over-reliance on individual rights at the expense of consideration of collective rights. In response, we propose a collective approach to AI data governance grounded in a legal proposal for universal, nonexclusive data ownership right. We use the Institutional Analysis and Development (IAD) framework to explore the relative costs and benefits on stakeholders in two use cases, one focused on digital content consumers the other focused on digital content knowledge workers. Following an analysis that looks at self-regulation and industry-state co- regulation, we propose governance through shared data ownership. In this way, future social media platforms may be able to maintain trust in their use of AI by committing to no ratification without representation. Industry 4.0 changes the industry as we know it since the industrial revolution. Imagine having personalized products and services, perfectly fitted just for you, at your fingertips. With Industry 4.0, this becomes a reality because it drives innovation like3d- printing, sensors, and block chain are a few of the original words we need to adopt into our

vocabulary. All these technologies will have a significant impact on the way we work and consume soon.

#### **IMPACT OF INDUSTRY 4.0 ON BUSINESS**

"In the manufacturing process, a digital wallet, based on block chain technology, can be installed in the car. This wallet works by logging all transactions made involving the vehicle, including maintenance, modifications, charging or filling up gas, naming a few. It makes it possible to predetermine the total cost of ownership and calculate return on investment for the car on a very detailed level, says Matthias Roese. But what will happen to the companies that are not taking part in this shift?Industry 4.0, also known as the Fourth Industrial Revolution, refers to the integration of advanced technologies such as artificial intelligence, the Internet of Things (IoT), and automation into manufacturing and other industries. This integration is expected to lead to significant changes and improvements in the way businesses operate.

Some of the potential impacts of Industry 4.0 on business include:

Increased efficiency and productivity: The use of advanced technologies can help streamline and automate many business processes, leading to increased efficiency and productivity.

Improved decision-making: The use of data analytics and machine learning can help businesses make more informed decisions by providing real-time insights and predictions.

Enhanced customer experience: Industry 4.0 technologies can be used to personalize and improve the customer experience, for example by using IoT devices to track and optimize delivery routes or using chatbots to provide quick and convenient customer service.

New business models and revenue streams: Industry 4.0 technologies can enable businesses to create new products and services and explore new revenue streams, such as by offering subscription-based or pay-per-use models.Overall, Industry 4.0 has the potential to bring about significant changes and improvements in the way businesses operate, and companies that are able to effectively leverage these technologies are likely to have a competitive advantage.

#### **IMPACT OF INDUSTRY 4.0 ON EDUCATION:**

Modern technological advancements like Sensors, IOT (Internet of Things) and smart automation have influenced the present education system in several ways. Today's education systems highly focused towards the digital flat form through virtual communication systems. In India, still there are some problems with the internet protocol or communication systems, lack of skilled persons, poor economic culture, etc. These are the issues present in the Indian education system. Industry Revolution 4.0 will definitely create a big impact on the Indian education system that will transform the future of advanced technology through visual method. The present system is not much beneficial to the students of Indian nation still students are following the olden method of education that is memorizing the concepts. In future, such type of conventional education pattern will not be going to help students. Today Digital method of education has brought many comfort and flexibilities to the students. This has increased the remote based learning through mobiles and laptops with increased bandwidth, but still in India from technology point of view, people from rural villages facing lot of connectivity issues andbandwidth problems during the past few months in the pandemic crisis. Before going for any

change or transformation in the education process, first we have to fix the mind for preparedness, which is common for all individuals.

Then the next challenge is the preparedness for updating the skill in learning the new embedded technologies and then at last economic challenge is the vital thing, which is to be taken with more importance. Creativity is the main aspect in industrial revolution 4.0. Only trained and skilled peoples can be able to control the innovation and process mechanism in education system. According to Education 4.0, students need to be trained not by conventional teaching. This is the aim of remote based education system. Both Education 4.0 & Industry 4.0 must be aligned together in order to create job opportunities in more demand. The future education system will be more transparent in nature, in which all the information will be stored in the form of cloud. So, the user can able to access the information from the cloud data according to their wish.

Education 4.0 improves the freedom of learning and also freedom to innovate, think and implement by proving promising results in any fields. So, both students and educationalists have equal responsibility to sharpen the world by bringing quick changes through major advancements in the field. Education 4.0 brings many job opportunities to students in line with latest technological tools like Machine learning, Deep learning and Data science, etc. Education 4.0 will bring the change in the curriculum design and pedagogical methods practiced in teachingand learning process. Education 4.0 will have increased advantage in digital skills and Science, Technology, Engineering & Mathematics. As stated by Lloyds Bank in 2019 nearly 22% of the people in UK are lacking in digital proficiency that is considered to be more essential in order to do the day-to-day professional activities.

Also, in future it was estimated that AI (Artificial Intelligence) will have a profound role to play in the field of higher education and also to what extent the all universities will be converted to have smart campus in improving the teaching and learning quality. Education 4.0 requires a new strategy to prepare human resources in order to compete in the digital technology. The fourth Industrial revolution has shown impact in many several ways specifically in education sectors. The influence of industry 4.0 concept has brought more advanced transformations both inNational and International level.

. Education 4.0 does not require a teacher to teach the concepts in education institutions, instead remote based learning system is followed. The new paradigm shift in Education 4.0 – Digital era will motivate to have a greater number of online courses for the students to enhance their skills through virtual mode of education. Similarly, teachers will also develop the core competencies towards teaching and learning through various ICT tools for simplified method of teaching and learning process. Even though education 4.0 has many advantages, at the same time readiness to accept for change is said to be one of the main challenges in the modern system. So, Education 4.0 must set its objectives in line with the goals of Industry 4.0 so that both educationalinstitutions and Industries can work together for the betterment of student's future.

#### **IMPACT OF INDUSTRY 4.0 ON GOVERNMENT**

**Introduction to the Public Sector** - Discover what the Public Sector is and the vital role it plays in shaping is. Learn about the different roles of the Government and Public Sector; including providing transportation, healthcare, building and maintenance of infrastructure such as roads, providing electricity and water.

- **Introduction to Challenges of the Public Sector** - Explore the challenges faced by the Public Sector such as the lack of traceability and accountability within the sector, ensuring that public facilities and infrastructure such as transportation, healthcare, water and electricity are up to the industry expected standards.

- **Opportunities for Innovation in the Public Sector** - Discover the opportunities for innovation in the Public Sector including better increase transparency, increased accountability, increased efficient utilization of resources and proactive decision-making, increased engagement with the Public.

- Introduction to Cyber Physical Systems (CPS) - Discover what Industry 4.0 is, what the Industry 4.0 Environment is and the different kinds of Internets such as the Internet-of-Things (IoT), Industrial-Internet-of-Things (IIoT), Internet-of-Services (IoS) and the Internet-of-Everything (IoE).

- The Impact of Industry 4.0 on Governments and the Public Sector - Discover how Industry 4.0 is impacting and transforming the Governments and the Public Sector including interactive decision-making, better transparency, better accountability and a much more efficient governance framework.- Roadmap for increasing Productivity in Governments and thePublic Sector - Discover a few key points to create a Roadmap for increasing the Productivity inGovernments and the Public Sector in the Industry 4.0 era.

#### **CONCLUSION:**

Data are the fuel on which the effectiveness of AI is based, and as we see most pointedly in social media, the societal impact of any AI application grows in step with the relevance and volume of data available. The stakeholders that supply the data for an AI system, for example, the people and businesses using social media platforms, are often those most impacted by that AI. Implementing trustworthy AI requirements at the point of data supply may therefore reflect stakeholder needs more accurately, respond to emergent harms more rapidly and scale better with the number and data density of data supplying stakeholders involved, compared with enacting governance rules after the data are acquired and the AI starts impacting people's lives, which is the norm for co-regulation and self-regulation.Our institutional analysis does however point to the potential for negotiating trustworthy AI safeguards at a point where the collective needs of relevant data supply stakeholders can be contractually aligned contractually with AI innovation in a targeted and responsive fashion.

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#### **ARTIFICIAL INTELLIGENCE IN CYBER SECURITY**

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#### ABSTRACT

This paper discussed how artificial intelligence (AI) used to work in cybersecurity at advance level. Although secure communication between people, services and devices. As the digital landscape evolves, so do the threats it harbours. With the proliferation of cyberattacks, the role of artificial intelligence (AI) in cybersecurity has become increasingly vital. This conference aims to explore the latest advancements, challenges, and opportunities in utilizing AI for cybersecurity.Artificial intelligence (AI) plays a crucial role in modern cybersecurity by employing machine learning algorithms to analyse extensive datasets, detect patterns, and identify potential threats in real- time. This integration automates threat detection, response, and mitigation processes, enhancing the efficiency and effectiveness of cybersecurity defences. Al- driven technologies power advanced security tools such as intrusion detection systems, behavioural analytics, and predictive threat modelling, enabling organizations to proactively address evolving cyber threats. This abstract highlight the pivotal role of Al in cybersecurity, emphasizing its ability to adapt and evolve alongside rapidly changing threat landscapes.

Keywords:Artificial Intelligence, Cybersecurity, Advancements, Threat Detection, Anomaly Detection, Malware Analysis, Predictive Analytics, Automated Incident Response, Ethical Considerations, Privacy Concerns.

#### **INTRODUCTION**

In recent years, the proliferation of cyber threats has posed significant challenges to organizations worldwide, highlighting the critical need for robust cybersecurity measures. As traditional approaches struggle to keep pace with evolving threats, the integration of artificial intelligence (AI) has emerged as a transformative solution. This introduction examines the roleof AI in revolutionizing cybersecurity, emphasizing its ability to enhance threat detection, response, and prediction capabilities. By leveraging advanced data analysis techniques, AI empowers organisations to automate tasks such as anomaly detection and incident response, bolstering their defences against malicious activities. Moreover, AI-driven predictive analytics enable proactive defences measures by forecasting potential future attacks based on historical data. This introduction sets the stage for exploring the profound impact of AI on cybersecurity operations, ultimately striving to safeguard digital assets and infrastructure in an increasingly interconnected world.

#### **ROLE OF AI IN CYBERSECURITY**

Discuss how AI augments cybersecurity efforts by automating tasks, analysing vast datasets, and identifying potential threats. Highlight AI's ability to continuously learn and adapt to new cyber threats, providing proactive defences mechanisms. Explain how AI enables

faster and more accurate detection of anomalies and malicious activities compared to traditional methods.

- 1. Advance Threat Detection: Al empowers cybersecurity systems to detect and respond to threats with greater speed and accuracy. Machine learning algorithms can analyse vast amounts of data, including network traffic, user behaviour, and system logs, to identify patterns indicative of malicious activities.
- 2. **Predictive Analytics:** Al enables predictive analytics in cybersecurity by identifying potential threats before they occur. By analysing historical data and identifying patterns of suspicious behaviour, AI can forecast and pre-emptively mitigate cyber threats.
- 3. Automated Response: Al-driven cybersecurity systems can automate response actions to cyber threats in real-time. This includes deploying countermeasures such as firewall rules, blocking suspicious IP addresses, or quarantining infected devices without human intervention, thereby reducing response times and minimizing the impact
- 4. **Anomaly Detection:** Al algorithms excel at detecting anomalies or deviations from normal behaviour within IT environments. By establishing a baseline of normal activity, Al can flag unusual activities, such as unauthorized access attempts or unusual data transfer patterns, which may indicate a security breach.
- 5. **Fraud Detection:** In sectors like finance and e- commerce, Al is instrumental in detecting fraudulent activities, such as credit card fraud or identity theft. By analysing transaction patterns, user behaviour, and contextual data, Al-powered fraud detection systems can identify suspicious transactions and prevent financial losses.
- 6. **Phishing Detection:** Al is effective in identifying phishing emails and malicious URLs by analysing email content, sender behaviour, and website reputation. Natural language processing (NLP) algorithms can identify phishing attempts based on the language used in emails, while machine learning models can detect phishing URLs based on patterns and characteristics.
- 7. Security Automation: Al streamlines security operations by automating routine tasks, such as patch management, vulnerability scanning, and security incident response. This enables cybersecurity teams to focus on more strategic initiatives while Al handles repetitive tasks efficiently.

# APPLICATIONS OF AI IN CYBERSECURITY

Explore specific use cases where AI is applied in cybersecurity, such as malware detection using machine learning algorithms that analyse file characteristics and behaviour. Discuss how AI-powered intrusion detection systems can identify abnormal network activities and unauthorized access attempts. Highlight the effectiveness of AI in phishing detection by analysing email content, sender behaviour, and contextual information.

- 1. **Threat Detection and Prevention**: AI algorithms can analyse vast amounts of data to identify patterns indicative of cyber threats, such as malware, phishing attempts, or unusual network activity.
- 2. **Anomaly Detection:** AI-powered systems can detect abnormal behaviour within networks or systems, helping to identify potential security breaches or insider threats.

- 3. **Fraud Detection:** AI algorithms can analyse transaction data in real-time to identify fraudulent activities, such as credit card fraud or identity theft.
- 4. User Behaviour Analysis: AI can analyse user behaviour patterns to identify deviations from normal behaviour, which may indicate compromised accounts or insider threats.
- 5. Automated Incident Response: AI-driven systems can automatically respond to security incidents, such as isolating infected devices, blocking suspicious IP addresses, or quarantining malicious files.
- 6. **Security Analytics:** AI techniques, such as machine learning, can analyse security data toprovide insights into emerging threats, vulnerabilities, and attack trends.
- 7. **Vulnerability Management:** AI can help prioritize and remediate vulnerabilities by analysing their potential impact and likelihood of exploitation.
- 8. **Threat Intelligence:** AI can sift through vast amounts of threat intelligence data to identify relevant information and provide actionable insights to security teams.
- 9. **Network Security:** AI-powered tools can continuously monitor network traffic to detect and respond to threats in real-time, enhancing overall network security posture.
- 10. **Security Automation:** AI can automate routine security tasks, such as patch management, security policy enforcement, and security configuration management, freeing up security teams to focus on more strategic initiatives.

# ADVANTAGES OF AI IN CYBERSECURTIY

- 1. **Detection of Anomalies:** AI can analyse vast amounts of data to identify patterns and anomalies that might indicate cyber threats or unusual behaviour.
- 2. Automated Response: AI-powered systems can react to cyber threats in real-time, initiating automated responses to mitigate attacks before they cause significant damage.
- 3. **Adaptability:** AI algorithms can adapt and evolve to recognize new types of threats and attack techniques, staying ahead of cybercriminals who are constantly innovating.
- 4. **Speed and Efficiency:** AI can process data much faster than humans, allowing for rapid threat detection and response, which is crucial in the constantly evolving landscape of cybersecurity.
- 5. **Reduced False Positives:** By continuously learning and refining their models, AI systems can reduce false positives, helping security teams focus on genuine threats rather than wasting time on false alarms.
- 6. Enhanced Decision Making: AI can assist security analysts by providing insights and recommendations based on data analysis, helping them make more informed decisions in handling security incidents.
- Scalability: AI-driven security solutions can scale up to handle large and complex networks and systems, providing effective protection across various environments and devices.
  DISADVANTAGES OF AI IN CYBERSECURITY
- 1. Adversarial Attacks: Adversarial attacks involve intentionally manipulating inputs to AI systems to cause them to make mistakes or behave unexpectedly. In cybersecurity, attackers could exploit vulnerabilities in AI algorithms to evade detection, bypass security measures, or cause systems to malfunction.

- 2. **Bias and Fairness:** AI algorithms learn from historical data, and if this data contains biases, the AI system can perpetuate them. In cybersecurity, biased decisions could result in certain groups being unfairly targeted or protected, potentially leading to discrimination or inequitable outcomes.
- 3. **Complexity:** AI systems, especially those employing deep learning or complex algorithms, can be challenging to understand and interpret. In cybersecurity, this complexity can make it difficult for analysts to diagnose and mitigate issues effectively, potentially leaving vulnerabilities undiscovered or unaddressed.
- 4. **Dependency:** Relying too heavily on AI systems in cybersecurity can lead to complacency among human analysts, who may trust the AI to detect and respond to threats without adequate oversight. This over-reliance can create blind spots and vulnerabilities that attackers couldexploit.
- 5. **Privacy Concerns:** AI systems often require access to large amounts of data to train effectively. In cybersecurity, this could involve analysing sensitive personal information or proprietary data, raising concerns about privacy breaches or unauthorized access.
- 6. **Resource Intensiveness:** Implementing AI solutions in cybersecurity requires significant computational resources, including powerful hardware for training and inference, as well as skilled personnel to develop, deploy, and maintain the AI systems. This can be costly and may pose challenges for organizations with limited resources.
- 7. **Evolution of Threats:** Cyber attackers are constantly evolving their tactics and techniques, and they could potentially leverage AI to develop more sophisticated and automated attacks. This could increase the complexity and scale of cyber threats, challenging defenders to keep pace withrapidly evolving attack vectors.
- 8. **Regulatory Challenges:** The use of AI in cybersecurity may raise regulatory and compliance issues, particularly concerning data protection and privacy laws. Organizations must navigate these regulatory challenges to ensure that their use of AI aligns with legal requirements and industry standards.

#### **EXAMPLES OF AI IN EVERYDAY LIFE**

1. Face recognition: Most people use the face recognition feature in their Android or iPhone as it is one of the best safety features available on your device. Moreover, it is easy to use and does not ask for patterns or passcodes when you are in a hurry. This easy and smart feature is the result of artificial intelligence. Humans recognize their co-existing species with their face and <u>voice</u> <u>biometrics</u>, similarly, the AI facial recognition feature uses different <u>types of biometrics</u> to identify a person. This machine learning (ML) technology allows AI to study and save the facial coordinates of a human face from recognizing the user.

2. Smart cars: With the increase in the number of accident cases, many might have dreamt about cars that save drivers and passengers from getting killed. A car that drives on its own stopsat traffic signals, takes turns and difficult roads carefully – all that we thought of as a dream has come to reality because of AI. Tesla has already laid its hands on self-driving cars and there are almost 500,000 - tesla automatic cars running in the United States, which is supposed to become

double by the coming year. The machine learning capabilities of AI have made the idea of fully automated cars possible. These automated cars are programmed to stop at signals, slow down or stop whenever an obstacle is detected, control the speed limit, etc.

3. **Digital assistants:** Who wouldn't want to have an assistant do certain tasks or activities that can be controlled using a fingertip? Digital assistants serve the purpose for you. Sometimes you may want to hear soothing music but you may not have the energy to find it and play from your playlist, then there are situations in which you don't want to get up and turn the fan or air conditioner off or on. This is exactly what digital assistants can do. They will do all such things for you just with a command. You just need to tell them to switch on the fan or play music or turn off the light and they will simply follow your instructions. Amazon's Alexa and Apple's Siriare the two best examples of this far-fetched technology. They not only understand our commands but also respond to our queries or questions, make appointments, manage calls, send emails, set alarms, etc. They keep analysing and learning from interactions in order to deliver improved customer experiences based on our preferences and search history.

4. Entertainment and social apps: Social media platforms are using AI to give a customized experience to users. One of the best examples is the friend suggestions we receive on Facebook, Instagram, Twitter, and other platforms. These apps show a list of people we might know or those who are on our contact list. How do apps get such information? How do they know that we know the people in the suggestions? Well, that is the magic of artificial intelligence. AI and ML evaluate your usage patterns and recognize your friends from photos and news feeds.

5. **Banking:** The banking sector has fully digitized with artificial intelligence. Today, we don't have to stand in a long queue to withdraw money or transfer it to another account. Customers can initiate transactions without being present at the physical location as AI <u>Chabot's are automated</u> to perform all the processes in digital banking. Banks seek the help of artificial intelligence Chabot's by enabling seamless and 24/7 customer interaction. From opening anaccount to making e-payments, the banking sector has become more convenient to users with theuse of AI Chabot's.

6. **Google predictive search algorithm:** You might have noticed several suggestions automatically appearing on the screen before you finish typing what you are actually looking for. This is because of the autocomplete feature of google that predicts the search term by the characters you enter one by one. Google uses artificial intelligence, machine learning, and deep learning to run prediction algorithms in order to make the searches effective.

#### CONCLUSION

AI's role in cybersecurity is pivotal, providing advance capabilities in threat detection, incident response, and vulnerability management. Through machine learning algorithms, AI systems analyse vast amounts of data to identify patterns and anomalies that could indicate potential security breaches. Additionally, AI-powered systems can automate tasks such as patch management, reducing human error and improving overall security posture. Furthermore, AI can enhance adaptive defences by continuously learning from new threats and adapting strategies accordingly. However, while AI offers significant benefits, it's important to recognize its

limitations and the potential for adversarial attacks targeting AI systems themselves. Thus, while AI greatly enhances cybersecurity, it must be complemented with human expertise and oversight to effectively protect against evolving threats.

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# LEADERSHIP ON DIGITAL HORIZON Ms.V.Priyadharshini& Ms.A.Mercy Catherine I-B.Com(Accounting and Finance) Loyola College Of Arts And Science , Namakkal

#### **ABSTRACT:**

Industry 4.0 brings a new challenge for incumbent firms to anticipate the new business model offered by emerging entries. The digital transformation is required by incumbent to develop innovative product and service business model based on customer experience orientation. To support this transformation, strong digital leader is important to assure the development of this transformation. The study on the role of digital leadership on business model and innovative and customer experience has not been explored, Hence, this research aims at assessing the role of digital leadership is digital leadership, essential of digital leadership and skills to develop it. The result shows that digital leadership has the responsibility to take over the enterprise with current technology and adaptability of particular leadership styles might help them to be very successful. Further research can be explored with fine examples. **Keywords:Digital, leadership,Business model** 

#### **DIGITAL LEADERSHIP:**

"Management is doing right things Leadership is doing the right thing."

#### -Peter F.Drucker.

Digital leadership is the strategic use of a company's digital assets and emerging technologies to achieve business goals. A digital leader is a person who guides the digital approach within an organization. Digital leadership is becoming more and more important with the rapidly shifting business landscape and ever-changing technology.

#### **HOW IT WORKS:**

Digital transformation can be a tough process for an organization. Replacing legacy systems and tools has a real financial and personnel cost associated with it. It's an important step though to achieve true digital leadership.

Digital leadership is valuable to any organization, not just traditional tech companies. An excellent example of this is JOHN DEERE. They were historically manufacturers of farming equipment, competing on things like features and cost. Recently they have begun to take a digital leadership role in the market. They add recent high -value technology to their products to make the farmers job easier, such as machine vision, Internet of Things (IOT) sensors, fifth generation wireless also known as 5G access and Digital twin models. This let's a farmer know what is growing and how well, down to individual plant level. Data models based on climate and weather data provide farmers with real-time predictions and yield estimates. On their business side ,John Deere uses big data and Agile operations to better its internal processes.

#### **ROLE OF DIGITAL LEADER:**

Competing in the digital age is a priority for businesses. There are innumerable opportunities to exploit technology and each business needs to assess where they can earn the biggest return for its investment. Companies need digital leaders to direct this important undertaking, and a successful digital leader has to wear many different hats. Following are five essential hats that they must wear for an organization to be successful;

#### A Creative Leader:

The digital leader keeps a pulse on trends that are applicable to the business, both short-and long -term . Whether it belongs to crypto -currency, augmented reality, artificial intelligence or another trend, the leader must be aware of new technology that may impact the organization and prepare accordingly.

#### A Customer Champion:

The digital leader has deep insight into the organization's customers. A digital leader has the customer top-of-mind as product design and the digital support channels are modified, even the overhaul of internal business processes. They ensure that changes are cohesive and align well to deliver exceptional customer experience.

#### A Risk Taker:

The digital leader leads the organization's initiatives in uncharted waters. They are meticulous in identifying and assessing risks. They are thorough in determining how to avoid or mitigate risks. They with others to determine whether the business can accept any risks that can't be eliminated. The digital era has created new categories of risk that must be assessed before major steps are taken by a business.

#### A Change Agent:

The digital leader introduces changes in multiple facets of the business that have ripple effects throughout the organization .They launch new products and services, implement new standards of service, create new roles, shuffle, responsibilities, eliminate archaic and manual tasks. Change can be painful for business units and there will be resistance, which can be distracting to the whole organization. As a change agent, the digital leader inspires everyone in the organization.

#### A Determined Leader:

The digital leader faces many challenges, including the integration of new technology with legacy systems and tools, capital constraints and internal politics. They are transparent with the transformation plan, progress and hurdles that are encountered. They are not shy about seeking advice to move things in the right direction.

#### DIFFERENT DIGITAL LEADERSHIP STYLES:

#### **1. Transformational Leadership:**

Transformational leadership is defined as a leadership approach that causes change in individuals and social systems. In its ideal form ,it creates valuable and positive change in the followers with the end goal of developing followers into leaders.

#### 2.Servant Leadership:

The servant leadership style is based on the idea that leaders prioritize serving the greater good. Leaders with this style serve their team and organization first. They don't prioritize their own objectives. Employees in a servant leadership environment are more likely to feel that their voices are heard.

#### **3.Authentic Leadership:**

Authentic leadership is a type of management style in which people act in a real, genuine and sincere way that is true to who they are as individuals. Proponents of authentic leadership say this type of leader is best positioned to inspire trust, loyalty and strong performance from employees.

#### 4. Agile Leadership:

Agile leadership is based on the belief that individuals and teams are self-organizing and capable of making good decisions when given autonomy and trust. Agile leaders empower their teams by providing a clear vision and goals, encouraging collaboration, and removing obstacles.

#### SERVANT LEADERSHIP:KEY TO DIGITAL TRANSFORMATION SUCCESS

Servant leadership is a leadership philosophy that prioritize the needs of the team and organization above the leader's interest. It is marked by traits such as empathy, humility and a strong sense of responsibility. Servant leaders prioritize the development and growth of theirteam members, empower them to take risks and drive change and foster a culture of trust, collaboration and innovation. A study by Eisenbeiss at al.(2018) found that organizations with a servant leadership style have higher employee engagement, Lowe turnover rates and Better overall performance.

In the context of digital transformation, servant leadership is critical because it establishes a culture of trust, collaboration and innovation. Digital transformation requires a significant shift inmindset and ways of working, which can be challenging and unsettling for employees. Servant leaders prioritize open and honest communication, providing a clear vision and a sense of purpose that enable employees to align with the transformation goals. This fosters a sense of ownership among employees, which drives innovation and creativity and ultimately, successful digital transformation outcomes (Deloitte,2017).

Finally, servant leadership prioritize the development of an innovative and creative culture. In the context of digital transformation, this means that the leader gathers the team and facilities open and honest discussions about the transformation's challenges and opportunities. This contributes to the development of a shared vision and an inclusive and effective plan of action. Servant leaders foster an environment where employees feels empowered to experiment and takerisks, driving innovation and creativity in the organization (Yukl,2013).

#### INDIA'S SHARE IN GLOBAL DIGITAL LEADERSHIP:

India's share in global digital leadership is on the rise, according to an analysis prepared by NASSCOM in association with consulting firm DiNovo instance, in 2022, there were only some 5,000 global roles present in the country, but global digital leadership roles here are projected to grow to 20,000 by 2030, the industry body said .

This clearly indicated that India was becoming a hub not just for innovation and digital capabilities but for digital leadership as well, Said NASSCOM.

As s result, Desi digital leaders are now helming global portfolios across both business and technical roles. In fact, India is driving an increasing number of general management roles, which has played a crucial role in propelling the growth of Global Capability Centres(GCCs) in the country, as per NASSCOM.

Debjani Ghosh, President, NASSCOM ,said ,"India is poised to evolve into the ultimate destination for GCCs, catering to their diverse needs in terms of talent, location , leadership and operational excellence". As of FY23,India was home to 1,580 Cusworth several global MNCs opting to establish their first global centre outside of their headquarters in India ,as per the analysis.

# WHY ? DIGITAL LEADERSHIP IS IMPORTANT

Digital transformation is a technology proposition. There is no doubt that the impact of technology is unprecedented in terms of things like unlimited compute power and unlimited storage that are becoming a reality today, as well as possibilities offered by disruptive technologies like IoT, artificial intelligence, deep learning, mixed reality and so on . Therefore, it is fair to say that technology will change the world.

A leader who is not digitally literate will struggle to keep abreast of emerging trends and developments and will fail to grasp how those trends can bring new value or represent a threat to the organization. Digital leaders are fast particularly at decision making and execution, enabling them to experiment and pivot when necessary. They identify and organize around the technology trends that matter most .And they are adept at orchestration, moving effectively from experimentation to full-scale transformation.

Technology is both a disruptor and catalyst for growth. It is not just adding Capability but changing business models. In this fast-moving digital era, companies must pick technology partners carefully, making sure they not only have the capabilities you need, but that their approach empowers the company's agility, efficiencies and differentiation. Hence, companies need to invest in training-educating and motivating their employees so that they can manage to steep learning curves and increased cognitive requirements of digitalization.

Every industry had to go through some level of digitalization to sustain. For example ,banks had a surge in digital banking users. For healthcare providers, telehealth visits went way up. Retails or restaurants, keeping their business afloat due online ordering and delivery services. From schools going online to delivery apps getting on the rise ,to people working from home to people going for digital workouts, everything was possible due to the Agile digital leaders in the society.

# STEPS TO DEVELOP DIGITAL LEADERSHIP SKILLS:

1.Embrace digital transformation.

2.Communicate effectively through online.

3.Build trust and rapport online.

4. Manage online collaboration.

5.Lead online meetings.

6.Learn and grow online.

# **CONCLUSION:**

Hope, this paper might teach you the importance of digital leadership with great examples and also the best leadership style to adapt. Through this research you may also understand the future of India in the digital world and now we are in the situation to adapt with new technology however, you cannot survive. So, Through the given steps, develop your digital leadership skills for sustainable growth.

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#### OVERCOMING CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE AND MANAGEMENT

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#### **ABSTRACT:**

Digital commerce is the buying and selling of goods or services over the internet and it has become increasingly popular in recent years. One of the biggest challenges in international digital management is dealing with different laws and regulations. Promote the growth of international digital commerce and management. The need to comply with different laws and regulations in different countries. The need to protect against fraud and cybercrime. The lack of knowledge and skills to use technology effectively. DJUA offers training and workshops on various digital skills, including using the internet, social media, and digital security. For instance, companies like Netflix and Amazon have gradually migrated their systems. Platforms likeFacebook, Instagram, and Twitter offer powerful tools to build brand awareness, engage with customers, and drive sales. Ecommerce is the buying and selling of goods or services over the Internet, typically through a website. E-commerce, including convenience, cost savings, and a wider selection of products and services. The India's Information Technology (IT) Bill passed by the Indian Parliament on May 17, 2000 intends to tackle legislatively the growing areas in e- commerce. To adapt e-commerce processes in their operations. Sooner it is done better will be it for small enterprises to adapt ecommerce. In conclusion, International Digital Commerce and Management is a complex and challenging field.

#### Keywords: Digital commerce, E-Commerce, IT

#### **INTRODUCTION:**

In today's world, technology has become an integral part of our lives. With the increasing reliance on technology, it is essential that everyone has access to it. However, that is not the case for many people living in fourth world nations. The digital divide defined as the gap between those who have access to technology and those who do not is prominent in these nations. Overcoming the challenges of the digital divide in fourth world nations is a crucial step in bridging the technological gap. Here are some insights from different points of view on how toovercome the challenges of the digital divide in fourth world nations.

Digital commerce is the buying and selling of goods or services over the internet and it has become increasingly popular in recent years. There are many challenges associated with digital commerce. International digital management is the process of managing digital assets and data across multiple countries and cultures. It can be a complex and challenging task as there aremany factors to consider such as different laws and regulations, languages, and cultures.

One of the biggest challenges in international digital management is dealing with different laws and regulations. Each country has its own set of laws and regulations governing the use of data and digital assets. This can make it difficult to keep track of what is and is not allowed in each country.

# **OBJECTIVE:**

The objectives of overcoming challenges in international digital commerce and management are to:

- Increase the efficiency and effectiveness of international digital commerce and management.
- ✤ Reduce the costs associated with international digital commerce and management.
- Improve the security and privacy of international digital commerce and management.
- Enhance the customer experience of international digital commerce and management.
- Promote the growth of international digital commerce and management.

# The challenges of international digital commerce and management include:

- The need to comply with different laws and regulations in different countries.
- The need to deal with different currencies and payment methods.
- ✤ The need to overcome language barriers.
- The need to build trust with customers in different countries.
- ✤ The need to protect against fraud and cybercrime.
- But they typically include things like increasing sales, expanding in to new markets, and improving customer satisfaction.
- They are number of things that business to achieve their international digital, commerce and management.
- The customers most of like online purchasing. Customer who has a positive experience with a business is more likely to return and make repeat purchases.
- International digital commerce and management business should also be extra make sure that customers are satisfied with the online purchasing.

# Overcoming challenges in digital literacy with djua:

- In today's digital age, digital literacy has become a fundamental skill for all individuals.
- However, not everyone is equipped with the necessary skills to navigate the digital world.
- This is where Digital Justice Uplifts America (DJUA) comes in, offering resources and support to help individuals overcome challenges in digital literacy.
- DJUA provides access to technology for underprivileged individuals and communities. This includes providing free or low-cost laptops, internet access, and other essential tools that individuals need to be digitally literate.
- The lack of knowledge and skills to use technology effectively. DJUA offers training and workshops on various digital skills, including using the internet, social media, and digital security.
- DJUA is playing a critical role in empowering individuals with the knowledge and skills they need to be digitally is creating a more equitable and just society, where everyone has the opportunity to fully participate in the digital world.

**Overcoming Challenges in Digital Transformation:** 

- Digital transformation is not without its challenges. As organizations embark on the journey towards digitization, they often encounter roadblocks that can hinder their progress. However, with the right strategies and approaches, these challenges can be overcome, paving the way for successful digital transformation.
- The common challenges faced by businesses and provide valuable in digital transformation is the resistance to change from employees and stakeholders. The organizations should focus on effective change management strategies.
- Data Security and privacy with the increasing digitization of processes and the growing threat of cyber-attacks, data security and privacy have become major concerns for businesses.
- For instance, companies like Netflix and Amazon have gradually migrated their systems to the cloud, enabling them to scale their operations and deliver better customer experiences.

# **Overcoming Challenges in Digital Transformation**



#### **Overcoming Challenges in the Digital Age:**

- In today's fast-paced digital age, breaking barriers and overcoming challenges has become a crucial aspect of entrepreneurship.
- One of the key challenges in the digital age is understanding and meeting the ever-changing needs and expectations of customers. Entrepreneurs need to adopt a customer-centric approach.
- The companies like Airbnb and Uber disrupted traditional industries by identifying gaps in the market and offering personalized experiences that catered to the demands of their customers.
- Social media has revolutionized the way entrepreneurs connect with their target audience. Platforms like Facebook, Instagram, and Twitter offer powerful tools to build brand awareness, engage with customers, and drive sales.
- Entrepreneurs who understand the importance of social media marketing interesting the customers low budget produce the online digital world.



#### **Overcoming common challenges in digital Public Relations (PR):**

- Digital PR is a powerful tool that can help businesses to reach and engage with their target audience. However, just like any other PR strategy, it also comes with its own set of challenges. As a Digital PR expert, it is important to be able to identify and overcome these challenges in order to achieve success.
- This means regularly checking social media platforms and review sites for any negative comments or complaints, and responding to them in a professional and courteous manner.
- This can include blog posts, infographics, videos, and social media updates. By creating content that is valuable to their audience, businesses can build trust and credibility with their target market.
- By managing their online reputation, generating quality content, and building relationships with influencers, businesses can ensure the success of their Digital PR strategy including the informative, relevant and interesting.
- Online reputation management (ORM) is establishing and managing a positive perception of a business. It covers encouraging positive reviews, tracking brand mentions, and responding to users' comments on social media, product review websites, and other platforms.

**Overcoming common challenges in digital transformation with regional funding:** 

- Digital transformation requires specialized skills and knowledge, and many businesses lack these resources. Hiring new employees or training existing ones can be expensive and time- consuming.
- Digital transformation requires a robust technology infrastructure, and many businesses may not have access to the necessary infrastructure.
- Digital transformation is essential for businesses to stay competitive in today's digital age.

- Lack of expertise is a very common challenge of digital transformation. Organizations should understand that they need to have skilled employees who can carry on the process and if needed they should seriously consider investing in bringing in new employees which have the required expertise, skills, and knowledge.
- Older employees or those less familiar with technology might resist digital transformation due to a lack of confidence in their ability to learn and adapting in resistance to change.
- Insufficient funding is a term used to describe a situation where a company or organization does not have enough money to cover its expenses such as poor financial planning, unexpected costs, or a decrease in revenue.
- This can lead to a decline in productivity, quality, and customer satisfaction. Additionally, insufficient funding can create a stressful and demoralizing work environment, which can lead to employee turnover and decreased morale.
- Lack of infrastructure in digital commerce and management refers to the absence of the necessary systems, tools, and processes to support the efficient and effective operation of a digital business.
- For example, it can make it difficult to process orders, communicate with customers, and manage inventory.

#### 7 Challenges Faced by E-Commerce In India

#### 1). Infrastructural Problems:

Internet is the backbone of e-commerce. Unfortunately, internet penetration inIndia is so far dismally low at 0.5 percent of the population against 50 percent in Singapore. Similarly, penetration of personal computer (PC) in India is as low as 3.5 per thousand of population compared to 6 per thousand in China and 500 per thousand in US. Internet is still accessible through PCs with the help of telephone lines.

#### 2). Absence of Cyber Laws:

Other big challenge associated with e-commerce market is the near absence of cyber laws to regulate transactions on the Net. WTO is expected to enact cyber laws soon. The India's Information Technology (IT) Bill passed by the Indian Parliament on May 17, 2000 intends to tackle legislatively the growing areas in e-commerce.

#### 3). Privacy and Security Concern:

As of to-day, quite vulnerable issues related to e-commerce are privacy and security. So far, there is no protection offered either by Website or outside watch dogs against hazard created by exploiting one's privacy.

#### 4). Payment and Tax Related Issues:

Issues related to payment and tax is yet another problem continuously hinting e-traders. The electronic payment is made through credit card or plastic money which could, however, not become popular so far in India mainly due to two reasons. First, the penetration of credit card in India is very low (2 percent of the population).

Second, the Indian customers are quite skeptical of paying by credit card with the increasing threat of fraud played by hackers. Similarly, tax administration is yet another complex problem in this seamless worldwide e-commerce.

#### **5). Digital Illiteracy and Consumer Psyche:**

At present, digital illiteracy is one of the formidable problems e-commerce is facing in India. This has posed a real threat to the Indian IT industry. The Indian consumer is also characterized by his unique psyche. Usually, the Indian consumer does not go long distances for having any good of his choice when a neighborhood store provides him whatever he wants.

#### 6). Virus Problem:

That computer virus is also a formidable problem in the execution of e-transactions is confirmed by the computer virus originated in Manila. A computer virus lagged originated in Manila, Philippines on May 5.2000 rippling across world inflected millions of computer files causing colossal loss of US \$7 billion to the governments and the businesses. The offenders causing virus must be awarded deterrent punishment, otherwise similar assaults in future can cause lasting blows to the quite young e-commerce in India as well.

#### 7). English Specific:

Last but not the least the software so far in the country is English specific. But in order to make ecommerce reach to the small enterprises it needs to be available in the languages of the owners of the small enterprises to enable them to adapt e-commerce processes in their operations. Sooner it is done better will be it for small enterprises to adapt e-commerce.

#### **CONCLUSION:**

In conclusion, International Digital Commerce and Management is a complex and challenging field. However, by understanding the key challenges and potential solutions, businesses can overcome these obstacles and succeed in the Global marketplace. One of the biggest challenges facing international digital commerce is the need to comply with different regulations in different countries. This can be a complex and time-consuming process, but it is essential to ensure that businesses are operating legally in all of the markets they serve. Another challenge is the need to manage different currencies and payment methods. This can be difficult, as businesses need to be able to accept payments in a variety of currencies and ensure that they are able to convert these payments into their own currency at a competitive rate.

Finally, businesses need to be able to overcome the language barrier when operating in international markets. This can be a challenge, as businesses need to be able to communicate effectively with customers and partners in different countries. Despite these challenges, International Digital Commerce can be a very rewarding field for businesses. By understanding the key challenges and potential solutions, businesses can overcome these obstacles and succeed in the global marketplace.

Here are some additional tips for Overcoming Challenges in International Digital Commerce and Management:

Build a strong team: A successful international digital commerce operation requires a team of experienced professionals with a deep understanding of the global marketplace.

- Invest in technology: The right technology can help businesses to automate tasks, manage data, and communicate with customers and partners around the world.
- Partner with local businesses: Partnering with local businesses can help businesses to gain access to new markets and build relationships with key stakeholders.

Be patient: Success in international digital commerce does not happen overnight. Businesses need to be patient and persistent in order to overcome the challenges and chieve their goals.

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# INTERNATIONAL DIGITAL COMMERCE AND MANAGEMENT Mr.M.Nithish Kumar &M.R.Mukhilan. II-B.Com Loyola College Of Arts And Science , Namakkal

#### **ABSTRACT:**

Digital commerce can provide invaluable customer data when used with the right tools. You can provide a more personalized experience across all channels by harnessing customer data. Customer data allows brands to acquire new customers, build loyalty with existing customers, and improve overall sales. The advent of digital technology has revolutionized the landscape of international commerce, enabling businesses to transcend geographical boundaries and tap into global markets with unprecedented ease. This paper examines the current trends and strategies ininternational digital commerce, exploring key factors such as technological advancements, regulatory frameworks, consumer behavior, and market dynamics. By analyzing case studies and industry reports, this study provides insights into the challenges and opportunities facing businesses engaged in cross-border digital trade. Moreover, it discusses emerging trends such as mobile commerce, blockchain technology, and artificial intelligence, and their implications for international digital commerce. The findings highlight the importance of adopting a holistic approach that encompasses not only technological innovation but also regulatory compliance, localization, and customer-centricity to succeed in the dynamic global digital marketplace.

# Keywords: Digital commerce, innovation, artificial intelligence.

#### **INTRODUCTION:**

International digital commerce, also known as e-commerce, refers to the buying and selling of goods and services over the internet across national borders. It encompasses a wide range of transactions, including online retail, digital products and services, and business-to-business (B2B) transactions. The advent of the internet and advancements in technology have transformed the way businesses operate globally, enabling them to reach customers in distant markets with ease. International digital commerce offers numerous advantages, such as increased marketreach, cost-effectiveness, accessibility, and scalability. However, it also presents challenges such as cultural differences, language barriers, legal and regulatory complexities, and logistical issues. Overall, it plays a significant role in shaping the global economy and has become an integral part of modern business strategies.

#### COMMON CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE INCLUDE:

1. **Cross-border regulations**: Dealing with different legal and regulatory frameworks across countries can be complex and challenging. Compliance with taxation, data protection, consumer protection, and other laws can vary significantly, requiring thorough understanding and adherence to each jurisdiction's requirements.

2. **Cultural differences**: Understanding cultural nuances, preferences, and behaviors of consumers in different countries is essential for effective marketing and customer engagement. Failure to adapt to local customs and norms can lead to misunderstandings or alienation of potential customers.

3. **Language barriers**: Language differences pose a significant challenge in international digital commerce, affecting communication with customers, translating content accurately, and providing customer support in multiple languages. Overcoming language barriers requires investment in translation services or multilingual support.

4. **Payment methods and currency conversion**: Accepting diverse payment methods and managing currency conversions can be complex and costly. Different countries have preferred payment methods, and providing a seamless payment experience for customers worldwide requires integration with various payment gateways and currency conversion services.

5. **Logistics and fulfillment**: Efficient shipping, logistics, and fulfillment processes are crucial for delivering products to customers worldwide. Managing inventory across multiple locations, navigating customs procedures, and ensuring timely delivery can be challenging, especially in regions with inadequate infrastructure or unreliable postal services.

6. **Cybersecurity and data privacy**: International digital commerce involves handling sensitive customer data and financial information, making cybersecurity and data privacy critical concerns. Businesses must implement robust security measures to protect against cyber threats and comply with data protection regulations like GDPR (General Data Protection Regulation) in the European Union.

7. **Market competition**: Competition in international markets can be intense, with local and global competitors vying for market share. Understanding competitors' strategies, pricing dynamics, and market trends is essential for staying competitive and gaining traction in new markets.

8. **Customer trust and satisfaction**: Building trust and credibility with international customers can be challenging, especially for businesses entering new markets. Providing excellent customer service, transparent policies, and reliable product quality are essential for establishing trust and fostering customer loyalty.

Navigating these challenges requires careful planning, market research, and strategic decisionmaking to adapt to the complexities of international digital commerce effectively.

# TO OVERCOME CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE, BUSINESSES CAN IMPLEMENT THE FOLLOWING STRATEGIES:

1. **Thorough market research**: Conduct comprehensive market research to understand the target audience, cultural preferences, purchasing behaviors, and competitive landscape in each international market. This knowledge will inform business strategies and help tailor products, marketing campaigns, and customer experiences to local preferences.

2. Localization: Customize products, services, marketing content, and customer support to resonate with the cultural and linguistic preferences of international customers. This includes

translating website content, product descriptions, and customer communications into local languages, as well as adapting marketing strategies to align with cultural norms and values.

3. **Compliance management**: Stay informed about legal and regulatory requirements in each target market and ensure compliance with relevant laws, such as data protection, taxation, consumer protection, and e-commerce regulations. Establishing a robust compliance management system will help mitigate legal risks and avoid potential penalties.

4. **Flexible payment options**: Offer a variety of payment methods that cater to the preferences of international customers, including credit cards, digital wallets, bank transfers, and local payment solutions. Implementing secure payment gateways and currency conversion services will facilitate seamless transactions and improve the overall shopping experience.

5. Efficient logistics and fulfillment: Optimize supply chain and logistics operations to ensure efficient order processing, shipping, and delivery across international borders. Partnering with reliable logistics providers and fulfillment centers can help streamline operations and minimize shipping costs and delivery times.

6. **Cybersecurity and data protection**: Prioritize cybersecurity measures to protect customer data, financial information, and business operations from cyber threats and data breaches. Implement robust security protocols, encryption technologies, and compliance with data protection regulations to safeguard sensitive information and build trust with customers.

7. **Customer engagement and support**: Provide responsive and multilingual customer support to address inquiries, concerns, and issues from international customers promptly. Utilize online chat, email support, and social media channels to engage with customers in their preferred language and offer personalized assistance throughout the purchase journey.

8. **Continuous optimization**: Continuously monitor and analyze key performance metrics, market trends, and customer feedback to identify areas for improvement and optimization. Adapt strategies, products, and services based on insights gained from data analysis to enhance competitiveness and customer satisfaction in international markets..

#### **CONCLUSION:**

In conclusion, international digital commerce presents a vast array of opportunities for businesses to expand their reach and thrive in the global marketplace. However, it also poses significant challenges, including regulatory complexities, cultural differences, and cybersecurity risks. To succeed in this dynamic environment, businesses must adopt a strategic approach that incorporates technological innovation, regulatory compliance, localization, and customercentricity. By staying abreast of emerging trends, leveraging data analytics, and fostering partnerships, organizations can navigate the complexities of international digital commerce and capitalize on its immense potential for growth.

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3. The Hundred-Page Machine Learning Book – Andriy Burkov
#### CYBERSECURITY CHALLENGES IN THE ERA OF DIGITAL AGE

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## **ABSTRACT:**

As organizations undergo rapid digital transformation, the integration of advanced technologies brings about unprecedented opportunities and efficiencies. However, this paradigm shift towards a digitally driven landscape also introduces a myriad of cybersecurity challenges that demand vigilant examination. This review research paper explores the evolving cybersecurity landscape in the era of digital transformation, identifying key challenges and trends that emerge as a consequence of increased reliance on interconnected systems, cloud computing, and emerging technologies. The paper delves into the multifaceted dimensions of cybersecurity concerns, including but not limited to data breaches, ransomware attacks, and vulnerabilities associated with the Internet of Things (IoT). Through a meticulous analysis of contemporary literature, case studies, and industry reports, the research provides insights into the adaptive strategies employed by cyber adversaries and the escalating sophistication of cyber threats. Additionally, the review discusses the imperative role of artificial intelligence (AI) in addressing cybersecurity challenges, emphasizing the deployment of AI-driven solutions for threat detection, incident response, and risk mitigation. While AI presents a promising avenue for bolstering cybersecurity defenses, the paper scrutinizes the ethical implications, biases, and potential vulnerabilities inherent in AI systems, underscoring the importance of a balanced and comprehensive approach to cybersecurity. Keywords: Cyber security, AI driven, IOT

# **INTRODUCTION**

In our increasingly interconnected world, cybersecurity has become a critical concern. The rapid expansion of digital technology has brought about numerous cybersecurity challenges. First, the ever-<u>evolving</u> nature of cyber threats poses a substantial problem. Malicious actors constantly develop new tactics to exploit vulnerabilities in systems and networks, making it difficult for defenders to stay ahead.

Second, the shortage of skilled cybersecurity professionals compounds the issue. The demand for experts who can protect against cyber threats far exceeds the supply, leaving organizations vulnerable. Furthermore, the complexity of modern IT environments, including cloud computing and the Internet of Things, adds to the difficulty of securing data and systems effectively.

Third, the challenge of balancing security with user convenience and privacy is ongoing. Striking the right equilibrium is complex but essential to ensure that security measures do not impede productivity or infringe upon personal freedoms.

Cybersecurity challenges persist as technology continues to advance. To address these challenges, a multifaceted approach involving technology, education, and policy is necessary. Only through continuous vigilance and adaptation can we hope to safeguard our digital world effectively.

#### **PURPOSE :**

In an environment where technology plays a central role in our lives, cybersecurity becomes an essential shield to save both personal data and critical infrastructure against various risks such as malware, ransomware, phishing attacks and other digital vulnerabilities

#### What is cybersecurity ?

Cybersecurity has become an essential pillar in today's digital age, where technology and connectivity are ubiquitous. In a world where personal data, sensitive information and digital infrastructure are at constant risk, understanding and applying sound cybersecurity principles becomes critical.

# CYBERSECURITY CHALLENGES IN THE DIGITAL AGE: ENSURING SAFETY IN ENGINEERING SYSTEMS

#### **1**.Ransomware attacks:

It is now getting easier for hackers to get users data and keep them from accessing it until a ransom is paid. This ransomware assaults we often get to see in the movies but it is most familiar in the technological world. And recently, Microsoft has linked the clop ransomware exploiting zero vulnerability, a data theft attack. Attacks by ransomware are crucial for allusers, but they are even more crucial for organizations that need access to the data to carry out their regular operations. However, in the majority of ransomware assaults, the attackers try to demand more money rather than release the data even after the ransom is paid.

#### 2 .Supply chain vulnerabilities:

Engineering systems often rely on a complex network of suppliers and vendors. Each connection in the supply chain introduces a potential point of weakness. Organizations need to assess the security practices of their suppliers, conduct due diligence, and establish contractual obligations for cybersecurity. Regular monitoring and auditing of suppliers can help mitigate risks.

#### **3**.Internet of Things (IoT) security:

With the expansion of IoT gadgets in designing frameworks, it is pivotal to guarantee their security. IoT gadgets are frequently helpless against abuse because of feeble default setups, the absence of firmware refreshes, and inadequate encryption. To avoid unauthorized access and potential breaches, IoT devices must have robust authentication, encryption, and monitoring mechanisms.

#### 4 .Compliance and data privacy:

Engineering systems routinely deal with sensitive information, including intellectual property, confidential designs, and personally identifiable information (PII). It is crucial to protect data privacy and follow pertinent legislation, like HIPAA or GDPR. Access controls, encryption, regular data backups, and privacy impact analyses can all be used to protect sensitive data.

#### 5 .Disaster recovery and incident response:

Despite protective steps, security issues may still happen. There should be robust protocols in place with specific instructions for locating, stopping, and recovering from cyberattacks. To prevent free time and ensure quick rebuilding of system functionality, these plans must undergo routine testing and updating together with information reinforcement and recovery components.

#### 6 .Security design:

Incorporating security into designing frameworks from the very start is urgent. When taking a "security by design" approach, security requirements are taken into consideration at each stage of system development and implementation. Leading careful security evaluations, and integrating encryption, access controls, and standard security testing can help recognize and alleviate weaknesses from the beginning.

#### 7 .Data sharing:

When it comes to cybersecurity, the interaction between employees in the business, academic institutions, and governmental organisations is crucial. By exchanging knowledge regarding emerging threats, vulnerabilities, and best practices, organisations may stay up-to-date and enhance their security. A more resilient engineering ecosystem can be made possible by participating in industry forums, working with cybersecurity experts, and sharing anonymized incident data.

## CYBERSECURITY CHALLENGES IN DIGITAL TRANSFORMATION:

#### 1. Relevance of the Topic:

The digital transformation has become a ubiquitous phenomenon across various sectors, reshaping the way businesses operate and individuals interact. With this pervasive integration of digital technologies, cybersecurity has emerged as a primary concern. The proposed research paper aims to delve into the specific challenges posed by this digital transformation era, offering insights that are directly applicable to the current landscape of cyber threats and vulnerabilities.

## 2. Gap in Existing Literature:

While numerous research papers explore aspects of cybersecurity, there is a discernible gap in the literature regarding the unique challenges introduced by the era of digital transformation. This research paper seeks to fill this void by providing a comprehensive review that synthesizes existing knowledge while identifying areas that demand further investigation. By addressing this gap, the paper contributes to the academic discourse on cybersecurity in the context of digital transformation.

## **3. Emerging Technologies and Threats:**

The ongoing advancements in technology, such as artificial intelligence, cloud computing, and the Internet of Things, present both opportunities and challenges in the realm of cybersecurity.

The research paper aims to elucidate the intricate relationship between these emerging technologies and the evolving threat landscape, providing a nuanced understanding of the multifaceted challenges faced by organizations in the digital age.

## 4. Policy Implications and Practical Applications:

Understanding the cybersecurity challenges associated with digital transformation is not only academically relevant but also holds practical implications for policymakers, businesses, and cybersecurity professionals. The insights garnered from this research paper can inform the development of effective cybersecurity strategies, policies, and best practices, therebycontributing to the overall resilience of organizations in the face of cyber threats.

#### 5. Zero Plagiarism and AI Detection:

Ensuring the originality and integrity of the research is paramount. The authors are committed to maintaining the highest ethical standards in academic research. The use of AI-based plagiarism detection tools will be employed to validate the authenticity of the content, ensuring that the research paper is free from any form of plagiarism.

## 6. Global Significance and Cross-Industry Impact:

The research paper emphasizes the global nature of digital transformation and its impact on cybersecurity across diverse industries. With organizations spanning various sectors undergoing digital metamorphosis, the cybersecurity challenges identified in this research are not confined to a specific domain. The findings have far-reaching implications, making the paper relevant and valuable for a broad audience, ranging from governmental bodies to private enterprises and non-profit organizations.

## 7. Evolving Regulatory Landscape:

As digital transformation accelerates, regulatory bodies worldwide are adapting to address the associated cybersecurity risks. This paper will explore the dynamic regulatory landscape, shedding light on the evolving standards and compliance requirements. By understanding the regulatory context, organizations can proactively align their cybersecurity practices with legal frameworks, ensuring not only security but also compliance with international and regional regulations.

## 8. Human Element in Cybersecurity:

Beyond technological advancements, the human factor plays a crucial role in cybersecurity. The research paper will explore the human aspects, such as user awareness, training, and the psychological dimensions of cyber threats. By recognizing the role of human behavior in cybersecurity incidents, the paper aims to provide insights that can be leveraged to enhance training programs and improve overall organizational security culture.

#### 9. Incident Response and Resilience:

In the face of evolving cyber threats, organizations must not only focus on prevention but also on effective incident response and resilience. The research paper will delve into best practices for incident response, examining case studies and successful strategies employed by organizations to

mitigate the impact of cyber incidents. This practical approach ensures that the findings are not purely theoretical but can be applied to enhance realworld cybersecurity resilience.

## **10. Interdisciplinary Approach:**

Cybersecurity challenges in the era of digital transformation are inherently interdisciplinary, requiring a holistic understanding that encompasses technology, policy, psychology, and business. The research paper adopts an interdisciplinary approach, drawing on insights from various fields to present a comprehensive analysis. This approach enhances the paper's robustness and applicability, as it considers the interconnectedness of technological, social, and organizational factors in the cybersecurity landscape.

# **11. Future Research Directions:**

Beyond addressing current challenges, the research paper will identify potential future developments in the intersection of digital transformation and cybersecurity. By outlining prospective research directions, the paper invites scholars and practitioners to continue exploring emerging threats and opportunities, fostering an ongoing dialogue that contributes to the evolving field of cybersecurity

## Material and Methodology

# 1. Research Design:

The research design for this review paper on "Cybersecurity Challenges in the Era of Digital Transformation" involves a comprehensive analysis of existing literature, scholarly articles, and reports related to cybersecurity in the context of digital transformation. A systematic review approach will be employed to identify, evaluate, and synthesize relevant studies. The focus will be on understanding the evolving landscape of cybersecurity challenges in the rapidly transforming digital environment. This research design aims to provide a holistic overview and critical analysis of the key issues and trends in cybersecurity within the context of digital transformation.

## 2. Data Collection Methods:

The primary data collection method for this review paper is a thorough literature review. Academic databases, such as IEEE Xplore, PubMed, and Google Scholar, will be systematically searched for relevant articles, conference papers, and reports. Additionally, reputable journals and publications in the field of cybersecurity and digital transformation will be scrutinized. The search strategy will include keywords such as "cybersecurity," "digital transformation," "information security," and related terms. The inclusion of diverse sources aims to capture a broad spectrum of perspectives and insights on the subject.

# 3. Inclusion and Exclusion Criteria:

Inclusion criteria for selecting literature will encompass studies published within the last decade to ensure relevance to the contemporary digital landscape. Peer-reviewed articles, conference papers, and reports addressing cybersecurity challenges in the context of digital transformation will be considered. The focus will be on works that provide in-depth analyses, case studies, or practical insights into the evolving threats and countermeasures in the digital era.

# 4. Ethical Considerations:

In conducting this review, ethical considerations will be paramount. The authors will adhere to ethical research practices, ensuring the proper citation of all sources and giving due credit to the original authors. The paper will also respect copyright laws, seeking necessary permissions for the use of any copyrighted material. Additionally, the review will prioritize the unbiased presentation of information, avoiding any form of plagiarism or misrepresentation.

#### **CONCLUSION:**

In conclusion, addressing cybersecurity challenges in the era of digital age necessitates a comprehensive and collaborative effort from all stakeholders – from individuals and organizations to policymakers and cybersecurity experts. The insights gained from this research paper aim to contribute to the ongoing discourse on cybersecurity, urging for a collectivecommitment to fortify our digital ecosystems and ensure a secure and resilient future. As we navigate the complex landscape of the digital era, the integration of AI detection tools, coupled with informed and proactive cybersecurity practices, will be instrumental in safeguarding the integrity and confidentiality of our interconnected world.

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#### CASE STUDIES ON SUCCESSFUL DIGITAL TRANSFORMATION IN VARIOUS INDUSTRIES

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#### **ABSTRACT:**

The evolution of digital technology in industries is rapidly high. Which has sparked transformative changes across various industries. This paper thoroughly explores success stories of digital transformations in diverse sectors like E-Commerce, Fintech, and Digital Marketing and Customer Relationship Management (CRM). Starting with an enlightening introduction, the paper establishes a sturdy framework for understanding digital transformation. The core of this exploration lies in compelling case studies, unravelling the impact of AI in Marketing and Advertising. It intricately dissects shifts in Manufacturing, shedding light on financial transformations. The paper extends to the success stories. A glimpse into future trends adds a forward-looking perspective. The conclusive section distils findings into valuable insights, emphasizing the significance of strategic digital initiatives. Expressing gratitude through references, the paper acknowledges sources that enrich this exploration.

#### **INTRODUCTION:**

Digital transformation has become a crucial aspect of modern business strategies across different industries. Companies are embracing digital technologies to innovate, improve operations, and stay competitive in today's fast-paced market. Through case studies, we can explore how businesses in various sectors have successfully adapted to the digital age, transforming their processes, services, and customer experiences to drive growth and success. These real-life examples showcase the impact of digital transformation on industries like retail, manufacturing, finance, and more, highlighting the benefits and challenges companies face in this evolving digital landscape.

#### FRAMEWORKS FOR DIGITAL TRANSFORMATION:

Digital transformation has reshaped industries globally, fostering innovation, efficiency, and superior customer experiences. Case studies across retail, manufacturing, finance, and healthcare underscore the impact of technology. Key lessons learned include customer-centricity, agile methodologies, adaptive culture, operational processes, organizational structures, and technology integration. Successful examples like Amazon and Netflix highlight how digital transformation drives innovation and elevates customer experiences in the retail and entertainment sectors. These instances demonstrate the effectiveness of digital strategies in enhancing competitiveness and fostering innovation across industries

## CASE STUDIES IN VARIOUS SECTOR:

#### AI IN MARKETING AND ADVERTISING:

AI has significantly transformed the landscape of marketing and advertising, empowering businesses to enhance their strategies, optimize campaigns, and personalize customer interactions at scale. By leveraging AI technologies such as machine learning, natural language processing (NLP), and predictive analytics. By these companies can analyse vast amounts of data to understand consumer behaviour, predict trends, and tailor marketing messages to individual preferences. Which term as Search Engine Optimisation (SEO). Real-life examples from companies like *Whole Foods, BuzzFeed, Netflix, Sephora, Coca-Cola, and Unilever* demonstrate the diverse applications of AI in marketing, ranging from personalized messaging and content optimization to dynamic pricing strategies and targeted advertising campaigns. These case studies highlight how AI-driven marketing initiatives have improved campaign effectiveness, customer engagement, and overall ROI for businesses across various industries.

Before AI in Marketing and Advertising at Amazon:

Before the integration of AI in marketing and advertising at Amazon, the company relied heavily on traditional methods for targeting customers and creating campaigns. Marketing strategies were often based on demographic data, generalized messaging, and manual analysis of consumer behaviour. This approach lacked the precision, personalization, and efficiency that AI-driven marketing solutions offer today. Companies faced challenges in understanding individual customer preferences, optimizing ad performance, and adapting quickly to market trends without the insights provided by AI tech.

After AI in Marketing and Advertising at Amazon:



The advent of AI in marketing and advertising at Amazon has revolutionized how the company engages with its target audiences and its optimizes campaigns. AIpowered tools enable Amazon to analyse vast amounts of data, predict consumer behaviour, personalize content, and automate decisionmaking processes. Successful case studies showcase how Amazon has

leveraged AI to drive marketing success through targeted advertising, personalized recommendations, dynamic pricing strategies, and enhanced customer experiences. These examples highlight the transformative impact of AI on marketing effectiveness, campaign ROI, and overall customer engagement.

#### 2.MANUFACTURING:

The manufacturing sector encompasses businesses involved in the production of goods through the use of labour, machines, tools, and materials. It includes a wide range of industries, from automotive and aerospace to food and beverage, where products are designed, developed, and manufactured for various markets. Manufacturers play a crucial role in the economy by creating jobs, driving innovation, and supplying goods to consumers and other business.

#### **3.BANKING SECTOR:**

The banking sector is a critical component of the financial services industry, encompassing institutions that provide a wide range of financial services to individuals, businesses, and governments. Banks play a fundamental role in facilitating economic activities by offeringservices such as deposit-taking, lending, investment management, and payment processing. Within the banking sector, various types of banks exist, including commercial banks, investment banks, retail banks, community banks, and central banks. These institutions serve different functions and cater to diverse customer needs, contributing to the overall stability and growth of the economy.

## Before Digital Transformation in the Manufacturing Sector:

Before digital transformation, manufacturers often relied on traditional methods for production, inventory management, and supply chain management. Manual processes, limited data utilization, and less efficient operations were common challenges faced by manufacturers. The lack of advanced technologies like AI and data analytics hindered process optimization, product innovation, and customer-centricity. Manufacturers struggled to adapt to changing market demands and customer preferences without the agility and insights provided by digital transformation initiatives.

#### After Digital Transformation in the Manufacturing Sector:

Following successful digital transformation initiatives in the manufacturing sector, companies have witnessed significant

improvements in operational efficiency, product innovation, and overall business performance. By leveraging advanced technologies like AI, data analytics, and automation tools,



manufacturers have optimized their processes, enhanced product development, streamlined supply chains, and improved customer experiences. Real-life case studies demonstrate how digital transformation has enabled legacy manufacturers to modernize their operations, improve inventory management, streamline supply chains, and deliver innovative solutions to customers. The postdigital transformation era in manufacturing showcases a paradigm shift towards innovation-driven strategies that prioritize operational excellence, product innovation, and sustainable growth in a rapidly evolving market landscape.

## Case Studies:

Siemens and General Electric (GE) exemplify successful digital transformation in manufacturing. Siemens optimized production processes and enhanced automation, while GE

leveraged IoT for predictive maintenance and operational efficiency. These case studies showcase how technology adoption drives efficiency, innovation, and competitiveness in the manufacturing sector

The banking sector is a critical component of the financial services industry, encompassing institutions that provide a wide range of financial services to individuals, businesses, and governments. Banks play a fundamental role in facilitating economic activities by offeringservices such as deposit-taking, lending, investment management, and payment processing. Within the banking sector, various types of banks exist, including commercial banks, investment banks, retail banks, community banks, and central banks. These institutions serve different functions and cater to diverse customer needs, contributing to the overall stability and growth of the economy.

Before Digital Transformation in the Banking Sector:



Historically, banks operated using traditional methods that involved manual processes, paper-based transactions, and limited use of technology. Customer interactions were primarily conducted in physical branches, and services like account management and loan processing were time-consuming and less efficient. The lack of advanced digital tools hindered personalized banking experiences, real-time data analysis, and seamless financial transactions. Banks faced challenges in adapting to changing

customer expectations, regulatory requirements, and market dynamics without the agility provided by digital transformation initiatives.

After Digital Transformation in the Banking Sector:

Following successful digital transformation initiatives in the banking sector, institutions have witnessed significant improvements in operational efficiency, customer service delivery, and overall competitiveness. By embracing advanced technologies like AI, blockchain, mobile banking apps, and data analytics, banks have transformed their operations to offer personalized services, streamline processes, enhance security measures, and improve customer experiences. Real-life case studies demonstrate how digital transformation has enabled banks to modernize their services, introduce innovative products like online banking platforms and mobile payment solutions, and adapt to the evolving financial landscape. The post-digital transformation era in banking showcases a shift towards tech-driven strategies that prioritize customer-centricity, operational excellence, and sustainable growth in an increasingly digital financial ecosystem.

#### **CONCLUSION:**

Digital transformation has revolutionized industries worldwide, driving innovation, improving operational efficiency, and enhancing customer experiences. Successful case studies in various sectors, such as retail, manufacturing, finance, and healthcare, highlight the transformative power of technology and the lessons learned from digital transformation initiatives. These lessons include the importance of customer-centric approaches, data-driven decision-making, seamless integration of digital tools, adaptation to evolving trends, and the benefits of personalization and efficiency. By embracing digital transformation and leveraging these lessons, organizations can stay competitive and thrive in a rapidly evolving businesslandscape

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#### CHALLENGES AND OPPORUNITIES OF DIGITAL ENTREPRENEUR

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#### ABSTRACT

Entrepreneurship has concentrated fundamentally on understanding the nature and uncertainty of vulnerability that underlie pioneering action and how enterprising movements make place in the midst of this vulnerability. As of late, the combination of new digital advancement, for example, versatile computing, cloud computing, social media 3D printing, and informationinvestigation into different parts of development and advancement. Entrepreneurship has changed the idea of the vulnerability intrinsic in business procedures and results. As the way to manage such change it has opened a large group of significant research inquiries at the convergence of digital advances and digital entrepreneurship that require a cautious assessment of digital innovations and their novel qualities to manage business exercises. The criticalquestion associated with this study are in context with the scope, challenges and opportunities. Digital entrepreneurship is becoming more and more interested in today's world because of its importance and ease.

#### **INTRODUCTION**

Digital entrepreneurship is defined as the identification and pursuit of entrepreneurial opportunities based on the creation of digital artifacts, platforms, and infrastructures that provide services through technology. Digital artifacts consist of applications or any media component that offers a specific function to users. A digital platform is the collection of a common and shared set of digital artifacts that provide entrepreneurs with a venue for production, marketing, and distribution processes. In the last two decades, digital entrepreneurship has opened new venues for entrepreneurial activities and has transformed the nature of uncertainty inherent to entrepreneurial processes and outcomes.

In a world witnessing continuous and radical innovations, entrepreneurs are developing business ideas that capitalize on the power of technology. Entrepreneurs have the opportunity to offer new products and services to consumers through social media platforms and to use artificial intelligence to measure their impact and reach. Nevertheless, there exists a heterogeneity among digital businesses, where some are entirely tech-dependent (e.g., Web design, e-retail), while others just use digitalization in their marketing and communications operations. In this chapter, we focus on entirely tech-dependent businesses.

Digital start-ups have very low barriers to entry, more porous and fluid boundaries, and do not require costly equipment. They are characterized by flexibility of products or services such that there is no fixed product or service whose features remain constant; rather, product offerings, features, and scope continuously evolve and expand. Furthermore, digital entrepreneurship is no longer restricted to privileged capitalists

In the following, we first draw on institutional theory and the varieties of institutional systems to describe how the developing context can affect the obstacles and opportunities for digital entrepreneurs. Then, we present two case studies coupled with one expert opinion, to have

a closer look on whether the theorized obstacles and opportunities fit with the reality that digital entrepreneurs encounter when they operate in a developing country. While the empirical setting is contextualized in Lebanon; we argue that the findings can be extrapolated to other developing contexts that are subject to similar institutional pressures.

# **ROLE OF DIGITAL ENTREPRENEUR:**



## **Digital Platforms:**

Entrepreneurship work involves using digital platforms to conduct business activities. This includes managing online stores, creating content, developing software, and providing services such as consulting and marketing.

## **Online Business:**

Digital entrepreneurs must have a broad range of administrative skills to ensure success for their online businesses, including digital marketing, customer service, and financial management.

## **Consulting And Marketing:**

Digital entrepreneurship work involves using digital platforms to conduct business activities. This includes managing online stores, creating content, developing software, and providing services such as consulting and marketing.

## **Financial Management:**

To ensure online business success, digital entrepreneurs need proficiency in various tasks, such as digital marketing, customer service, and financial management.

# **Digital Technology:**

Digital entrepreneurship is a modern and flexible business strategy that harnesses the power of digital technologies to create and grow business,

# CHALLENGES FACED BY DIGITAL ENTREPRENEUR:



## 1. Competition:

The digital age has led to the proliferation of startups, which has made competition more intense. Entrepreneurs must contend with large number of competitors, many of whom have similar products or services.

# 2. Cyber Security:

The rise of the digital age has also brought about a new sit of challenges in terms of cybersecurity. Businesses must ensure that their networks are secure and hat they have proper protocols in place to protect against cyber threats

# **Keeping Up With Technology:**

As technology advances at an ever-increasing pace, it can be challenging for entrepreneur keep up with the latest trends and to ensure that their businesses are leveraging the latest technologies.

## **3.** Customer Acquisition:

In the digital age, customer acquisition has become increasingly difficult, as customer are inundated with marketing messages form a multitude of sources. Businesses must find way to stand out from the crowd and to reach their target customers effectively.

# **OPPORTUNITIES OF DIGITAL ENTREPRENEUR**



#### 1. Global Reach:

The digital age has made it possible for businesses to have a global reach. Entrepreneurs can market their products or services to customers all over the world, which can help to increase sales and profit.

#### 2. Data Analysis:

The digital age has also made it possible for businesses to gather and analyze vast amounts of data. This can help entrepreneurs to understand their customers better and to tailor their products or services to meet their needs.

#### **Flexible Working:**

The digital age has enabled businesses to be more flexible in terms of where and when they work. Entrepreneurs can work from home or from anywhere in the world, which can help to reduce costs and increase production

## 3. Automation:

The digital age has made it possible for businesses to automate many tasks that were previously done manually. This can help to educe costs and to increase efficiency. **ADVANTAGES OF DIGITAL ENTREPRENEUR** 

#### **Easy To Scale Business**

We believe there is not have a single person who won't agree that the internet isn't a heathy or growing industry. Beginning your business online gives endless changes to

entrepreneurs for scaling the business amazingly. Taking your business digitally gives strong boost to revenue without any need to bear addition costs. There are many cases where people generate passive income without making too much investment.

#### **Global Expansion:**

A digital entrepreneur has the liberty to expand their business globally quite easily. They can sell their products and services to anyone on this planet by using the Internet. It is quite possible to acknowledge solutions in any part of the world. Further more it can be dome without any need to travel internationally. It is also helpful in the cost-cutting prospect as you can hire labors at quite a lower price in other countries.

#### Working While Traveling:

The next advantage of being a digital entrepreneur is that it lets the person work and travel simultaneously. There is only a need for quality internet connection for performing the digital entrepreneurship word. However, it shouldn't be mistaken for endless holidays that most people think about in the digital work, but traveling from time to time will be possible.

#### DISADVANTAGE OF DIGITAL ENTREPRENEUR

#### **Adequate Skills And Training:**

It is essential to ensure that every staff member has the right set of skills and knowledge for performing digital marketing. The platforms and tools change rapidly, so it is ideal to stay updated about everything.

#### **Consumes Lots Of Time:**

Digital entrepreneurship involves performing things like developing marketing content and optimizing online campaigns that ask for lots of effort. There is a need for consistent tracking of results for making sure greater returns.

#### **Tough Competition:**

If someone wants to succeed on a global level, it also needs to understand there will be tough competition worldwide. It might be a solid challenge to tackle the competitors and attention adequately.

#### **CONCLUSION:**

The landscape of digital entrepreneurship is marked by a dynamic interplay of challenges and opportunities. The rapid pace of technological advancements has created a fertile ground for innovative business ideas and models, but it has also introduced a myriad of challenges that entrepreneurs must navigate. From the ever-evolving digital ecosystem to cybersecurity concerns and market saturation, digital entrepreneurs face a complex and competitive environment.

However, amidst these challenges lie unprecedented opportunities. The digital realm allows entrepreneurs to reach global audiences, tap into diverse markets, and leverage data- driven insights to make informed decisions. The ability to adapt quickly, embrace emerging technologies, and stay attuned to consumer needs positions digital entrepreneurs at the forefront of economic transformation.

As we look to the future, it is clear that the digital landscape will continue to evolve. Entrepreneurs who can effectively harness the power of emerging technologies, foster a culture of innovation, and address challenges with resilience will be better positioned to thrive in this dynamic environment. Collaboration, continuous learning, and a commitment to ethical business practices will be key drivers of success for digital entrepreneurs in the ever-expanding digital frontier. Despite the challenges, the opportunities are abundant for those who can navigate the complexities and seize the possibilities that the digital era presents.

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#### CYBER SECURITY CHALLENGES IN DIGITAL BUSINESS ENVIRONMENT

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## **ABSTRACT:**

This paper knowledge and grasp of numerous sorts of computer attacks, as well as the reasons and targets of those attacks. The introduction of the article includes a brief dictionary of relevant terms that are laid out in a manner that is simple to comprehend. Followingthis, the paper analyzes "the patterns and severities of cyber attacks and their impact on routine computerbased operations, the furtherance of business, and electronic commerce, as well as on some Critical National Infrastructure (CNI), which supports such essential areas as power, transportation, communications, defence, and banking and finance". In the field of cyber security, which is now a highly popular topic of debate, the definition of cyberspace or cyber risk currently a prominent issue of controversy. The major goal of this article is to educate the audience about the dilemma that is offered by cyber security and to make them aware of the possible attacks and cyber threats that now exist in the world of information technology or cyberspace. This piece will also make them aware of the attacks and cyber threats that now exist in the realm of information technology or cyberspace.

KEY WORDS:CNI, Cyber-attack, Business.

#### **INTRODUCTION:**

Cyber security is the practice of protecting systems, networks, and programs from digital attacks. These cyber-attacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users via ran some ware; or interrupting normal business processes. Cyber security challenges in a digital business environment are numbers and constantly evolving due to the increasing reliance technologies for conducting business operations.

#### 1.CYBER ATTACkS:

The risk of cyber attacks at the data branches ransomware, phishing, and malware pose a significant to digital businesses. These attacks can lead to financial losses reputational damage, and legal consequences.

#### 2.DATA PROTECTION:

With the vast amount of data that digital business collect and store ensuring the protection of sensitive information is crucial. Compliance with data protection regulation to avoid penalties and maintain coustomer trust

## **3.EMPLOYEE AWARENESS:**

Human error remains a significant factor in cyber security breaches. Educating employees about cyber security best practices and the important of maintain security protocols can help mitigate risks.

#### **Definitions: What Exactly Is Network Security?**

If one wants to have a complete comprehension of the idea of network security, it is necessary to first have a comprehensive comprehension of the idea of security in general. The practise of consistently securing anything against unauthorised access and guaranteeing a condition or perception of safety from potential threats is what we mean when we talk about security. This object can be a person, a firm, an organisation, or a piece of property like a computer system or a file. Among the numerous possible manifestations of this item are those listed above. On the other hand, network security is a more precise word that refers to the numerous protocols and preventative measures that are put into place to safeguard the underlying networking infrastructure of an organisation. This infrastructure may include wireless networks, wired networks, or both. The primary objective of network security is to monitor and prevent unauthorised access to an organization's network, resources, and assets. This is accomplished through the use of authentication and authorization protocols. By doing so, the company may protect itself from a wide array of possible dangers, including cyber attacks, data breaches, and system outages. When attempting to gain a deeper comprehension of the idea of security, it might be useful to examine it from the perspective of privacy. Security is what ensures that something is protected from unauthorised access, whereas privacy is the requirement that something should be shielded from such access. The danger of cyber attacks and data breaches is larger than it has ever been in today's digital age, when individuals and organisations routinely engage in online activities such as surfing the web, making purchases from online retailers, and uploading data over the public internet. Consequently, the likelihood of these types of incidents has increased. Intruders on the same network have the possibility of gaining access to sensitive data such as personal identities, credit card details, account numbers, and passwords, which can lead to fraud and other forms of criminal activity. They are also capable of causing a large amount of harm to an organisation by bringing its infrastructure to a halt or stealing precious assets, such as prototypes of projects or other forms of intellectual property. [6] Therefore, it is very necessary for businesses to put in place efficient network security measures in order to prevent viruses, malware, hackers, and other types of intruders from gaining access to or manipulating their important data or assets. Organisations may guarantee that they are effectively secured against a broad variety of possible attacks by appropriately protecting the network infrastructure that supports their networks. (Figure 1)



Source:https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=104794&section=1.1. **TRENDS IN CYBER SECURITY** 

The advancement of cyber security is marked by continuous developments to address evolving threats. Key trends in the field include:

# \* Artificial Intelligence (AI) and Machine Learning (ML)

Utilizing AI/ML for threat detection and analysis, enabling systems to identify patterns and anomalies in real-time. Enhancing predictive capabilities to anticipate and respond to cyber threats more effectively.

## **\*** Zero Trust Architecture

Moving away from the traditional perimeter-based security model. Implementing a Zero Trust approach, where no user or system is inherently trusted, and verification is required from everyone.

## Cloud Security

Advancements in securing cloud environments as organizations increasingly adopt cloud services Implementing robust identity and access management, encryption, and monitoring for cloud-based resources.

## Biometric Authentication

Increasing use of biometrics (fingerprint, facial recognition) for secure user authentication. Enhancing access controls and reducing reliance on traditional passwords.

Quantum-Safe CryptographyPreparing for the future by developing cryptographic methods resistant to quantum computing attacks Research and implementation of quantum-safe algorithms to secure data in the post-quantum era.

## IoT Security

Addressing security challenges associated with the proliferation of Internet of Things (IoT) devices. Implementing secure design practices and standards for IoT devices.

## Threat Intelligence Sharing

Increasing collaboration among organizations and sharing threat intelligence. Enhancing collective defense by pooling information on emerging threats and vulnerabilities.

## Automation and Orchestration

Automating routine security tasks to improve efficiency and response times. Orchestrating security processes for a more coordinated and streamlined approach.

#### Blockchain Technology

Exploring the use of blockchain for securing transactions and data. Enhancing trust and transparency in various applications, including supply chain and identity management.

#### Human-Centric Security

Recognizing the role of human behavior in cyber security Integrating user awareness training and behavioral analytics to reduce the human factor as a vulnerability.

#### **DIGITAL BUSINESS**

Digital business refers to the integration of digital technologies, processes, and data to transform and optimize various aspects of an organization's operations, products, and services. Key elements of digital business include:

## Digital Transformation

Adoption of digital technologies to fundamentally change how business is conducted Modernizing processes, workflows, and customer interactions to enhance efficiency and competitiveness.

## Online Presence

Establishment of a strong online presence through websites, mobile apps, and social media Leveraging digital channels for marketing, sales, and customer engagement.

## Data-driven Decision Making

Utilization of data analytics to extract valuable insights from large datasets. Informed decisionmaking based on data-driven analysis for improved efficiency and effectiveness.

## **\*** E-commerce

Conducting business transactions electronically, allowing for online buying and selling. Integration of secure payment gateways and digital storefronts for a seamless customer experience

## Cloud Computing

Adoption of cloud services for scalable and flexible infrastructure. Enabling remote access, collaboration, and cost-effective storage and computing resources.

## Mobile Technologies

Embracing mobile platforms for business operations, communication, and customer interaction Development of mobile apps to enhance accessibility and user experience.

## Internet of Things (IoT)

Integration of IoT devices to collect, analyze, and act upon realtime data. Enhancing efficiency and enabling new business models through interconnected smart devices.

## Customer Experience Enhancement

Focus on providing a seamless and personalized customer experience. Use of digital tools to engage customers, gather feedback, and tailor products/services.

## Cyber security Measures

Implementation of robust cyber security protocols to protect digital assets. Safeguarding sensitive data and ensuring the integrity of digital transactions.

## \* Agile and Collaborative Work Environment

Embracing agile methodologies for quicker adaptability to changes. Facilitating collaboration through digital communication tools for remote and distributed teams.

# POSSIBLE IMPACTS OF CYBER THREATS ON BUSINESS

Costs Will Go Up Businesses and organizations that are serious about defending themselves against scam artists online will need to dig deep into their pockets to cover the increased costs. In general, for companies to comply with the standards for internet safety, they may be needed to confer with a wide variety of legal consultants and professionals. This is so that they can ensure that they are not breaking any of the rules. In addition, if they are the victim of an attack, they may be obliged to pay significantly more in legal expenses and damages as a consequence of ordinary processes brought against the organization. This is based on the assumption that they are the intended target of the assault. Costs Will Go Up Businesses and organizations that are serious about defending themselves against scam artists online will need to dig deep into their pockets to cover the increased costs. [11] [12] In general, for companies to comply with the standards for internet safety, they may be needed to confer with a wide variety of legal consultants and professionals. This is so that they can ensure that they are not breaking any of therules. In addition, if they are the target of an attack, they may be required to pay much more in legal expenses and damages as a consequence of ordinary processes brought against the organization. This is in addition to the fact that they may be the subject of an assault. This is predicated on the assumption that they are the intended target of the assault. Reputational Harm: If severe breaches in a company's information security cause its brands to suffer, the company's reputation might take a serious hit, which would be extremely damaging. Customers and even providers could be cautious to entrust a firm with their sensitive information if that organization's information technology system has already been breached at least once. Following an assault, the value of the firms whose stocks had been hacked dropped by an average of 3.5 percent, falling behind the Nasdaq by 3.5 percent in the process.

# THE RISKS AND CONSEQUENCES OF CYBER THREATS

1) Financial Loss: Individuals and businesses are both susceptible to suffering big monetary losses as a result of cyber attacks. Cybercriminals may steal critical financial information, carry out fraudulent transactions, or demand ransom payments to decrypt material that has been encrypted. The financial expenditures that can be incurred in detecting and managing cyber assaults, in addition to the possible legal obligations and fines, can be significant.

2) **Reputational Damage**: Individuals, corporations, and even national governments all run the risk of having their reputations damaged by cyber attacks. A loss of confidence on the part of customers, partners, and the general public can be the result of data breaches and the leaking of sensitive information. The damaging effects of unfavorable publicity and reputational harm to the brand can have lasting repercussions, including the loss of consumers, partners, and commercial

possibilities.

3) Loss of Intellectual Property: Theft of intellectual property (IP) can be the

consequence of cyber threats, and examples of IP include trade secrets, private information, and data relating to research and development. This can have a substantial influence on the competitive edge and market position of a firm, which can ultimately result in financial losses and a loss of market share.

**4) Disruption of Operations**: Attacks on computer networks have the potential to sabotage crucial commercial and government activities, leading to downtime, decreased productivity, and delays in the provision of services. Attacks using ran some ware, for instance, can encrypt data and make systems or networks unavailable, which can result in disruptions to businesses and financial losses.

**5)** Legal and Regulatory Consequences: As a direct result of cyber attacks, organizations run the risk of experiencing legal and regulatory repercussions. There are a variety of legal requirements, including data protection and privacy laws, industry rules, and contractual duties, that may need the implementation of particular security measures by businesses to safeguard sensitive information. Should you fail to comply with these rules, you may be subject to civil and criminal penalties, as well as litigation.

# RECOMMENDATIONS

- E-Businesses are more dependent on this kind of information due to the restriction on resources available to invest in research into areas such as these themselves, and the government should implement clear mechanisms that support Internet security.
- The government should also be supported for at tempting to offer advice to companies for a minimal charge, Businesses are more dependent on this type of information. Because SMEs do not share the same features as bigger organizations, this must also have some influence on the advice that is provided.
- The information technology staff has a responsibility to raise awareness of cybercrime and assist all E-Business stakeholders in comprehending the nature of cybercrime. It is the responsibility of all parties involved in e-business to raise awareness about what truly constitutes an e-business from a safety standpoint.
- The government's information technology sector ought to raise knowledge about the many resources that are available to e-businesses to strengthen security.
- The thought process of e-business should be more heavily centered on proactive rather than reactive actions. Many e-businesses do not believe that they are at any significant risk, and as a result, they do not take the matter as seriously as they should. Their way of thinking is predicated on responding to situations as they arise rather than anticipating and preventing them. **CONCLUSION:**

We discuss a big problem known as cybercrime, which affects themajority of countries across the world at present and will continue to do so in the years to come. This issue will continue to be

a challenge for many nationsthroughout the world. Within the confines of our conversation, we dove into the world of cybercrime and attempted to throw some light on the formidable problemthat is cyber security. It appears that most countries will have difficulties and struggle mightily to get beyond this obstacle. Instead, researchers are puttingnumerous defences into operation intending to minimize or limit the harmful consequences that cyber attacks have. Cybercrime can only exist in societies thateither do not have any laws or where the necessary government institutions areeither incompetent or insufficient in their implementation of the laws that areon the books. Those who are charged with the enforcement of applicable laws, such aslaw enforcement officers and other stakeholders, are strongly encouraged to observe the highest ethical standards as a result. However, there is astrong notion that if individuals who commit cybercrime can be recognized andpunished, it would further diminish the desire to do cybercrime, and we should be on our way to creating the necessary trusts in e-commerce and indeed the internet. This idea is supported by several studies that have been conducted in recentyears. This is an essential action that has to be carried out before we will beable to proceed in any meaningful way.

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# RISKS AND RISK MANAGEMENT IN THE BANKING SECTOR. Mrs. B.Anitha Assistant Professor in Commerce Loyola College of Arts and Science, Mettala

#### **ABSTRACT:**

Risk management in banking is the systematic process employed by banks in identifying, assessing, and mitigating various risks such as credit, market, operational and compliance risks inherent in operational and investment decisions.

Banks are exposed to various types of risks. However, being integral to the functioning of global financial systems, they require robust risk management processes. Banking risk management refers to the proactive and continuous process of identifying, assessing, and controlling risks that a bank may face in its day-to-day operations with the goal of ensuring stability and sustainability.

Effective risk management in banking can help ensure financial stability, protect the interests of depositors and investors, and maintain the overall health of the banking system. It is a critical function that requires ongoing attention and adaptation to the evolving financial landscape. **Keywords: Risk Management, Banks, Finance,** 

#### **INTRODUCTION:**

Recent events in the world have proved risk into a important profile. Evaluating the range of risk responses available and deciding the most appropriate one in each case is at the heart of risk management. Organizations face a very wide range of risks that can impact the outcome of their operations.

#### **DEFINITION OF RISK**

A Risk can be defined as an unplanned event with financial consequences resulting in loss or reduced earnings. In other words, it can be defined as the uncertainity of the end results. Risk refers to 'a condition where there is a frequency occurrence of undesirable happenings of a particular result which is known or best quantifiable. Risk may be loss or damage, which will or will not happen.

#### **BANKING SECTOR**

The Banking sector has a important role in the development of an economy. It is the key driver of economic growth of the country and has a dynamic role to play in converting the idle capital resources for their optimum utilisation so as to attain maximum productivity. A sound economy depends on how sound the Banking sector is and vice versa.

In India, the banking sector is considerably strong at present but at the same time, banking is considered to be a very risky business. Financial institutions must take risk, but they must do so consciously.

However, it should be borne in mind that banks are very fragile institutions which are built on customers' trust, brand reputation and above all dangerous leverage. In case something goes wrong, banks can collapse and failure of one bank is sufficient to send shock waves right through the economy.

Therefore, bank management must take utmost care in identifying the type as well as the degree of its risk exposure and tackle those effectively. Moreover, bankers must see risk management as an ongoing and valued activity with the board setting the example.

As risk is directly proportionate to return, the more risk a bank takes, it can expect to make more money. However, greater risk also increases the danger that the bank may incur huge losses and be forced out of business. In fact, today, a bank must run its operations with two goals in mind – to generate profit and to stay in business. Banks, therefore, try to ensure that their risk taking is informed and prudent. Thus, maintaining a trade-off between risk and return is the business of risk management.

Moreover, risk management in the banking sector is a key issue linked to financial system stability. Unsound risk management practices governing bank lending often plays a central role

#### **RISK MANAGEMENT PRACTICES**

- 1. Create and protect value for the organizations, as an principle
- 2. Be integrated into overall organizational process.
- 3. Be systematic, structured and comprehensive
- 4. Be based on the based available information.
- 5. Be tailored to individual projects.
- 6. Account for business and cultural factors, including potential errors.
- 7. Be transparent and all inclusive.
- 8. By dynamic and adaptable to change.
- 9. Be continuously monitored and improved upon.

Another best practice for the modern enterprise risk management program is to "digitally reform", this entails using AI and other advanced technologies to automate inefficient and ineffective manual processes.

## **RISK IN BANKING BUSINESS**

Just like any business, banks face a myriad of risks. However, given how important the banking sector is and the government's stake in keeping risks in check, the risks weigh heavier than they do on most other industries. There are various types of risks that a bank may face and is important to understand how banks manage risk.

In the post LPG period, the banking sector has witnessed tremendous competition not only from the domestic banks but from foreign banks alike. In fact, competition in the banking sector has emerged due to disintermediation and deregulation.

The liberalized economic scenario of the country has opened various new avenues for increasing revenues of banks. In order to grab this opportunity, Indian commercial banks have launched several new and innovated products, introduced facilities like ATMs, Credit Cards, Mobile banking, Internet banking etc. Apart from the traditional banking products, it is seen that

Mutual Funds, Insurance etc. are being designed/ upgraded and served to attract more customers to their fold.

In the backdrop of all these developments i.e., deregulation in the Indian economy and product/ technological innovation, risk exposure of banks has also increased considerably. Thus, this has forced banks to focus their attention to risk management.

In fact, the importance of risk management of banks has been elevated by technological developments, the emergence of new financial instruments, deregulation and heightened capital market volatility. In short, the two most important developments that have made it imperative for Indian commercial banks to give emphasize on risk management are discussed below –

#### 1. Deregulation:

The era of financial sector reforms which started in early 1990s has culminated in deregulation in a phased manner. Deregulation has given banks more autonomy in areas like lending, investment, interest rate structure etc. As a result of these developments, banks are required to manage their own business themselves and at the same time maintain liquidity and profitability. This has made it imperative for banks to pay more attention to risk management.

#### 2. Technological innovation:

Technological innovations have provided a platform to the banks for creating an environment for efficient customer services as also for designing new products. In fact, it is technological innovation that has helped banks to manage the assets and liabilities in a better way, providing various delivery channels, reducing processing time of transactions, reducing manual intervention in back office functions etc. However, all these developments have also increased the diversity and complexity of risks, which need to be managed professionally so that the opportunities provided by the technology are not negated.

#### **Risk Management in banking:**

Banks are also using the techniques of risk transfer to eliminate or substantially reduce the risks inherent in their positions. Markets exist for many of the risk borne by the banking firm. Interest rate risk can be transferred by rate sensitive products such as swaps or other derivatives. Borrowing terms can be altered to effect a change in asset duration. Finally the bank can buy or sell financial claims to diversity or concentrate the risks that result from servicing its client base. To the extent that the financial risks of the assets created by the firm are understood by the market, these assets can be sold at their fair value.

Unless the institution has a comparative advantage in managing the attendant risk or a desire for the embedded risk they contain, there is no reason for the bank to absorb such risks, rather than transfer them.

However, there are two classes of assets or activities where the risk inherent in the activity must and should be absorbed at the bank level. In these cases, good reasons exist for using firm resources to manage bank level risk. The first of these includes financial assets or activities where the nature of the embedded risk may be complex and difficult to communicate tothird parties. This is the case when the bank holds complex and proprietory assets that have this, if not non-existent secondary markets. Communications in such cases may be difficult or too

expensive to hedge the underlying risk. The second case includes proprietory positions that are accepted because of their risks and expected return.

## **TYPES OF RISK MANAGEMENT**

Major risks for banks include credit, operational, market, and liquidity risk. Since banks are exposed to a variety of risks, they have well-constructed risk management infrastructures and are required to follow government regulations.

Due to the large size of some banks, overexposure to risk can cause bank failure and impact millions of people. By understanding the risks posed to banks, governments can set better regulations to encourage prudent management and decision-making.

The ability of a bank to manage risk also affects investors' decisions. Even if a bank can generate large revenues, lack of risk management can lower profits due to losses on loans. Value investors are more likely to invest in a bank that is able to provide profits and is not at an excessive risk of losing money.

#### Default Risk -Risk associated with credit- way to Measure the potential for losses

Credit risk is the biggest risk for banks. It occurs when borrowers or counterparties fail to meet contractual obligations. An example is when borrowers default on a principal or interest payment of a loan. Defaults can occur on mortgages, credit cards, and fixed income securities. Failure to meet obligational contracts can also occur in areas suchas derivatives and guarantees provided.

While banks cannot be fully protected from credit risk due to the nature of their business model, they can lower their exposure in several ways. Since deterioration in an industry or issuer is often unpredictable, banks lower their exposure through diversification.

By doing so, during a credit downturn, banks are less likely to be overexposed to a category with large losses. To lower their risk exposure, they can loan money to people with good credit histories, transact with high-quality counterparties, or own collateral to back up the loans.

# Process Risk-operational loss- due to ineffectiveness disrupting the flow of business operations

Operational risk is the risk of loss due to errors, interruptions, or damages caused by people, systems, or processes. The operational type of risk is low for simple business operations such as retail banking and asset management, and higher for operations such as sales and trading.Losses that occur due to human error include internal fraud or mistakes made during transactions. An example is when a teller accidentally gives an extra \$50 bill to a customer.

On a larger scale, fraud can occur through breaching a bank's cyber security. It allows hackers to steal customer information and money from the bank, and blackmail the institutions for additional money. In such a situation, banks lose capital and trust from customers. Damage to the bank's reputation can make it more difficult to attract deposits or business in the future.

Volatility Risk - Undiversifiable Risk-Associated with market

Market risk mostly occurs from a bank's activities in capital markets. It is due to the unpredictability of equity markets, commodity prices, interest rates, and credit spreads. Banks are more exposed if they are heavily involved in investing in capital markets or sales and trading.

Commodity prices also play a role because a bank may be invested in companies that produce commodities. As the value of the commodity changes, so does the value of the company and the value of the investment. Changes in commodity prices are caused by supply and demand shifts that are often hard to predict. So, to decrease market risk, diversification of investments is important. Other ways banks reduce their investment include hedging their investments with other, inversely related investments.

#### Asset /Product Risk- loss resulting from inability to meet payment Obligations

**Liquidity** risk refers to the ability of a bank to access cash to meet funding obligations. Obligations include allowing customers to take out their deposits. The inability to provide cash in a timely manner to customers can result in a snowball effect. If a bank delays providing cash for a few of their customer for a day, other depositors may rush to take out their deposits as they lose confidence in the bank. This further lowers the bank's ability to provide funds and leads to a bank run.

Reasons that banks face liquidity problems include over-reliance on short-term sources of funds, having a balance sheet concentrated in illiquid assets, and loss of confidence in the bank on the part of customers. Mismanagement of asset-liability duration can also cause funding difficulties. This occurs when a bank has many short term liabilities and not enough short-term assets.

Short-term liabilities are customer deposits or short-term guaranteed investment contracts (GICs) that the bank needs to pay out to customers. If all or most of a bank's assets are tied up in long-term loans or investments, the bank may face a mismatch in asset-liability duration.

Regulations exist to lessen liquidity problems. They include a requirement for banks to hold enough liquid assets to survive for a period of time even without the inflow of outside funds. **Risk Management Process in Banking Industry** 

Having a clear, formalized risk management plan brings additional visibility into consideration. Standardizing risk management makes identifying systemic issues that affect the entire bank simple. <u>The ideal risk management plan</u> for a bank serves as a roadmap for improving performance by revealing key dependencies and control effectiveness. With proper implementation of a plan, banks ultimately should be able to better allocate time and resources towards what matters most.

Size, brand, market share, and many more characteristics all will prescribe a bank's risk management program. That being said, all plans should be standardized, meaningful, and actionable. The same process for defining the steps within your risk management plan can be applied across the board:

#### Risk Identification in Banks

Banks must create a <u>r</u>isk identification process across the organization in order to develop a meaningful risk management program. Note that it's not enough to simply identify what happened; the most effective risk identification techniques focus on root cause. This allows for identification of systemic issues so that controls can be designed to eliminate the cost and time of duplicate effort.

#### Assessment & Analysis Methodology

Assessing risk in a uniform fashion is the hallmark of a healthy risk management system. It's important to be able to collect and analyze data to determine the likelihood of any given risk and subsequently prioritize remediation efforts.

#### Alleviate

Strategies has to be introduced and executed to reduce or control risks, such as diversification, setting risk limits. Risk mitigation or Risk Alleviate is defined as the process of reducing risk exposure and minimizing the likelihood of an incident. High risks and concerns need to be continually viewed and addressed to ensure the bank is fully safeguarded. Auditing

Auditing or Monitoring risk should be an ongoing and proactive process. It involves testing, metric collection, and incidents remediation to certify that the controls are effective. It also allows for addressing emerging trends to determine whether or not progress is being madeon various initiatives.

#### Associate

Creating relationships between risks, business units, mitigation activities, and more paints a cohesive picture of the bank. This allows for recognition of upstream and downstream dependencies, identification of systemic risks, and design of centralized controls. Eliminating silos eliminates the chances of missing critical pieces of information.

# Proclamation

Presenting information about how the risk management program is going – in a clear and engaging way – demonstrates effectiveness and can rally the support of various stakeholders at the bank. Develop a risk report that centralizes information and gives a dynamic view of the bank's risk profile.

#### **ERM Software for Banks**

The only good way to begin the process of improving a sound banking risk management plan is by adopting enterprise risk management software. At LogicManager, we transform how you think about risk. Our platform is designed to alleviate the pain points in your bank's ERM processes so that you can focus on aligning and achieving operational and strategic goals.

LogicManager's risk management software for banks and expert advisory services provide a risk-based framework and methodology to accomplish all of your governance activities, while simultaneously revealing the connections between those activities and the goals they impact. **CONCLUSION:**  Inspite, of all plans in managing risks defined by the OCC, CFPB, FDIC, or any of the other many regulatory agencies, it's important to think of **risk management in banking** as helping you accomplish more than just compliance. LogicManager's solutions are designed to meet the needs of your unique and dynamic industry.

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# CUSTOMERS LOYALTY TOWARDS THE BRANDS – STUDY IN INSTAGRAM Mr. V.Praveen Kumar Assistant Professor of Commerce, Loyola college of arts and science, Mettala. Namakkal.

#### ABSTRACT

Advertising is limited in its scope as it does not suggest in any way the persuasive and creative aspects of advertising or indicate its functions and responsibilities. Advertising does not involve persuasion then; it is considered a communication link to disseminate some information to the public. In this paper to study study the effectiveness of advertising in the era of digitalization and Loyalty of Customers Towards the Brands and Services Promoted on Social Media Networking Websites. The sampling was selected from 150 active social media users, especially Instagram above the age of 20 from Tirunelveli. The findings of a recent study, the level of service quality plays an important role in determining brand trust and loyalty to a certain brand.

Key words : Advertising, Social Media Networking, Brands

#### **INTRODUCTION**

Advertising covers a huge section of the market. It is one of the largest generators of revenue in the world economy. It generates employment directly and indirectly and influences the minds of people. It aims at building a relationship between customers and brands. We find advertising words around us everywhere, and there are thousands of words to define advertising, but when it comes to writing down, how many words do we find to explain it? There are many people who try to define advertising to the best of their ability. Advertising is any device which first arrests the attention of the passerby and then induces him to accept a mutually advantageous exchange." This definition is offered by James Laver, an art historian in late 1880. He says it is simply arresting the attention of a passerby and then encouraging a person to engage in a mutually advantageous exchange. Firstly, it grabs the attention of a customer to the product and then encourages a person to buy in exchange for the expected price.

American Marketing Association defines advertising as "any paid form of non-personal presentation of ideas, goods and services by an identified sponsor." Thus, there are many authors who believe that the AMA definition of advertising is limited in its scope as it does not suggest in any way the persuasive and creative aspects of advertising or indicate its functions and responsibilities. Advertising does not involve persuasion then; it is considered a communication link to disseminate some information to the public.

#### **REVIEW OF LITERATURE**

**Kipphan** (2001), The main focus of this book is modern print media production and making clear traditional technologies. This book is helpful for print shops, prepress and posts press operations, publishing houses, the supporting industry, trade associations and experts working on research projects, lectures, trainees and students at training centres, colleges, poly techs and universities. It provides informations and strategies for professional in the field.

**Bandyopadhyay and Sawant (2002),** bring the ethics in advertising to light. The book provides an overall guide to the advertisers, and people involve in the advertising profession. A number of laws and enactments have been discussed to safeguard the interest of customers.

**Bhatia** (2003), provides insight into the fundamentals of the marketing communication activities of a company. Chapter 18, Corporate Advertising, says that a good corporate image provides a company with authority and prepares the basis for success and continuity.

**Kothari**, (2019) defines research, as an adroitness of scientific appraisal. The epithet 'Research' introduces to the meticulous method cohering of enunciating the problem, articulating a hypothesis, collecting the documents or data, analysing the facts and ending at certain conclusions either in the lay out of solutions towards the alarmed problem or in standardgeneralisations for some suppositional formulation. Therefore, Research is an original contribution to the existing stock of knowledge, making for its advancement, and the systematic approach concerning generalisation and the formulation of a theory is also research.

## **OBJECTIVES:**

- 1. To study the effectiveness of advertising in the era of digitalization.
- 2. To Study the Loyalty of Customers Towards the Brands and Services Promoted on Social Media Networking Websites

## SAMPLING PLAN

A sampling plan is a specific plan for acquiring sample units from the population (universe). It also includes the procedure or technique for selecting the items and helps determine the sample size (Kothari.C.R., 2019). The following points are included in the sampling plan: **Sampling Unit** 

The sampling unit of the present study includes Instagram users above the age of 15 from Tirunelveli. According to the National Youth Policy (2014), youth are those between the ages group 15 - 29 years. The sampling was selected from 20 years.

## **Sampling Size**

The sample size was 150 active social media users, especially Instagram above the age of 20 from Tirunelveli

## Loyalty of Customers Towards the Brand: Descriptive Analysis

The positive associations customers have with a certain brand or product are what we refer to as "brand loyalty." It is demo started by their recurring purchase despite the attempts of rivals to

lure customers away from them. Their level of brand loyalty is evaluated with the help of the customers' feedback in response to the seven distinct statements included in the questionnaire. On the answer scale, 1 represents strong disagreement, while 6 represents strong agreement. The range for responses ranged from 1 to 6. The description analysis is carried out with the help of the mean score and the standard deviation. The internal dependability is also determined with the help of Cronbach Alpha. The findings of these studies are shown in table 4.32, which can be found below:

	Mean	Std. Deviation	Reliability Analysis/Cron
			bach Alpha
Intend to use the services offered	2.89	1.404	
Consider the brand as my first choice	3.57	1.204	
Will use the services repeatedly	2.96	1.484	
Continue to be loyal to the brand	3.25	1.329	0.934
Willing to pay the price premium for this brand	3.91	1.216	
Willing to recommend the brand to my known	2.95	1.411	
Willing to continue with the brand	2.84	1.495	

Loyalty of Customers Towards the Brand: Description and Reliability Analysis

The results of this analysis show that the price is the factor that is most important for the retention of customers. The meaning score of the statement that "statements are willing to paythe price premium for the brand" is 3.91, making it the statement with the highest score amongall seven statements. Despite this, customers committed to a brand are willing to pay a higher price for its services. The statement "Consider the brand as my first choice" received a mean score of 3.57 out of 5 possible points. After this comes the continuing devotion to the brand, followed by a mean score of 3.25. The last type, which has a mean score of 2.84 and the lowest possible value, is one in which customers are willing to stick with the same brand. Analysis of dependability shows that the Cronbach Alpha for all seven statements is 0.934, which suggests the presence of internal consistency reliability among customers' responses.

## **CONCLUSION:**

The companies in factor need to pay more attention to their pricing because the price is one of the most important factors in maintaining their existing customer base. According to the findings of a recent study, the level of service quality plays an important role in determining brand trust and loyalty to a certain brand. Customers and the brand were able to create a relationship built on trust thanks to the use of social media channels for brand communication. The loyalty might be maintained by positive engagement with the brand.

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#### "THEMETAVERSE":

#### EXPLORETHENEXTDIMENSIONOFVIRTUAL REALITY

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#### ABSTRACT

Theconceptofthe **"Metaverse**" has garnered significant attention as **virtual reality** (**VR**) technologies continue to evolve. This paper explores the notion of the metaverse as a

digitaluniversewhereusers**interactwitheachother**andcomputer-generatedenvironmentsinrealtime.It delves into the history of the metaverse, tracing its roots in science fiction literature and itsevolutionthroughdigitalplatformsandonlinecommunities.ThepaperexaminesthecurrentstateofV Rtechnologyandthechallengesitfacesin

realizingafullyimmersivemetaverseexperience. Additionally, it discusses the potential implications of the metaverse on various aspects of society, including communication, entertainment, education, and co mmerce. Finally, it offers insights into the future possibilities of the metaverse and the opportunities it presents for innovation and collaboration in the virtual realm.

## Keywords:Metaverse,Virtualreality,Technology,Realm

## INTRODUCTION

TheMetaverseislooselydefinedtermreferringtovirtualworldsinwhichusersrepresented by avatars interact, usually in 3D and usually focused on social and economicconnection.

The word metaverse comes from the 1992 science fiction novel **Snowfall and is** acombinationofthewords'**Meta**'and'**Universe**'."**SnowCrash**"isasciencefictionnovelwrittenbyA mericanauthorNealStephenson.Itwas shortlistedfortheBritishScienceFictionAward in1993and the**ArthurC.ClarkeAward** in **1994**.

In Snowfall, the metaverse ispresented as a fictional version of the internet. as an integrated, universal and immersive virtual world that is facilitated using (**VR**) and augmented reality. Reality Headsets(**AR**) headsets.
The term **"metaverse"** is often associated with Web3 virtual reality technology andblockchaintechnology.Thetermwasusedasabuzzwordbycompaniestohypetheirdevelopment.var iousrelated technologies and projects for promot

# THEADAPTATIONOFVIRTUALREALITY

The first VR technical developments were in 1830s, so this is where our time line starts

Year	DevelopmentsinVirtualReality
1838	SirCharlesWheatstone firstto describedstereopsisin1838.
	Hewonanawardforhisexplanationofbinocular vision.
1935	AmericaSciencefictionwriterStanleyWeinbaumpresentedafictionalwork.
	Inhisstory"Pygmalion'sGlasses" becameamodelforvirtualreality.
1956	CinematographerMortonHeiligproduced"Sensorama".FirstVRmachine
	(Patentedin1962).
1966	ArmyengineerThomasFurnesscreated thefirstsimulatorfortheAirForce.
1968-1971	$Suther land creates the First Virtual Reality the {\bf Sword of Damocles} named HMD.$
	ComputerArtistMyronKruegar, creates virtual reality.
1972-1980	No glasses or gloves required as it has a 180- degree field of viewMcDonnell-
	DouglasintegratesVRintoits HMD
	StereoGraphicscreatesstereoscopicglasses
1985-1990	$\label{eq:VPLRESEARCHastic state} VPLRESEARCHastic state for the state state$
	ductrange.ScottFosterwinsNASAcontracttodevelopseea
	VRtrainingsimulatorforastronauts.
1991-2000	NASAasreleasededucationalgamesandarcadegames, there's VR versions
	Pac-Manandit'sreleasedaVRheadsetcalledCyberMaxx.

2010-2020	Googleintroduces3DStreetView.			
	Oculusriftcampaign <b>raised\$2.4million</b> .			
	<b>Meta</b> acquiredOculusVRcompanyfor <b>\$2billion</b> .Sonyannounced its <b>VR headset</b> forPS4.			
	BBChascreateda 360-degree panoramice xperience rated video.			
	<b>Oculusi</b> ntroducedthe <b>Prototypeofthenewheadset</b> witha140degreesfieldof <b>view</b> .			
2021	Picointroducesthe PicoNeo3 headphones, and Metaplanstoinvestatleast			
	10 billion in Facebook Reality Labsthis year.			
2023	AppleannouncedthatithasenteredtheVRMarketwiththeAppleVisionPro.			
	Thepriceof theheadset\$3499.			
	MetaannouncedtheQuest3onJune1.itlaunchedonOctober10			
2024	AppleVisionProcomestotheUSonFebruary2.			

# **KEYCHARACTERISTICSOFTHEMETAVERSE:**

PersistentVirtualWorld:

"A persistent virtual world", According to **Richard Bartle's** definition, is a virtual worldthat 'continues' and evolves even if no one inside intervenes. The first virtual world is text, oftencalled **MUD's** (multiuser dungeons or multiuser dimensions or multiuser spaces) for onlinemultiplayergames. Theusers arein no way independent person.

Gameslike **'freefire**' and **'BGMI'** connectpeople. Invirtual space indifferent locations. They contact everyone with their avatars. In **'Pokémon go'**, a game played by interacting with people in real life, all processes in the world are stored and users can move to and near people's locations. Easy access

# Interoperability

Interoperability means being **able to move**. In short, instant data exchange with othermachinesthatofreal-

timedataexchangewithothermachinesthatcanusethesamelanguage. The interactive role in metaverse now helps move avatars from one metaverse project to another and explore the processlike a human in the real world.

User-generatedcontent

'UGC' isvideo, images, etc. created by users rather than professional stop rovide companies with feedback to improve their work. Represents the contents. UGC is a personal resource for design.

User-Generated Content is an important part of gaming as we enter the age of metaverse.

Consider this when creating new games and experience for VR and AR.

EconomyandCommerce

Themetaverseisavirtualworldwhichallowsyoutobuy,sellandtradegoodsandservices. The businesses of the virtual world are designed to play into each other's mind to preventcompetition from third-party.

Theuserscanalsocreatedigitalassetslikemusic,video,picturesofartworksitemsforsalewithin the metaverse market. Furthermore, by smart contract make assets transfer at low cost. Asthemetaverseevolves therearemore business opportunities by this virtual economy.

## CHALLENGESANDCONSIDERATIONS

Technicalchallenges

One of the biggest challenges facing the virtual world is infrastructure needed to support them. This infrastructure must process high volumes of data transfer and supportreal time interactions.

Costs

 $\label{eq:construction} Another challenge facing the metadata is the cost of entry. Although the advantages$ 

of virtual worldare significant. This will make it difficult for smaller E-Learning companies to enter market.

## Regulatorychallenges

TheMetaversealsohasissueswithprivacy,dataprotection,andintellectualproperty rights. These problems need to be solved in order for metaverse to be usedeffectivelyand play arole in education.

## **CONSIDERATIONS**

Identifyingtherightfitmentandpurpose

Before diving into the range, you need to choose the right equipment for your business. Find the best places to make an impact in virtual world. By clearly defining what you want toachieve withyourMetaverseapp, you can setaclear direction for your strategy.

Choosingtherightplatform

Choosetheplatformthat bestsuitsyouinmetaversestrategy.Chooseano-codeplatformslike G-Metri, codeless platforms reduce the development, time and costs. Focus on creativity and concept, no need for difficult coding.

#### EnhancingEngagementwithGamification

Use gamification to improvement engagement in the virtual world. It includes, gameelements to increase engagement and motivation. Gamified interactions lead to fun and deepinteractions. FUTUREIMPLICATIONSANDOPPORTUNITIES

Nowadays,doctors,nurses,students,pilots,athletes,etc.Manyprofessionalssuchashaveentered the VR field. Doctors and surgeons are using VR to perform surgery, students are gettingused to playing games and looking deeply at molecules, and welding machines are making theirwayinto workplaces.Athletestrain usingVRdevices.

The second life of virtual platforms in 2003 is often described as the first virtual world. In2017 Microsoft acquired VR company "AlterspaceVR" and used virtual avatars and meetings inMicrosoftteams.

In 2019, Facebook launched a social VR called '**Facebook Horizon'**. It was renamed as 'Meta Platforms' in the year of 2021. In February 2023, Zuckerberg wrote a Facebook postannouncingthecompany's pivot away from the metaverse to focuson **AI**.

#### **OPPORTUNITIES**

#### **Smarthomes**

Nowadaysinhousetherearedevelopingtheirproductsatcurrenttrendslikesmartfan, light, TV, kitchen cleaners etc. they are controlled by Google, Siri, Alexa etc. so farnowmetaversehelps youto controlby some gestures.

#### **Supplychainmanagementsandlogistics**

The metaverse helps in mapping the whole network of supply chain management is leads them to know the real time data on product lead times, transmit times, logisticscosts and delay. In logistics, the metaverse enables the brand product to try at virtual products. This also makes a try at clothes which can be suit to are avatars and finally we can choose our product.

#### Banking

Metaverse developers can build a virtual digital branch to provide customers withanenrichingandpersonalizedbankingexperience.Byusingvirtualbanking,wecanreducethephysi cal branches costs.

## Healthcare

During2019COVID-19(coronavirus)whichmakethewholeworldintopandemicperiod. On that time the people are in quarantine so they buy medicines in online. Thepharmacy, medics, food everything aresoldinonline

S.NO	BASIS	METAVERSE	VIRTUALREALITY
1	Scope andInteractivity	Metaverseencompassesa <b>bordercon</b> <b>cept</b> thanVR.Creatingapersonaliden titygoesbeyondsocialmarketingand content creation.	Virtual reality often focusseson <b>creating</b> anorganizat ionalandhumanexperienceforus ersthroughinteractions withotherpeople.
2	Connectionsandshari ng	Metaverseshows <b>connectionandcol</b> laborationbetweenusers. It aims to create a commononlinespacewherepeopleca nreacheachother,communicate andinteract.	Whilevirtualrealityprovidesthe experience, it often <b>lacksthesametheconnectivity</b> andintegrationthatdefinesmetav erse.
3	Integrations intotherealworld	Its purpose is to create a bridgebetween the virtual world and aphysical world and to make theboundariesbetweenthemvisible.	Itconsiderstheseamlessintegrati on of digital contentandtherealworldandfoc ussesoncreatingfullysimulatede nvironmentsthat influencedbyrealworld.
4	Experience a timewhen the virtualworldwasdiver se andinterconnected	Deliveranexperiencethatbringsuseri nto thedigitalworld	Virtualrealityisthemaintechnol ogyusedtoachievetheexperienc einthemeta database.
5	Technologicalfoundat ion	Itisbasedonavirtualworldenvironme nt, 3D images and familiarobjects.	VRcanbeseenasbuildingblocks orcomponentsofan overallconcept.

## DIFFERENCEBETWEENMETAVERSEANDVIRTUALREALITY

#### **CONCLUSION:**

In conclusion, the concept of metaverse represents a tantalizing vison of the future of virtual reality, offering boundless opportunities for immersive experiences and

interconnecteddigitalworlds.Fromaboveexplorationwetracedtheoriginsofmetaversefromitsscience fictiontocurrent digital platforms and onlinecommunitiesWe have examined the state of VR Technology and the challenges it faces in realizing

thefullpotentialofthemetaverse, including issues of scalability, interoperability, and user experience. H owever, despite these challenges, the metaverse holds immense promise for transforming various aspects of society, including communications, entertainment, education and commerce. As VR technology continues to advance and become familiar. Looking ahead, the future of the metaverse will be shaped by ongoing

technologicalinnovation, societaltrends and user adoption. While addressing ethical, legal, and socialim plications. By embracing the possibilities of metaverse and working together to overcome the hindrances and challenges. We can unlock a new frontier of virtual reality that enriches our lives and expands the boundaries of human

imaginations.Bythispaper,Ideclarethatmetaverseisgoingtobeaheavycompetitioninfuturemarketfor opposite company.

Created by Earnest Cline in 2011, "Ready Player One" follows a VR landscape called "Oasis". The OASIS can be accessed using a VR headset and gloves. It can be used both as amassivelymultiplayer onlinerole-playing game and asavirtualcommunity.

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# NAVIGATING THE DIGITAL HORIZON" LEADERSHIP STRATEGIES FOR THE DIGITAL AGE Mr. M. Ragul., B.Com II year (Accounting & Finance) Loyola College of Arts and Science, Namakkal

## **ABSTRACT:**

In the ever-evolving landscape of the digital age, effective leadership is paramount for organizational success. This paper, titled "Navigating the Digital Horizon: Leadership Strategies for the Digital Age," explores the dynamic role of leadership in the context of rapid technological advancements and digital transformation. The abstract highlights key aspects covered in the paper, including the importance of adapting to technological changes, leveraging data and analytics. The focus is on essential competencies for digital leaders, such as visionary thinking, adaptability, digital literacy, and emotional intelligence. The paper delves into the critical task of building a digital culture, emphasizing innovation, collaboration, and a continuous learning mindset. Acknowledging challenges in digital leadership, the paper addresses resistance to change, the delicate balance between innovation and risk management, and ethical considerations in the digital realm. Through insightful the presentation showcases successful instances of digital leadership while drawing lessons from failures. Additionally, the paper outlines strategies for developing digital leadership, encompassing tailored leadership programs, mentorship, and continuous upskilling initiatives. As the digital landscape continues to evolve, the paper concludes by exploring anticipated future trends and the evolving role of leaders in this increasingly digital world. This presentation aims to equip current and aspiring leaders with practical insights to navigate and excel in the digital horizon.

Key Words:Digital, leaders, collobration

#### **INTRODUCTION**

## **Definition of Digital Horizon:**

The term "Digital Horizon" refers to the constantly evolving and expanding landscape of digital technologies, innovations, and opportunities. It encompasses the current state and the potential future developments in the digital realm, including advancements in information technology, artificial intelligence, data analytics, and other digital tools. The concept implies a dynamic and ever-changing environment where new technologies emerge, reshape industries, and create new possibilities. Navigating the digital horizon requires individuals, businesses, and

societies to adapt, explore, and harness the potential of digital advancements to stay relevant and competitive in an increasingly digitized world.

## **DIGITAL LEADERSHIP**

Digital leadership in this era has become a requirement for a business to survive in the fast and ever-changing business environment. Every single market is characterised by this fast pace in

today's day and age. Due to this, it has become increasingly essential to cultivate habits that facilitate ease and accuracy in working.

# THE IMPACT OF DIGITAL TRANSFORMATION OF LEADERSHIP

Organizations are rapidly changing due to the increasing need to adopt digital technologies. This evolution has wide-ranging ramifications for employees and their leaders. A growing number of jobs require extensive use of technology and the ability to keep up with fast-paced developments. From low-level leaders to executives', roles are changing in the wake of increased transparency and accountability across all levels of the organization.

We observe three main developments that impact leadership in the modern organization.

#### 1. Leading virtual teams

Any restrictions that required employees to be in one location are vanishing thanks to modern technologies. As a result, leaders manage increasingly diverse teams with different cultural backgrounds in various locations and time zones. And with the rise of the gig economy, they not only have to supervise internal employees but also independent workers. Solid communication and cross-cultural skills are the keys to leading virtual teams to success.

#### 2. Facing new power structures within the organization

Increased connectivity and free-flowing information are quickly breaking down traditional hierarchies and boundaries. Many organizations are adopting a project-based approach to work that calls for shared leadership in teams. Members share the decision power instead of relying on one sole leader. The result is a higher sense of responsibility for the tasks and outcomes at hand, reducing the compulsion for controlling employee's actions as previously exerted by leaders.

## 3. Facilitating employee development

Leaders, especially those in high levels are responsible for helping their workforce cope with the changes in the digital transformation. They will need to adapt their approach to the employee's skill level. On the one hand, the war for talents demands leaders to retain highly- skilled, thought-after workers. Exhibiting coaching behaviours that promote the individual's development and provide essential resources becomes increasingly important. On the other hand, leaders have to upskill and motivate lower-level employees to deal with challenges of greater jobdemands and steep learning curves. Workers require assistance to embrace the upcoming changesthat may be seen as a threat.

## THE ROLE OF DIGITAL LEADERSHIP

## "Change in process, people and technology to address the digital needs of consumers".

## I Access Strategy:

The need may arise because of various reasons:

- New or changing consumer preferences.
- > New competitors or new products in the market place
- New or changing government policies
- New or changing technologies

Leadership must understand the drivers of change. When needs are considered at a macro level, this may also be an opportunity for Leadership to define shared vision for the organization. An organization must reflect on its core values and ask where they have come from and where are they headed.

Once organizations have clearly understood the high-level consumer needs, next thing is to assess process, people and technology, with an aim to realign and address the gaps.

## **II** Access Process:

Consumer Business processes should be elicited to further refine the customer needs. Various tools such as Customer Journey Mapping, Customer feedback analysis, Customer focus groups etc. could be used to uncover consumer needs and pain points. Human centred design should beintegral to the problems/need elicitation and solution development process. Leadership must make sure that employees have access to the customer insights, which could be fuel for Innovation and becoming part of the solution process.

#### **III** Access People:

Culture transformation should be an integral part of digital transformation. Culture is what makes change sustainable OR negates it. To have a culture of innovation, organization must provide easy access to tools, technologies, trainings to the work force and encourage cross team collaborations. Many organizations organize hackathons to freely experiment with ideas and solve customer problems.

## IV Access Technology:

Organizations must assess the technology infrastructure, systems and tools to support the digital transformation. Consumer needs and Technology landscape are changing rapidly and often! one is the catalyst for other, which is why the technology infrastructure must be scalable, nimble and futuristic to address the current and future needs. Today, Cloud, Resilient data infrastructure, Microservices are common themes across organization. But consider pivoting to support emerging technologies such as Blockchain, Metaverse, NFTs, XR in couple of years (it's just around the corner). A modern technology infrastructure must be able to assimilate these technologies seamlessly.

## **KEY COMPETENCIES FOR DIGITAL LEADERS**

Specialist and industry knowledge should be a matter of course for you as a digital leader. Ithelps if you have work experience at digital companies (e.g. Google, Apple, Facebook, Amazon), technology companies (e.g. SAP, Microsoft, Adobe) or in IT consulting.

Regardless, you should always be up to date with innovations and change in the digital world. You should use digital tools yourself at all levels, be passionate about digital and want to deal with the topics around the clock, i.e. also in your private life. The main focus is on the following digital technologies:

Artificial intelligence

Big Data, Interpretation & Decisions Internet of Things Mobile E-commerce Online marketing

Social media

It is of great importance that you not only keep an eye on your own training, but also on that of your employees. You should share your knowledge with them and find suitable external workshops and training opportunities

#### I Positive error culture: courage & willingness to take risks:

As a digital leader, it's important that you act as a role model and be open about your mistakes. A positive culture of error is an essential element of digital leadership. This means that mistakes should not be seen as something negative, but as opportunities to learn from them.

As a result, employees can throw new ideas into the room and discuss them without fear or inhibition. People no longer cling to old structures for fear of making the wrong decisions and can give more room to innovations. Courageous decisions are essential, even if they involve risks. Only in this way can companies withstand rapid change and cross borders to new business models, groups and partnership ecosystems

## II Teamwork & Communication:

Nowadays, the company alone is not enough to retain employees. Due to fast-paced change and digital transformation, people are more dependent than ever on social structures and a sense of teamwork, even in their workplace. Here, as a digital leader, you have a very crucial role that requires a high level of social competence. You are responsible for developing this important team feeling among all employees, so that communication can be open and there is trust within the team. This point is extremely important, especially for the younger generation.

Only then can you expect these points from your employees and ensure that they accept digital processes and transformations better. As a digital leader, you must be able to demonstrate these leadership skills, social competence and a positive attitude. In the best case, you will then also manage to retain employees, even if their jobs disappear due to digital transformation. Because motivated and self-reliant team members are not afraid of change, but see it as an opportunity to develop further.

## III Team Building: Identifying Talent & Creating Teams:

Companies are made up of people who can differ from each other in many ways – whether it's their age, work experience, time with the company, backgrounds, values, ideas or ways of working. An agile company takes advantage of this diversity by setting up flexible teams. If you are looking for qualified employees for your team, consulting heads offers a suitable candidate pool.

As a digital leader, you must be able to assemble a new, competent and diverse team, depending on the problem, that complements each other and can thus bring about the best possible result. You achieve this by never losing touch with your employees and by supporting and organizing the networking of different teams. To do this, you need an understanding of diversity and must beable to recognize and develop talents

#### **IV Strategy & Vision:**

In digital transformation, you face the problem that even though things have worked in the short term, they may soon no longer be the right way to do things. Therefore, it is important that you always keep an overview, a kind of helicopter perspective, of the long-term strategy, your vision, your employees, the market and the competition.

You should also demonstrate a certain talent for quickly recognizing trends and being able to make forward-looking predictions. That means you should have a sense of which trends are shortlived and which may prove disruptive to your own business model. As a digital leader, you provide orientation and are able to think and act in a holistic and visionary way.

## V Flexibility, Dynamism & Innovation:

Agility and flexibility are the keywords of digital transformation, and that's exactly what you should embody as a digital leader. To even develop innovations before they turn into trends, you need creativity and the ability to think disruptively, especially in terms of new processes and business models. Because it's up to you to make sure the company stays one step ahead of the competition.

As a good example, you lead the way with dynamism and a desire for change. This is especially important as you will need to work with your team to test different options and respond dynamically to change so that you can drive innovation. You must therefore by no means cling to old structures that hinder digital transformation.

## **CHALLENGES FOR DIGITAL LEADERSHIP**

But why do companies need this new form of leader in the first place? There are some developments that pose a challenge to existing leadership models:

#### I Pressure to innovate:

The smartphone, for example, is nowadays only current for one year until it is replaced by a newer device with better functions. Technologies, disruptive business models and products are developing dynamically and at breakneck speed. The pressure to innovate and change is increasing in all areas of work.

## **II Competition:**

The market situation is becoming more uncertain and competition even more global and intense. After all, the next competitor is just a click away and the motto is: "The winner takes it all." Digital markets tend to be monopolies, as the economies of scale of the early pioneers are difficult to catch up with.

## **III Decentralization and open source:**

Value creation is decentralized. Many new market players are entering and processes can increasingly already be carried out by the customer himself using digital tools.

## IV Knowledge Revolution:

Data is growing exponentially and collective knowledge is becoming more important. Digital platforms and marketplaces create transparency, offer more choice and better service to customers.

# V Internal communication:

Flexible working models, such as virtual workplaces in different time zones, are changing communication.

# VI Changing employees:

Not only the product market has a fast rhythm, but also the labour market. It is becoming increasingly difficult to retain good employees. There is a rapid change of employees as well as competitors and market situation.

# **CASE STUDIES**

# EXEMPLARY DIGITAL LEADERSHIP

## **Provision of the Case:**

In the early 2000s, Blockbuster was a dominant force in the video rental industry, with a widespread chain of stores offering physical DVDs. On the other hand, Netflix, founded in 1997, started as a DVD-by-mail service before transitioning into streaming. The case examines the contrasting strategies employed by Blockbuster and Netflix during the digital revolution in the entertainment industry

## Facts of the Case:

## **Blockbuster's Traditional Model:**

Blockbuster adhered to a traditional brick-and-mortar model, relying on in-store rentals. While successful at its peak, this model faced challenges due to changing consumer preferences and the rise of digital streaming.

## **Netflix's Strategic Pivot:**

Netflix recognized the shifting landscape and strategically pivoted to online streaming. By 2007, it introduced a streaming service, allowing subscribers to access a vast library of content from their devices.

## Adoption of Emerging Technologies:

Netflix embraced emerging technologies, leveraging the internet for content delivery. The introduction of a subscription-based streaming model marked a revolutionary change, allowing customers to stream content instantly without physical rentals.

## Failure to Innovate by Blockbuster:

Blockbuster initially underestimated the impact of digital streaming. Its delayed entry into online streaming, coupled with the persistence of late fees, contributed to a decline in customer satisfaction.

#### **Bankruptcy of Blockbuster:**

Blockbuster filed for bankruptcy in 2010, unable to compete with the convenience and costeffectiveness of Netflix's streaming model.

#### Solution of the Case:

Blockbuster's downfall serves as a cautionary tale of a company slow to adapt to technological changes. To stay competitive, Blockbuster could have:

#### **Embraced Technological Change Early:**

Blockbuster could have invested in digital streaming technology and transitioned its business model proactively to meet changing consumer preferences.

#### **Focused on Customer-Centric Innovation:**

Instead of merely reacting to Netflix, Blockbuster could have prioritized customer experience by adopting customer-friendly policies and investing in digital interfaces.

## **Strategic Partnerships:**

Establishing partnerships with technology companies or exploring collaborations with emerging streaming services could have helped Blockbuster stay relevant in the digital age.

## **Diversification and Innovation:**

Blockbuster could have explored diversification and innovative services, such as creating its original content or partnering with emerging tech companies to offer unique features.

In contrast, Netflix's success lies in its foresight, customer-centric approach, and willingness to adapt. The case underscores the importance of agility, innovation, and strategic foresight in the dynamic landscape of the digital era.

## **CONCLUSION:**

In conclusion, the levers for leadership in the digital horizon represent the essential tools and strategies that propel organizations towards success in an ever-evolving technological landscape. Effective leadership, fortified by technological literacy and a visionary mindset, stands as a linchpin for navigating complexities and harnessing opportunities in the digital age. Adapting to technological advancements, embracing data-driven decision-making, and fostering a culture of innovation are key levers that empower leaders to steer their organizations toward sustained growth. As leaders prioritize agility, they can strategically leverage digital tools, ensuring their teams remain responsive to change and capitalize on emerging trends. Moreover, the emphasis on cybersecurity resilience, global leadership competencies, and ethical considerations amplifies the importance of responsible leadership in the digital era. By employing these levers, leaders notonly mitigate risks associated with digital transformation but also cultivate an environment where the workforce is empowered, adaptable, and inspired to contribute to the organization's digital journey. In essence, the levers for leadership in the digital horizon underscore the pivotal role of leaders as architects of change, driving their organizations towards innovation, resilience, and continued relevance in the dynamic and transformative digital landscape.

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# "STRATEGIES FOR CREATING A SUSTAINABLE AND ETHICAL DIGITAL BUSINESS ECOSYSTEM" Mr.A.S. Gowri Shankar and Mr.V. Kanshik Abinav B.Com II year (Accounting & Finance) Loyola College of Arts and Science, Namakkal

## ABSTRACT

In today's rapidly evolving digital landscape, the pursuit of sustainability and ethical business practices is paramount for long-term success and societal well-being. This presentation explores key strategies for creating a sustainable and ethical digital business ecosystem. It delves into the importance of aligning business goals with environmental and social responsibility, fostering transparency and accountability, and leveraging technology for positive impact. Additionally, it addresses the significance of stakeholder engagement, the implementation of fair labor practices, and the adoption of ethical data management practices to build trust and credibility. Through case studies and practical examples, this presentation provides actionable insights for businesses looking to thrive in an increasingly conscious marketplace while making meaningfulcontributions to the world. Creating a sustainable and ethical digital business ecosystem is crucial in today's interconnected world. This presentation explores strategies to achieve this goal, emphasizing the importance of balancing profit with social and environmental responsibility. By adopting ethical practices and leveraging innovative technologies, businesses can thrive while minimizing negative impacts on society and the planet. From supply chain management to customer engagement, every aspect of a digital business should prioritize



sustainability and ethics. This presentation offers insights and practical approaches to build a responsible and resilient digital business ecosystem.

#### Key words: Digital, transperancy, social

## **INTRODUCTION:**

Sustainability and ethics are crucial in the digital business ecosystem for several reasons. Firstly, as technology advances, it's imperative to ensure that its development and usage don't harm the environment or deplete finite resources. Secondly, ethical considerations ensure that digital businesses operate responsibly, respecting user privacy, data security, and fair competition. Moreover, incorporating sustainability and ethics enhances brand reputation, attracts socially conscious consumers, and fosters long-term viability in an increasingly interconnected global market. Ultimately, integrating these principles into the digital business ecosystem promotes not only economic success but also social and environmental well-being for present and future generations.

## **UNDERSTANDING SUSTAINABILITY AND ETHICS:**

- 1. **Sustainability:** Refers to the ability of a digital business to operate in a manner that minimizes its negative impact on the environment, society, and economy over the long term. This includes considerations such as reducing energy consumption, using renewable resources, minimizing electronic waste, and promoting social responsibility throughout the supply chain.
- 2. Ethics: Involves the moral principles and values that guide the actions and decision-making processes of a digital business. This includes ensuring fair treatment of employees, respecting user privacy and data rights, being transparent about business practices, and adhering to laws and regulations related to digital operations. Ethical considerations also extend to issues such as algorithmic bias, digital inclusion, and the responsible use of emerging technologies like artificial intelligence and automation.

# IMPORTANCE OF INTEGRATING SUSTAINABILITY AND ETHICS INTO BUSINESS PRACTICES

- 1. **Long-term viability**: Sustainable practices ensure that a business can continue to operate in the long term by minimizing negative impacts on the environment, society, and economy.
- 2. **Reputation and brand loyalty**: Consumers increasingly favour companies that demonstrate ethical behaviour and environmental responsibility, leading to stronger brand loyalty and positive reputation.
- 3. **Risk management**: Ethical business practices reduce the risk of legal issues, public backlash, and supply chain disruptions, protecting the company's bottom line.
- 4. Attracting talent: Millennials and Gen Z employees, who make up a significant portion of the workforce, prefer to work for companies that align with their values, including sustainability and ethics.
- 5. **Cost savings**: Sustainable practices often lead to efficiency improvements, resource conservation, and waste reduction, resulting in cost savings over time.
- 6. **Regulatory compliance**: Adhering to ethical and sustainable standards helps businesses stay compliant with regulations and avoid fines or penalties.

Overall, integrating sustainability and ethics into business practices is not only a moral imperative but also a strategic advantage in today's competitive market.



## FRAMEWORK FOR SUSTAINABLE AND ETHICAL BUSINESS

#### 1. Transparency and Accountability:

- Transparency: Ensure clear communication regarding data usage, privacy policies, and business practices.

- Accountability: Hold stakeholders responsible for adhering to ethical standards and sustainable practices.

#### 2. Ethical Data Management:

- Data Privacy: Prioritize user privacy by implementing robust data protection measures and obtaining consent for data collection.

- Data Security: Safeguard sensitive information from unauthorized access or breaches.

## 3. Environmental Sustainability:

- Carbon Footprint Reduction: Minimize energy consumption and carbon emissions through efficient infrastructure and renewable energy sources.

- Waste Reduction: Implement strategies to reduce electronic waste and promote recycling.

## 4. Inclusivity and Diversity:

- Accessibility: Ensure digital products and services are accessible to all users, including those with disabilities.

- Diverse Representation: Foster a diverse workforce and inclusive culture to promote innovation and creativity.

## 5. Responsible AI and Technology:

- Ethical AI: Develop and deploy artificial intelligence systems that prioritize fairness, transparency, and accountability.

- Responsible Innovation: Anticipate and mitigate potential negative impacts of emerging technologies on society and the environment

#### 6. Collaboration and Partnerships:

- Stakeholder Engagement: Collaborate with stakeholders, including customers, employees, and communities, to co-create sustainable solutions.

- Cross-Sector Partnerships: Partner with other organizations and industries to address complex challenges and drive positive change.

## 7. Continuous Improvement and Adaptation:

- Feedback Mechanisms: Establish mechanisms for collecting feedback from stakeholders to identify areas for improvement.

- Agile Practices: Embrace agile methodologies to adapt quickly to changing market dynamics and stakeholder needs.

\*Components include environmental stewardship, social responsibility, and economic viability.



## **ENVIRONMENTAL STEWARDSHIP**

Reducing carbon footprint and promoting environmental sustainability can be achieved through various strategies:

# ✓ Energy Efficiency:

Use energy-efficient appliances, LED lighting, and improve insulation in buildings to reduce energy consumption.

## ✓ *Renewable Energy*:

Invest in solar, wind, or hydroelectric power to reduce reliance on fossil fuels for electricity generation.

## ✓ Transportation:

Use public transportation, carpooling, biking, or walking whenever possible. Transitioning to electric or hybrid vehicles also reduces emissions.

## ✓ Reduce, Reuse and Recycle:

Minimize waste by opting for reusable products, recycling materials, and composting organic waste.

## ✓ Sustainable Diet:

Choose locally sourced, organic, and plant-based foods to reduce the carbon footprint associated with food production and transportation.

## ✓ Water Conservation:

Conserve water by fixing leaks, using water-efficient fixtures, and practicing mindful consumption.

# ✓ Green Spaces:

Support initiatives that promote afforestation, urban green spaces, and biodiversity conservation to mitigate climate change and enhance ecosystem services

# ✓ Education and Advocacy:

Raise awareness about environmental issues and advocate for policies that promote sustainability at local, national, and global levels.

# ✓ Lifestyle Changes:

Adopt a minimalist lifestyle, avoid overconsumption, and prioritize experiences over material possessions to reduce resource consumption and waste generation.

Examples include renewable energy usage, waste reduction, and sustainable sourcing.

# SOCIAL RESPONSIBILITY

Fostering diversity, equity, and inclusion within the digital business ecosystem is crucial for several reasons:

# ✓ Innovation and Creativity:

Diversity brings together individuals with different perspectives, experiences, and backgrounds, which fosters creativity and innovation. In a digital business ecosystem, this diversity of thought can lead to the development of more innovative solutions and products.

# ✓ Market Relevance:

As digital businesses aim to serve diverse customer bases, having a diverse workforce can help in understanding and meeting the needs of different demographic groups. This leads to more relevant and successful products and services.

# ✓ Talent Acquisition and Retention:

By prioritizing diversity and inclusion, digital businesses can attract top talent from a wider pool of candidates. Moreover, creating an inclusive environment ensures that employees feel valued and supported, leading to higher retention rates.

# ✓ Problem Solving and Decision Making:

Diverse teams are better equipped to tackle complex problems and make informed decisions. They bring a variety of perspectives and approaches to problem-solving, leading to more robust and effective solutions.

# ✓ Corporate Social Responsibility:

Embracing diversity, equity, and inclusion is not only a business imperative but also a social responsibility. Digital businesses have a platform and influence to

drive positive change in society by promoting diversity and equality within their ecosystems.

 Legal and Ethical Obligations: Many jurisdictions have laws and regulations that mandate diversity and inclusion initiatives in the workplace. By fostering diversity and inclusion, digital businesses ensure compliance with legal requirements and uphold ethical standards.

# **ECONOMIC VIABILITY**

- Balancing profitability with ethical business practices involves prioritizing long-term sustainability over short-term gains. This can include implementing fair labour practices, environmentally friendly operations, and transparent communication with stakeholders. Ultimately, ethical practices can enhance reputation, customer loyalty, and employee morale, contributing to long-term profitability.
- ✓ Sustainable revenue models often involve diversification, subscription services, or renewable resources. Investing in long-term growth typically entails R&D, expanding market reach, and cultivating customer loyalty through quality products/services and ethical practices.

## ETHICAL SUPPLY CHAIN MANAGEMENT

- Ensuring transparency and accountability throughout the supply chain involves implementing measures such as supplier audits, transparency initiatives, traceability systems, and ethical sourcing policies. It also requires clear communication with stakeholders and regular monitoring to identify and address any issues that arise.
- Collaborating with suppliers to promote fair labour practices and ethical sourcing involves establishing transparent communication channels, setting clear expectations, conducting regular audits, and providing training and support to ensure compliance with ethical standards. Additionally, incentivizing suppliers who prioritize fair labour practices and ethical sourcing can further encourage positive behaviour throughout the supply chain.



# DATA PRIVACY AND SECURITY

Protecting customer data and ensuring privacy are crucial for several reasons:

**1. Trust and Reputation:** When customers trust that their data is safe with a business, they are more likely to engage with that business. A breach of trust due to a data breach can irreparably damage a company's reputation.

**2. Legal Compliance:** Many jurisdictions have stringent laws and regulations regarding the handling of customer data, such as the GDPR in Europe or the CCPA in California. Failure to comply with these regulations can result in severe penalties and legal consequences.

**3. Preventing Identity Theft and Fraud:** Customer data, if mishandled or stolen, can be used for identity theft and fraud, leading to financial losses and personal harm for individuals.

**4. Business Continuity:** Data breaches and privacy violations can disrupt business operations, leading to financial losses, downtime, and loss of customer trust.

**5.** Competitive Advantage: Demonstrating a commitment to protecting customer data can give a business a competitive edge, as customers are increasingly concerned about privacy and security.

**6. Ethical Responsibility:** Businesses have an ethical obligation to respect the privacy and confidentiality of their customers' information.

- Overall, protecting customer data and ensuring privacy is not only a legal requirement but also a fundamental aspect of maintaining trust, reputation, and ethical standards in today's digital economy
- Compliance with regulations like GDPR (General Data Protection Regulation) and CCPA (California Consumer Privacy Act) is crucial for protecting individuals' privacy rights and avoiding legal consequences. It involves understanding the
- requirements, implementing necessary measures, such as data encryption, consent management, and data access controls, and regularly auditing and updating policies to ensure ongoing compliance

# **CUSTOMER ENGAGEMENT**

- Building trust and loyalty through ethical marketing and communication involves being transparent, honest, and respectful in your messaging. It means delivering on promises, prioritizing customer well-being, and actively listening to feedback. By consistently demonstrating integrity and accountability, you can foster long-term relationships with your audience, ultimately leading to increased trust and loyalty.
- ✓ Engaging customers in sustainability initiatives involves transparent communication, interactive campaigns, and offering tangible benefits. You can educate them about the environmental impact of their choices, involve them in decision-making processes, and provide incentives for eco-friendly behaviours, such as discounts for reusable products or donations to environmental causes with each purchase. Additionally, creating a community around sustainability can foster a sense of belonging and encourage ongoing participation.

#### **INNOVATION AND TECHNOLOGY**



Leveraging technology for sustainable solutions involves using innovations like renewable energy, IoT devices for resource management, AI for optimizing processes, and blockchain for transparent supply chains to address environmental challenges and promote long-term viability

# Certainly! Here are a few examples of how IoT and AI are being used for resource optimization and predictive analytics:

#### Smart Energy Management:

IoT sensors installed in buildings can monitor energy consumption patterns and adjust heating, cooling, and lighting systems accordingly to optimize energy usage. AI algorithms analyse historical data and predict future energy demands, allowing for proactive adjustments to minimize waste and costs.

#### **Supply Chain Optimization:**

IoT-enabled devices can track the movement of goods throughout the supply chain, providing real-time visibility into inventory levels, delivery schedules, and potential bottlenecks. AI algorithms can analyse this data to optimize routes, predict maintenance needs, and improve overall efficiency.

#### **Precision Agriculture:**

IoT sensors deployed in agricultural fields can monitor soil moisture levels, temperature, and crop health in real-time. AI algorithms can analyse this data to optimize irrigation schedules, detect early signs of disease or pest infestation, and predict crop yields, helping farmers make informed decisions to maximize productivity and minimize waste.

#### **Predictive Maintenance:**

IoT sensors embedded in industrial equipment can continuously monitor key performance indicators such as temperature, vibration, and pressure. AI algorithms can analyse this data to detect patterns indicative of impending failures, allowing maintenance teams to schedule repairs proactively and avoid costly downtime.

#### **Smart Transportation:**

IoT sensors installed in vehicles, traffic lights, and infrastructure can collect real-time data on traffic patterns, road conditions, and vehicle performance. AI algorithms can analyse this data to optimize traffic flow, predict congestion, and recommend alternative routes, reducing travel times and fuel consumption.

## **CONCLUSION:**

Businesses play a crucial role in shaping our future. By prioritizing sustainability and ethics in your operations, you're not just making a statement; you're leading by example. Embrace sustainability to protect our planet and uphold ethical standards to ensure fairness and integrity. Let's create a brighter, more responsible future together. Continuous improvement and adaptation are crucial in the dynamic digital landscape because technologies, trends, and consumer behaviours evolve rapidly. Embracing change allows businesses to stay competitive, enhance efficiency, and meet evolving customer needs. Additionally, it fosters innovation and enables organizations to seize new opportunities as they arise, ensuring long-term sustainability and growth.

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# DIGITALHORIZONS: TECHNOLOGY, INNOVATION, AND THE FUTURE OF ACCOUNTING

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## **ABSTRACT:**

In the contemporary landscape, technological advancement are reshaping the field of accounting leading to the emergence of digital horizons. This paper examines the intersection of technology, innovation and accounting practices, focusing on the transformative effects of digitalization. It explores how emerging technologies such a artificial intelligence, blockchain, and cloud computing are revolutionizing traditional accounting processes, offering new opportunities for efficiency, accuracy, and strategic decision making. Furthermore, the paper discusses about how the new technology and innovations affecting the future of accounting, highlighting the importance of upskilling and adapting digital era.

#### **INTRODUCTION:**

The future of technology is full of opportunities for progress, innovation, and digitalization. Horizon technology is at the forefront of this evolution. **Digital horizon technology is Focus on innovation and continuous evolution and change in technology Solutions and revolutionary achievements**. Therefore, the report will also discuss the impacts. While utilizing artificial intelligence in the accounting field, it also emphasizes the very important role of financial experts in the accounting field. Manage ethical and responsibleadoption

## THE TECHNOLOGIES OF THE 'DIGITAL HORIZON':

Digital horizon technology refers to the ongoing advancements and developments in the fields of technology that are shaping the future. Innovations plays a critical role in driving these advancements by introducing **new ideas, methods, or products that bring about positive change technology sector.** 

The future of technology is a dynamic and ever-evolving landscape that holds great promise for society. Here are some technologies of the Digital Horizon where advancements are expected to make a significant impact:

## ARTIFICIAL INTELLIGENCE (AI):

The impact of artificial intelligence on the future of the accounting profession is both exciting and transformative. AI's ability to automate data entry, provide advanced data analysis, detect fraud, improve financial reporting, and facilitate virtual services has revolutionized the financial industry.

The future application of artificial intelligence in accounting is **forecasting**. Using artificial intelligence, investors can make financial forecasts more accurately by taking into

account different market trends and historical data. **Cash Management**: Artificial intelligence can help companies maintain financial health by helping to monitor and improve cash flow.

Artificial Intelligence technology is advanced but still evolving, and new models and techniques are introduced regularly. It has the potential to change the way businesses do business and the way people interact with technology.

#### **BLOCKCHAIN TECHNOLOGY:**

Block chain is a digital printer that securely and transparently records transactions across multiple computers. Beyond crypto currencies, block chain has the potential to transform products, secure transactions, and enable new standards of trust and transparency across businesses.

Helps increase the **security, transparency and efficiency of the business.** It is a revolutionary technology that has been adopted in fields such as finance and supply chain management. **It involves transferring assets and maintaining accurate financial information.** 

Block chain is a **revolution for storage and reconciliation.** While this situation threatens the work of accountants in these fields, it may also encourage those who focus on transferring costs elsewhere.

#### **INTERNET OF THINGS (IOT):**

The term Internet of Things refers to a network of physical devices that communicate and interact over the Internet. Its importance lies in **its ability to generate and collect large amounts of information from a variety of sources.** 

The Internet of Things is a mature technology, but as communications and technology advance, so too do its applications. Both the Internet of Things (IoT) and accounting can help you manage your business remotely. This tool allows you to learn about the movement of goods through your factory or understand costs without being physically present.

These IoT devices can help businesses automate financial reporting tasks, such as preparing balance sheets and income statements, and provide actionable financial information. IoT devices that can be used for financial reporting, including cloud-based accounting software and data visualization tools

#### **CLOUD COMPUTING:**

Cloud computing is the practice of using computing systems accessed over the Internet. Some calculators are available on only one computer. These are called **"desktop Accounting"** system. Cloud computing has revolutionized the business world and business computing is no exception. Cloud-based accounting software has many benefits, including **improved performance**, **flexibility**, **and security**. Cloud computing is changing the way financial markets operate and interact with customers.

This new system increases the speed and speed of Customers' information while updating their information (with their consent). However, a recent study shows that **59%** of employees are leveraging the cloud and exploring automation solutions.

#### **BIG DATA :**

Financial and financial data is a large amount of data that is stored without any problems. It is written in various documents from various sources. Big data in accounting and **data science can identify data entry problems, helping businesses make decisions based on evidence** and facts rather than assumptions. Big data analytics in accounting can collect and analyze big data. **Financial information from various sources.** This allows accountants to understand the company's operations **financial reporting.** For example, a financial institution may analyze customer transaction data to identify: Patterns or patterns that may indicate fraud.

#### **5G ACCOUNTING:**

5G Accounting makes online accounting fast, accessible, simple and secureservice. Quick access to books and all your credentials anytime, anywhere. Safe and reliable Data storage with continuous backups and an integrated disaster recovery plan. 5G networks promise ultrafast and stable communications. Advances in infrastructure and real-time data processing. 5G accounting is a group highly experienced financial manager who believes in partnering with clients to take care of them business.

#### THE IMPACT OF TECHNOLOGY ON ACCOUNTING:

There is a relationship between accounting and technology and both drive progress. Technology has become an integral part of daily accounting, allowing professionals to do their jobs better.

#### **AUTOMATED DATA ENTRY:**

Financial guidance and analysis to facilitate data entry and storage of financial information. Popular accounting software like **QuickBooks**, Xero and Fresh Books make it easier for businesses to manage their finances.

This tool not only **reduces human error but also provides timely financial information to businesses.Statista's research** shows that **64%** of small businesses use accounting software to manage their financial information.

#### **ACCOUNTING DATA IS MORE ACCURATE:**

With advanced accounting technology, accounting information becomes more accurate and reliable with automation and advanced software. The truth is important for businesses to make informed decisions and comply with regulatory requirements. Research by **EY found** that **78%** of organizations believe technology has improved the accuracy of their financial information.

# THE FUTURE ROLE OF ACCOUNTANTS IN A DIGITAL WORLD:

Accountants need to be supported by technology **to improve efficiency, accuracy and decision-making** in the digital world. Professionals can act as strategic advisors, helping to develop and implement rich data and analytical tools that provide immediate insight to create and sustain long-term value.

Accountants are evolving into data analysts who use advanced analysis tools to gain insight from financial data. Accountants have more time to act as consultants and ideas for their

clients. They can provide information on tax development, financial planning and business development strategies.

Accountants in the digital world **must be committed to continuous learning and adaptation.** Rapid changes in technology require accountants to stay up to date with the latest software, policies and best practices in the industry.

The digital world brings challenges and opportunities to the finance profession. While automation and artificial intelligence support many processes, accountants are also taking on more analytical and advisory roles. The changing role of accountants in the digital world is about **more than managing financial records; It's about leveraging the power of data to support decision-making and business success.** 

# DIFFERENCE BETWEEN CURRENT SKILL AND FUTURE SKILL IN THE TECHNOLOGY OF ACCOUNTING:

		PRESENT	FUTURE
S:NO	BASIS	SKILL	SKILL
1.	Data Science and	Proficiency in data analysis	Advanced machine learning
	Analytics	and visualization tools,	and AI skills, big data
		understanding of statistical	management, natural language
		techniques.	processing, and predictive
			analytics.
2.	Software development	Proficiency in programming	Skills in block chain
		languages like Java, Python,	development, cyber security,
		and C++, knowledge of web	AI and machine learning,
		and mobile app development.	quantum computing, and
			augmented reality (AR) or

			virtual reality (VR)
			development.
3.	Digital Marketing andE-	Proficiency in social media	Skills in marketing
	commerce	marketing, content creation,	automation, AI-driven
		SEO, and digital advertising	personalization, data analytics
		platforms.	for marketing insights, AR and
			VR marketing strategies, and
			voice search optimization.
4.	Biotechnology and	Understanding of genetic	Proficiency in genome editing
	Healthcare	engineering, pharmaceutical	technologies, bioinformatics,
		research, and medical device	personalized medicine, AI for
		development.	drug technologies.
5.	Information Technology	Knowledge of network	Expertise in cloud security,
	(IT) and cyber security	security, system	AI-driven cyber security,
		administration, and cyber	threat intelligence and
		security best practices.	analysis, IOT security, and
			ethical hacking.

## **ADVANTAGES:**

#### **1.COST SAVINGS:**

The number one benefit of accounting technology is **cost savings.** The upfront cost is quickly recovered and savings are achieved in many areas by increasing efficiency, reducing time spent investigating hazards, and eliminating the need for paper and storage.

## 2.SECURITY:

We operate with safety as our top priority. Good technology provides an extra layer of security by double and triple checking information from the beginning to prevent errors and fraud. **3.EFFICIENCY:** 

Technology, especially automation, streamlines operations, which incurs significant costs. It is also fast and effective, eliminating previous problems by making quick changes to the process (including work tasks and approved contacts), improving online information with other systems and speed of work, and automatically creating digital audits for use.

# **4.ACCESSBILITY:**

Cloud-based SaaS not only makes the technology affordable for companies of all sizes, it also creates a centralized and accessible repository that automatically stores, organizes and sorts

information. This information can be used for timely reporting and decision-making purposes and can be accessed 24/7 from any mobile device. The work environment continues to move towards a mobile, hybrid or remote framework, making the market significant.

#### **DISADVANTAGES:**

#### **<u>1.TECHNICAL ISSUES:</u>**

When dealing with technology and computer technology, all kinds of problems can arise, from electric shock to viruses, to the computer easily falling off the table and breaking down. In this case, cloud-based platforms and instant automatic backups are particularly useful. It's also important to make sure your business uses a reputable accounting software platform where you can get fast service.

#### 2.SECURITY:

Technologies that help improve security also create new opportunities in combating cyber attacks and fraud. This is one of the main reasons why you need to have the right software and a cloud platform that can be constantly updated with new technologies.

#### **<u>3.CYBER LIMITATION:</u>**

A system is just like ideas, including its configuration, operation, and data entry. Proper planning and installation can minimize the impact of these restrictions. **4.COST:** 

Although software is more affordable, accessible, and result in many cost savings, the initial cost may still be more than some smaller businesses can pay and prevent entry. Note that this cost is not just monetary but also in terms of time (both for implementation and training). **CONCLUSION:** 

This paper shows the digital horizon in which we discuss technology, innovation, and future accounting. Nowadays the technology is developed more in all specialized field, **like health**, **education**, **accounting etc.**Through this exploration we have witnessed emerging technology like **artificial intelligence**, **block chain**, **and cloud computing**. We redesign the traditional accounting practices, while entering into digital era.

By development of accounting skills people can sustained by rich position in futures. The AI technology supports accounting fields but sometimes it may accure mistakes than human performs.

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# LEADERSHIP IN DIGITAL HORIZON Ms. Sandhra Antony, III B.Com Loyola college of Arts and Science, Mettala

#### ABSTRACT

Leadership in the Digital Horizon" refers to the evolving landscape of leadership within the context of digital transformation. In today's rapidly changing technological environment, leaders must navigate digital disruptions, leverage emerging technologies, and adapt to new ways of working. This explores how leadership styles, skills, and strategies need to evolve to effectively lead teams and organizations in the digital age. It may delve into topics such as digital literacy, agility, innovation, remote collaboration, and the integration of digital tools and platforms into leadership practices. Digital leaders need to be proactive in identifying opportunities and addressing challenges presented by the digital landscape, while also cultivating strong interpersonal skills to inspire and motivate teams in this dynamic environment. Advances in digitalization place completely new demands on both political and economic leaders as well ason society as a whole. In addition to technical skills as a basis for dealing with and understanding digital technologies, digitalization demands that relevant decision-makers have a digital mind set so that they can recognize and correctly assess the opportunities and challenges associated with digitalization. Against this backdrop, this explains the motives as well as the opportunities and challenges associated with it. It also shows how the critical capabilities of a digital leader contributes to the realization of their strategic vision of successful digitalization.

**Keywords** : Digital transformation, Innovation management, Remote leadership ,Digital strategy, Digital economy, Leadership style , Digitalization ,Talent development

#### INTRODUCTION

Digitization has significantly transformed the way an industry operates, and current market dynamics are completely controlled by the digitized process. All of the industry sectors, such as manufacturing production or information, have adopted a complete or quasi-digitized framework in terms of supporting their competitive needs. However, this transformation has not been done on its own There are leadership and managerial characteristics that have helped this transformation happen. Digital transformation is fundamentally about the change that requires leadership support Leadership in the era of Digitalization has drastically changed due to improvement in communication, collaboration and engagement dynamics. This study has identified all the potential dynamics that current leadership offers within a digital organization environment. Leadership in the digital horizon requires a deep understanding of not only the technological aspects but also the human and organizational dynamics involved. It involves guiding teams through digital disruptions, fostering a culture of continuous learning and adaptation, and leveraging digital tools and data to make informed decisions.

## LEADER'S SKILLS IN DIGITAL ERA

In the digital era, leaders must possess a diverse skill set to navigate the complexities of a rapidly evolving landscape. This includes being digitally literate, adaptable, and adept at leveraging data for decision-making. Effective communication across various digital channels is crucial, as is the ability to think critically and foster collaboration in virtual environments. Leaders must also prioritize cybersecurity awareness and promote a culture of innovation within their organizations. With a strategic vision and emotional intelligence, they can harness the power of digital technologies to drive business growth and transformation.

- 1. **DIGITAL LITERACY:** Digital literacy refers to the ability to effectively use and navigate digital tools, technologies, and platforms to access, evaluate, create, and communicate information. It encompasses a range of skills, including understanding basic computer operations, navigating the internet, using software applications, and critically evaluating online information for credibility and relevance. Digital literacy also involves being aware of digital security risks, privacy concerns, and ethical considerations when interacting with digital technologies. In today's increasingly digital world, digital literacy is essential for individuals to participate fully in society, succeed in the workplace, and make informed decisions in both personal and professional contexts.
- 2. ADAPTABILITY: Adaptability refers to the ability to adjust and thrive in changing circumstances or environments. In the context of leadership, adaptability involves being flexible, open-minded, and responsive to new situations, challenges, and opportunities.
- 3. means being able to quickly assess and understand changes, whether they're related to technology, market dynamics, organizational structure, or external factors, and then adjust strategies, plans, and behaviours' accordingly. An adaptable leader is not Wedded to a single way of doing things but instead embraces change as an opportunity for growth and innovation. They are resilient in the face of uncertainty and can inspire and guide their team through transitions effectively. Adaptability is increasingly important in today's fast-paced, constantly evolving world, where businesses and industries are continuously disrupted by technological advancements and shifting market trends.
- 4. DATA LITERACY: Data literacy refers to the ability to understand, interpret, and communicate using data effectively. It involves the skills needed to work with data, including collecting, analyzing, and visualizing it to extract meaningful insights and make informed decisions. A data-literate individual can identify relevant data sources, evaluate the quality of data, and apply appropriate analytical techniques to derive actionable conclusions. Data literacy also includes the ability to communicate findings clearly and effectively to others, including non-technical stakeholders. This involves translating complex data concepts into understandable terms and using data visualization techniques to present information in a compelling and accessible way.
- 5. **COMMUNICATION SKILLS:**In the digital era, communication skills are more crucial than ever for leaders. Leaders need to effectively convey their vision, goals, and strategies across

various digital platforms and channels, including email, video conferencing, and social media. Clear and concise communication helps ensure that team members understand expectations, roles, and responsibilities, even in virtual or remote work environments. Additionally, strong communication skills enable leaders to build trust, inspire confidence, and foster collaboration among team members, regardless of geographical location. In a rapidly changing digital landscape, effective communication is essential for navigating challenges, fostering innovation, and driving organizational success.

- 6. STRATEGIC VISION:Strategic vision refers to a leader's ability to envision the future direction and goals of an organization or team and to develop a clear roadmap for achieving them. It involves setting ambitious yet realistic long-term objectives, identifying opportunities and threats in the external environment, and aligning organizational resources and capabilities to capitalize on those opportunities and mitigate risks. A leader with strategic vision can anticipate changes in the market, industry, or technology
- 7. landscape and proactively position the organization to adapt and thrive in response to those changes. They articulate a compelling vision that inspires and motivates team members, stakeholders, and other key stakeholders to work towards common goals.

## **ROLE OF LEADERSHIP IN DIGITAL ERA**

In the digital era, leadership plays a crucial role in navigating organizations through rapid technological advancements and digital transformation. Some key roles of leadership in the digital era include.

- 1. **SETTING A DIGITAL VISION:**Setting a digital vision involves defining a clear and compelling direction for how digital technologies will be used to achieve strategic objectives and drive organizational success. This vision articulates the desired future state of the organization interms of its digital capabilities, offerings, and customer experiences. A digital vision should align with the overall business strategy and address key opportunities and challenges presented by the digital landscape. It typically encompasses several elements.
- 2. **DRIVING DIGITAL TRANSFORMATION :**Driving digital transformation involves leading and orchestrating strategic initiatives to leverage digital technologies and processes to fundamentally change how an organization operates, delivers value, and interacts with stakeholders. It encompasses a comprehensive and holistic approach to integrating digital capabilities across all aspects of the organization, including its culture, operations, business models, and customer experiences.
- 3. **FOSTERING A DIGITAL CULTURE:**Fostering a digital culture involves cultivating an organizational environment that embraces digital technologies, values innovation, promotes collaboration, and prioritizes continuous learning and adaptation. It's about creating a mindset and set of behaviours' that enable employees to leverage digital tools and processes to drive organizational success and stay ahead of the curve in a rapidly evolving digital landscape.
- 4. **BUILDING DIGITAL CAPABILITIES:** Building digital capabilities involves developing the skills, knowledge, processes, and infrastructure necessary to effectively leverage digital

technologies to achieve strategic objectives and drive organizational success. It encompasses a range of activities aimed at empowering employees,

5. optimizing operations, enhancing customer experiences, and fostering innovation in the digital age.

**LEADERSHIP SUPPORT:** Leadership support refers to the active endorsement, guidance, and involvement of organizational leaders in driving initiatives, strategies, and cultural changes within the organization. Leadership support is crucial for ensuring the success and sustainability of these efforts. Overall, leadership support is essential for driving organizational change and ensuring that digital initiatives are effectively implemented, sustained, and integrated into the fabric of the organization.

## ETHICAL LEADERSHIP IN THE AGE OF BIG DATA &AI:

Ethical leadership in the age of big data and artificial intelligence (AI) involves guiding organizations to responsibly and ethically harness the power of data and AI technologies while upholding moral principles, protecting individual rights, and mitigating potential risks and harms. Here are some key considerations for ethical leadership in this context.

1.**Human-Centric Design:** Ethical leaders prioritize human well-being and values in the design and development of AI systems, considering the potential impacts on individuals, communities, and society as a whole. They advocate for user-centred design principles and actively involve diverse stakeholders in the development process.

2. **Continuous Learning andImprovement**: Ethical leaders foster a culture of continuous learning and improvement, encouraging dialogue, reflection, and critical thinking about the ethical implications of data and AI technologies. They invest in ongoing education and training for themselves and their teams to stay informed about emerging ethical issues and best practices.

3. **Global Citizenship**: Ethical leaders recognize their role as global citizens and consider the broader societal and ethical implications of their actions in a global context. They engage with stakeholders across borders to address shared challenges and promote ethical standards and norms on a global.

# LEADING DIGITAL TRANSFORMATION IN TRADITIONAL INDUSTRIES: CHALLENGES& OPPORTUNITIES

Leading digital transformation in traditional industries involves several steps:

1. **Vision and Strategy**: Develop a clear vision for how digital technologies can transform the industry and articulate a strategy to achieve it. This involves understanding market trends, customer needs, and competitive pressures.

2. **Executive Sponsorship**: Gain buy-in from top leadership to support and drive the digital transformation initiatives. This ensures adequate resources and commitment to make necessary changes.

3. **Cultural Shift:** Foster a culture of innovation, agility, and continuous learning within the organization. This may require breaking down silos, encouraging collaboration, and rewarding experimentation.

4. **Talent Acquisition and Development**: Recruit and develop talent with expertise in digital technologies such as data analytics, artificial intelligence, and cloud computing. Invest in training programs to upskill existing employees.

5. **Customer-Centric Approach:** Prioritize customer experience and use data-driven insights to personalize products and services, improve engagement, and anticipate customer needs.

#### **CONCLUSION:**

In effective leadership in navigating the digital horizon requires a strategic blend of vision, adaptability, and commitment to innovation. By embracing digital transformation, traditional industries can unlock new opportunities, enhance customer experiences, and drive sustainable growth. Leaders must champion a culture of agility, foster collaboration, and invest in both technology and talent to stay ahead in an increasingly digital landscape. By continuously iterating on strategies, measuring outcomes, and prioritizing the needs of both customers and employees, organizations can successfully navigate the complexities of digital transformation and position themselves for long-term success in the digital era.

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# OVERCOMING CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE AND MANAGEMENT V.Vaishnavi, P.Anitha II B.com( Accounting and finance) Loyola College of arts and science Mettala,Namakkal.

#### **ABSTRACT:**

In the dynamic landscape of international digital commerce and management, businesses face a myriad of challenges, from regulatory hurdles to cultural differences and technological complexities. Overcoming these challenges requires a strategic approach that integrates adaptive frameworks, innovative solutions, and cross-cultural understanding. Studying overcoming challenges in international digital commerce andmanagement primarily aims to equip individuals and organizations with the knowledge and skills needed to navigate the complexities of conducting business in the global digital marketplace. This includes understanding the unique challenges such as Growing competition, increased customer expectations, insufficient customer engagement, low conversion rate, insufficient budget for technological changes, shortage of technological resources. By the results of this article we can ultimately enhance our ability to succeed in global business environment. In conclusion, successful navigation of the challenges in international digital commerce a comprehensive approach that encompasses cultural understanding, legal compliance, logistical efficiency, financial security, market adaptation, and technological innovation. By addressing these challenges strategically, businesses can unlock the vast opportunities offered by the global digital marketplace.

Keywords :digital transformation,e- commerce

#### **INDRODUCTION**

The e-commerce industry has grown rapidly in recent year, providing consumer with greateraccess to goods and service at more convenient times and locations. It has played asignificant role in transforming the way business operate and consumer shop. The growth of this industries has created jobs across various sectors such as software development, digital marketing, customer service.

Digital management is the practice of overseeing and optimizing digital asset, resources, and processing within an organization. It encompasses a board range of strategies and practices aimed at effectively utilizing digital technologies to achive organizational objectives.

#### PURPOSE

The purpose of Studying overcoming challenges in international digital commerce and management helps business navigate complex global markets, adapt to evolving technology and develop strategies to mitigate risks, ensuring sustainable growth and competitiveness.

#### MEANING OF DIGITAL COMMERCE AND MANAGEMENT
Digital commerce is the buying and selling of goods and services electronically over digital platforms. It includes online transactions, electronic payments and digital marketing strategies

digital commerce is types of e-commerce and offers a user friendly shopping experience with easy navigation, detailed product information, customer review, and secure payment options.

## EXAMPLE:Amazon ,ebay,shopsifyetc..

Digital management refers to the process of overseeing and organizing digital technologies, data, information systems in a manner that supports the goals and objectives of an organization. This includes activities such as developing and implementing technology strategies, securing digital assets, and using data to inform decision-making.

Example; The digital transformation of Netflix, Using AI technology to enhance customer satisfaction

## OVERCOMING CHALLENGES IN INTERNATIONAL DIGITAL COMMERCE AND MANAGEMENT

## **DIGITAL COMMERCE**

### **1.GROWING COMPETITION:**

Competition in the market is a common challenges that all entrepreneurs face. With so many business competition for customers attention. It can take time to stand out from the crowd. Nevertheless, with a bit of strategic planning and creative thinking. You can make and run your business in successful manner

By knowing what other business are doing regarding pricing, productoffering, and customer service will help you to make correct decision about how to position yourself in the marketplace. **2.INCREASED CUSTOMER EXPECTATIONS:** 

Keeping up with ever increasing customer expectation is energy intense but vital. With so many option available in online, customers expect more from their shopping experiences that ever before. From personalized recommendations and fast shipping to seamless checkout

processes and reliable service, customers now demand a lot from online retailers. And if their needs aren't met, they won't hesitate to go somewhere else.

## 3.INSUFFICIENT CUSTOMER ENGAGEMENT:

Engaging your customers requires a careful balance between providing them with helpful information without hesitation. Keeping yours customers engaged in very important for your business. By this its give a huge rewards to yours business.

## 4.LOW CONVERSION RATES:

Convincing visitors to purchase something from your store is one of the biggest challenges of ecommerce. After all, there are a lot of other stores out there offering similar products and services. But how to capture customers attention and make them feel like they're getting aunique offers. It allows a customers to use credit card, paypaletc..

### **5.SHOPPING CART ABANDONMENT:**

Let's face the reality –**from 59.2% to 79.8%** of shoppers abandon their online carts. Which results in lots revenue for many companies. Whether it is the lack of trust. High shipping fees, or complicated check out processes – cart abandonment stands among the most complicated e-commerce problems.

### 6. COMPLICATED PROCESS OF PRODUCT RETURN AND REFUND:

Product returns are the usual thing in e-commerce so be ready to deal with this e- commerce challenges wisely. Sometimes its difficult to keep track of all returns, refund, and exchanges that customers make on their purchases. But your duties is to provide an excellent shopping experience and keep the business financially viable in the long run.

### 7. POOR CUSTOMERS RETENTION SDTRATEGY:

Any marketer would agree that retaining customers involves creativity and a well-thought plan. Its not enough to just get people to yours stores, you need them to come back and make repeated purchase. But don't worry, achieving a steady stream of returning customers is a crackable e-commerce challenges.

#### 8.SUPPORT CROSS BORDER AND GLOBAL SALE:

Competing in today's market requires a global presence. Concentrating only on local potentials can leave your business vulnerable to the whims of local economies. Diversifying your goals with sales targets for different regions can create a more successful ecosystem.

When planning your sales agenda, you can look into the rising economies that are dominating the eCommerce market. Countries like China and India are getting connected to the internet at breathtaking speed. These new online shoppers can provide large expansion opportunities, you can ramp up your online business across borders and increase its reach and profitability.

### 9. DELIVERING GOOD ONLINE CUSTOMER SERVICE:

Providing prompt and effective customer service in an online setting can be a challenge due to the lack of face-to-face interaction.

Solution: Omnichannel customer service

## **10. PROPER PLACEMENT OF MAJOR ELEMENTS:**

Potential customers will leave an ecommerce store within an instant because of various reasons: such as lack of proper display of prices, shady refund policy, positive reviews of each product on the store, and many others.

## **DIGITAL MANAGEMENT**

## **1.SILOED DECISION MAKING:**

Organization silos negatively impact digital transformation. They pose obstacles in almost every aspects of transformation, from strategy building to implementation. Silos lead to disconnected decision making as each team or department focuses on solving its goals. The problem is compounded by lack of unified vision that propels every team towards a common business goals.

## 2. INSUFFICIENT BUDGET FOR TECHNOLOGY CHANGES:

Businesses that faced significant losses during the pandemic, digital transformation solution may have been set back due to financial constraints. The facts is, that implementing new digital initiative process that requires hefty investment. There's also the misperception that technology expenditure is an operational expense. When business fail to see digital transformation as a strategic investment, they allocate insufficient budgets for it. Ultimately this hinders proper implementation and impedes future ability and adaptability.

## **3. LOOMING DIGITAL SKILL GAP:**

As business implement digitization within their organization, virtually every role will require some form of digital skills. Even non-technical position will necessitate basic tech know - how. This leads to an insufficient breadth of digital skills required for successful transformation.

## 4. SHORTAGE OF TECHNOLOGICAL RESOURCES:

Aside from the talent shortage, Business today are also faced with a shortage in other resources crucial to the adoption of digital initiatives. The global microchip shortage still poses a roadblock to many industries. Then, there are still prevalent issues hampering the supply chain for IT hardware and equipment. The shortage inhibits the timely development of adequate resources to the initiatives.

## 5. TECHNOLOGICAL BARRIERS

## • LEGACY SYSTEM:

6.

Inconsistent and outdated infrastructure across different regions can hinder data flow and collaboration.

## • DATA SECURITY AND PRIVACY:

Complying with varying regulations across borders adds complexity to data management.

## CULTURAL DIFFERENCE

## • COMMUNICATION STYLES:

Varying communication norms and languages can leads to misunderstandings and inefficiencies.

## • CONSUMERS PREFERENCES:

Local tastes and expectation necessitate tailoring digital experience for each market.

## 7. DRIVING ADOPTION OF NEW TOOLS AND PROCESS:

New processes and technologies often present challenges in the form of resistance to change from tenured employees who feel there is nothing wrong with how they currently doing things. For new software implementations, organizations must provide comprehensive on boarding training and continuous employee performance support to help the employees becoming productive and proficient with a tool quickly, allowing them to understand the values of these new processes.

## 8.INSUFFICIENT TALENT AND SKILLS:

Finally, you as a business may struggle with insufficient talent and skills to support digital transformation efforts. And hiring employees with the necessary expertise and skills can be

challenging. You may need to invest in training and development programs to bridge anygaps.For instance, a company may need to hire software developers or data analysts but may struggle to find candidates with the necessary qualifications and experience.

#### 9.LACK OF VISION:

A common reason digital transformation fails is due to a lack of vision, which along with planning is the foundation for digital success. Without a clear understanding of what their digital transformation should achieve, it's easy for companies to get lost in the weeds. IT leaders must work with business leadership to help establish a clear understanding of digital transformation goals and a practical roadmap for achieving them.

### **10.LACK OF CROSS- FUNCTIONAL COLLABORATION:**

Digital transformation requires strong leadership and support from all business functions. To succeed, company executives must appoint a leader who is in charge of the company's transformation efforts and who can champion the initiative, drive all functional buy-ins, and provide guidance and support. A lack of collaboration among these stakeholders can lead to failure. **CONCLUSION** 

Everyday eCommerce and management is becoming more complex. It is easy to get lost in all the minutiae. But if you keep developing a store with flexible technology for transactions, security, and analytics, it will keep you competitive. With an efficient workforce, marketing practice, and delivery systems, you can scale your store easily. It will keep you prepared for future challenges.By this article we have learned what are the challenges faced in digital commerce and management and how to overcome it.

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#### NAVIGATING THE FUTURE OF ONLINE RETAIL AND EMERGING TRENDS

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## ABSTRACT

The 2024 retail landscape is undergoing a profound transformation fuelled by technology, shifting consumer behaviours, and a renewed focus on sustainability. Here, we will explore the top 7 trends shaping the retail sector currently, emphasizing the significant impact of Generative AI, strategies for handling decreased consumer expenditure and limited supply availability, enhancing sustainability at scale, and the critical need for improved planning and optimization of supply chains. Within the expensive domain of digital commerce, where Virtual storefronts are readily accessible with a mere click, the environment is perpetually evolving. The evolution of e-commerce, from its modest origins to the expansive marketplace it has become today, has been truly remarkable. Welcome to "E-Commerce 2.0: Navigating the Future with Success Strategies," a comprehensive guide that explores the evolving landscape of online shopping. This resource aims to provide you with Valuable insights into the emerging trends and strategies that will significantly influence the way we engage in online retail. Today, Businessman's sale products through online and customers buy the products through online websites.

## Navigating the Future E-Commerce Technology Trends Shaping Tomorrow's Shopping Experience:

In the dynamic realm of online retail, staying ahead of the curve is the key. As technology continues to evolve, so does the landscape of e-commerce. This blog explores the cutting-edge trends shaping the future of online shopping and revolutionizing the way consumers interact with brands.

### 1. Enhanced Personalization and Customer experience

AI and machine learning algorithms have revolutionized this space as one of the top e-commerce technology trends in 2024, particularly in terms of personalization. Amazon, a frontrunner in this space, utilizes advanced recommendation engines powered by AI. These algorithms analyse user behaviour, purchase history, and preferences to offer highly personalized product suggestions, creating a customized shopping experience for each user

Numerous case studies demonstrate the success of personalized shopping experiences in ecommerce. Companies like Netflix and Spotify have mastered the art of content recommendation, leveraging machine learning to understand user preferences and curate personalized suggestions. These examples showcase the potential for e-commerce businesses to enhance customer engagement and satisfaction through intelligent personalization strategies. **2. Voice commerce continues to resonate** Approximately 40% of US internet users use a voice assistant every month. E-commerce brands are compelled to prioritize the optimization of their websites for voice commerce to remain at the forefront of industry trends.

Voice technology is a prime example of an impactful e-commerce technology trend in 2024.Google played a pivotal role in popularizing it with their "speech-to-text" feature integrated into search functionality. Voice-activated platforms such as Google Assistant, Siri, Alexa, etc. Consider a voice-commerce shopping scenario, where the buyer audibly requests items to be added to their cart, places the order seamlessly through an integrated system, and receives confirmation through both voice and visual outputs.

#### 3. Generative AI in product management

Generative AI is a revolutionizing product management by enhancing efficiency in prototype development and ensuring products align closely with customer preferences. Beyond these benefits, it assists product managers in identifying emerging product trends by analysing diverse sources, including competitive product documentation, industry whitepapers and customer feedback.

Additionally, generative AI proves invaluable in staying ahead of market needs, utilizing nontraditional data sources such as social media posts, search engine requests, blogs, and online articles. To maximize the effectiveness of generative AI tools, it's crucial to ensure they are trained on diverse datasets and monitored for biases.

Implementing policies guided by diverse leaders and subject-matter experts helps regulate the data input into generative AI applications. For organizations facing the data limitations, investing the synthetic data becomes a strategic solution to address in training the generative AI models.

### 1. Generative AI in customer care and inventory management

Generative AI emerges as a powerful cognitive assistant in customer care. By this it offers contextual guidance derived from conversation history, sentiment analysis, and call centre transcripts. This technology enhances the customer experience by providing the tailored support, ultimately fostering loyalty and conferring a competitive edge. Beyond customer care, generative AI proves instrumental in optimizing inventory support.

By leveraging the historical sales data and external factors, Generative AI aids in more accurate demand predictions. This helps mitigate risks of stockouts and excess inventory. Automation of inventory replenishment and allocation further streamlines retail operations, contributing to enhanced overall performance. In both customer care and inventory management, generative AI emerges as a transformative force, elevating efficiency and delivering personalized solutions.

### 2. Advanced applications in AR and VR

Pioneering brands like IKEA leverage AR for virtual furniture placement, while shopify integrates VR for immersive shopping experiences. Such innovations redefine consumer interactions, setting the tone for the industry.

The rise of Augmented Reality (AR) and Virtual Reality (VR) technologies is reshaping the ecommerce landscape. Brands like IKEA have embraced AR for virtual furniture Placement. This allows customers to visualize products in their own spaces before making a purchase. Similarly, e-commerce platforms like shopify are integrating VR to provide immersive shopping experiences. These offer customers a virtual storefront to explore and interact with products.

Sephora, a renowned beauty retailer, utilizes AR for virtual makeup try-ons. In this manner they enable customers to see how different products will look on their faces. This not only enhances the online shopping experience but also mitigates uncertainties associated with purchasing beauty products online. These examples underscore the transformative potential of AR and VR in redefining consumer interactions and expectations in the e-commerce space.

### CONCLUSION

In conclusion, the transformative trends outlined for 2024 showcase the evolving nature of ecommerce and technology trends in this space. Embracing innovation, as demonstrated byindustry leaders, is paramount for businesses seeking to navigate the dynamic future of e- commerce successfully. To stay competitive by continually monitoring e-commerce industry developments and adopting agile strategies to capitalize on emerging opportunities.

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### CYBER SECURITY IN FINANCIAL TECHNOLOGY

## M.Tharaneesshwaran, P.Naveen, S.Poovarasan I B.COM A&F Loyola college, Mettala

## ABSTRACT

Cybercrime is more profitable than other crimes, so banks must continue to invest many resources in building defenses against it. If corporate customers are aware that a bank is committed to preventing fraud and cyber-attacks, trust in the bank will grow and a good relationship will be established. To combat cybercrime, banks must invest heavily in systems andpeople. As cyberattacks are constantly changing, financial institutions need to permanently monitor protection against cybercrimes, ensuring that measures to keep up with cyber-attacks are becoming increasingly sophisticated. Therefore, this research is conducted to study current cybersecurity schemes and concepts through reviews, articles, interviews and case studies. The motive is to create awareness among users about cyber security and its rules. It has tried to evaluate,how many people are actually using cyber security rules while doing online transactions. It also sought to cover aspects such as the use of financial and non-financial transactions between users and the initiative taken

Key words:Cybercrime,cyber-attacks, financial institutions, cyber security.

#### I. INTRODUCTION

Network safety incorporates advancements, and controls intended to ensure frameworks, organizations and information from digital assaults. PC security is the act of ensuring frameworks, organizations and projects from advanced assaults. The usage of successful IT security is very challenging as attackers are using innovative measures due to multiple devices.

An effective approach to improve information technology has come in different forms like protection on computer, different networks and programs and data. An encouraging environment along with effective defense against cyber-attack must be set up so that people can use it hasslefree. A unified threat management system can automate integrations into selected Cisco Security products and accelerate key security operational functions: detection, investigation and repair. Procedures is chiefly challenging today since there are more use of electronic devices than people and attackers are have developed more innovative techniques to intervene.

An operative methodology to information security has altered levels of protection dispersed on computers, networks, programs or data that one propose to defend. In an organization, people, processes and technology must accompaniment each other to generate an operative defense against cyber-attacks.

### II. OBJECTIVES

- $\blacktriangleright$  To Study the current cyber Security Schemes.
- To understand the usage of financial and non-financial transaction.
- $\blacktriangleright$  To learn the initiative taken by government of Indian to control cyber-attacks

## **REVIEW OF LITERATURE**

- Manisha M. More et al., (2015) The group of authors in this article states that the evolution of electronic banking technology makes the operation very simple, banking transactions become very fast with a click. Online and mobile banking makes daily banking fast and convenient. In India, cyber-crimes are increasing significantly.
- Nikhil Khandare and Dr. B. B. Meshram (2013) The author believes that, different measures are taken to secure the online transactions that take place. Online transactions have become an ongoing continuous activity between the merchant and the buyer. Hence
- it's a compulsion to take necessary steps to take care of the cyber security. Use of finger print in mobile during transactions should never save in the mobile for later use. Otherwise there are chances of theft.
- Claudia Biancotti (2017) The annual surveys conducted by the Bank of Italy at Italian industrial and service companies. Taking into consideration the fact that some
- interviewees may not be aware of being attacked and others may be reluctant to disclose what is perceived as confidential information, the percentage of the attacked company rises to 45.2 percent (56 percent of total employment).

## **CYBER SECURITY SCHEME**

- 1. ENCRYPTION SCHEMES : encryption algorithms such as AES, RSA, and Elliptic curve cryptography (ECC), along with their strengths and weaknesses.
- 2. AUTHENTICATION MECHANISMS: Explore authentication factor authentication (MFA), highlighting their effectiveness and vainer abilities.
- 3. INTURSION DETECTION SYSTEMS(IDS):Cover different types of IDS such as signaturebased, anomaly-based, and hybrid approaches, and evaluate their capabilities in detecting and preventing cyber threats.
- 4. FIREWALL TECHNOLOGIES : Examine stateful and stateless firewalss, application layer firewalls, application layer firewalls, and next-generation firewalls, emphasizing their role in network security.
- 5. SECURE COMMUNICATION PROTOCOLS: Review protocols like SSL/TLS,SSH,AND IPSec, focusing on their encryption mechanisms and protocols for secure data transmission.
- 6. SECURITY INFOEMATION AND EVEN MANAGEMENT(SIEM):Discuss SIEM solutions for real-time monitoring, event correlation, and threat intelligence integration.

## THE INITIATIVE TAKEN BY GOVERNMENT OF INDIA TO CONTROL-ATTACKS

- National cyber security policy: India has a national cyber security policy in place to protectants against cyber threats and strengthen cyber the security infrastructure.
- Computer emergency response team (CERT-in):CERT-In is India's nodal agency forresponding to cyber security indents.it provides alerts, advisories, and incident response services to safeguard cyberspace.
- Cyber coordination centre (CYCORD): The government has established cycord to enhance coordination among various agencies and stakeholders involved in cyber security efforts.
- Capacity Building: training programs, workshops, and awareness campaigns to enhance the cyber security skills of individuals and organizations
- Cyber swachhtaKendra:Thisinitive aims to create a secure cyber ecosystem in india by providing tools and clean malware infections on computers and mobile device
  Findings
- financial and non-financial transactions equally important in conducting online transactions were more numerous than those who preferred financial transactions over non-financial and nonfinancial transactions over financial transactions.
- challenges in financial transactions like digital payment failure, accepting multicurrency payments, choosing a payment gateway, international online payment, data security and online fraud and chargebacks. However, respondents who faced the challenges of data security were maximum.
- The use of financial transactions such as NEFT / RTGS / IMPS, the transfer of funds from one account to another.
- ✤ The use of financial transactions such as cash deposits, cash withdrawals and remittances.
- The use of non-financial transactions of updating customer details like mobile no., address, etc., account
- The challenges posed by online fraud and chargebacks, data security, International online payment, choosing a payment gateway, accepting multicurrency payments and digital payment Suggestions:
- Cyber security needs to be rooted in the way people think about new business opportunities and capabilities. It can't be just something that the technicians will fix.
- Criminals attack financial companies because that's where the money is located. Cybercrime did not change this, but it did increase speed and consequences. Companies must balance openness with security. As the attacks increase and the regulators pay more attention, the pressure to act increases. By recognizing that hackers will find vulnerabilities, leaders can improve the way they design and provide services, manage risks and empower their teams.

Social engineering has long been a preferred method for scammers and criminals continue to adapt. Users should look forward for phishing to migrate more aggressively to social media to entice gullible users to download and run malware.

#### **CONCLUSION:**

Our society is becoming a cyber-physical society that is based on information and communication technology (ICT) in all aspects of our daily life, making the need for IT security fundamental. The intangible nature of cyber security, socio-technical dependencies, the ambiguous impact and controversial nature of the fight against cyber security make it a stimulating area for users. Cyber security can be framed in different ways, with different effects on people. Cyber security is a complex and multifaceted area that has no clear heroes or criminals. The inability to frame cyber security has made it impossible to take appropriate actions and develop adequate policies. However, cyber wars are already underway and citizens and governments need to be better prepared. Cyber security threats will be more difficult todetect in the future, making it more difficult to protect sensitive data and systems. The security of a company will require the support of each employee. With an ongoing security awareness program that is customized for maximum effectiveness, an organization can create a cyber- security culture supported by all personnel. While many users use financial and non-financial transactions online, they are unaware of cyber security rules. They face many risks and challenges while conducting financial or nonfinancial transactions online. They did not know that online financial and non-financial transactions have various security measures.

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## A STUDY ON CONSUMER BEHAVIOUR TOWARDS FMCG DURABLE GOODS WITH SPECIAL REFERENCE TO SALEM CITY

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## **ABSTRACT:**

The consumer buying preferences are rapidly changing and moving towards high-end technology products with acculturation. The Fast Moving Consumer Durable Goods are electronic goods. The study used primary date of consumer to find out the brand awareness of the product that can helpful in finding preference of brand and satisfaction of the product. The various tools like simple percentage analysis, Ranking analysis and Likert Scale analysis were used in the study. The suggestion FMCG is adopting user friendly technology that can make consumer to buy the product. Finally FMCG Durable providing well in terms of goods and services and it is satisfied **INTRODUCTION** 

India is the biggest consumer market in the world. The Indian consumer profile has beendeveloped and changed in terms of education, income, occupation, and reference group and media habits. The consumer buying preferences are rapidly changing and moving towards high- end technology products with acculturation. The consumer is brand- conscious, but not necessarily brand-loyal, and might even pick up a reliable private label if it offers good price andquality values. Durable and Non-durable items which include certain electronic goods likemobile phones, televisions, refrigerators, washingmachines, and digital camera. These FMCG's electronic items are targeted towards frequent consumption of consumers from the high end to end

## STATEMENT OF THE PROBLEM

Fast Moving Consumer Goods (FMCG) are products that are sold speedily at comparatively low price. The profit from these products is comparatively very small and the selling is in large quantities, so the cumulative profit on such products can be large. The productions of Fast Moving Consumer Goods Companies have massive competition and they are forced to find new ways of making money. At present the consumers are more dynamic, their taste, preferences are also changing. The consumer has certain expectation from branded items in terms of its quality, price and packaging. The consumers are finding various problems in selecting their expectation to know the consumer behavior in the purchase decision in the FMCGs products in the field of consumer behavior of FMCG in the salem city.

### **OBJECTIVE OF THE STUDY**

- To know the brand attentiveness of FMCG durable goods
- To identify the factors influencing for buying decisions of FMCG electronics goods

#### **REVIEW OF LITERATURE**

SIMPLE PERCENTAGE ANALYSIS

**Dr. Vibhuti, Dr. Ajay kumar Tyagi(2019), '**have studied a case on consumer behaviourtowards all FMCG goods items, in this category include all the consumables (other than groceries: pulses). The paper reveals that consumer behaviour is largely effected by place, product, price, promotion, physiological and psychological factors. The researchers conclude that almost every FMCG company has been riding the waves of growth in the last 20 years and it won't be any different in the future.**TABLE 1** 

S.No	Categories	No.of Respondents	Percentage (%)
1	Online Shopping	8	16
2	Retailers	12	24
3	Showroom	21	42
4	Agents	9	18
		50	100

## TABLE SHOWING WHO INFLUENCED TO TAKE UP FMCG PRODUCTS

Table show that 16% of the respondents are influenced by Online shopping, 24% of the respondents are influenced by Retailers,42% of the respondents are influenced by Showroom,18% of the respondents are influenced by Agents.

## TABLE 2

PRODUCTS	YES		NO	
	Ν	%	Ν	%
Mobile Phones	147	98	3	2
Television	147	98	3	2
Refrigerator	114	76	36	24
Washing Machines	102	68	48	32
Air conditioner	42	28	108	72
Mixie	147	98	3	2
Grinder	144	96	6	4
Microwave Oven	30	20	120	80
Laptop/PC	123	82	27	18
Water purifier	78	52	72	48

### **PRODUCTS DEMENTED BY THE RESPONDENTS**

Table 2 indicates that 98% of the respondents own Mobile Phones, TV and Mixie, 96% of the respondents own Grinder, 82% of the respondents own Laptop/PC, 76% of the respondents own Refrigerator, 68% of the respondents own Washing Machines, 52% of the respondents own

Water purifier, 28% of the respondents own Air conditioner and the remaining 20% of the respondents own Microwave oven.

## MEDIA OF ADVERTISEMENT

Advertising aims to promote the sales of a product or service and also to notify the masses about its structures. It is a current means of communicating the value of a product or service with people at large. It uses different types of appeals to connect to consumers spread across theglobe. The advertising industry provides a platform for the business entities to spread awareness about the products and services offered by them.

### SUGGESTIONS

- Adopting user friendly technology in FMCG Durable goods.
- Provide brochure about FMCG Durable goods to the customer.
- Consider customer expectation for the sales.
- Provide quality services to customers in FMCG industry.
- Improve brand image with FMCG industry products.
- Improve the efficiency of customer care service.
- Provide free service and other facilities.
- Consultation service for FMCG Durable goods buyer in the market

## CONCLUSION

Consumer behaviour is an important aspect of each and every business organization. The researcher has taken an effort to study to consumer behaviour towards FMCG durable goods in salem district. Consumers are able to realise the need of the product, have extensive awareness of the product, and have suitable information sources of the product. They are meticulous about purchasing from outlets of the FMCG durable goods. The present study reveals that, the consumers of FMCG goods mostly choose products by the quality and the brand loyalty of the FMCG products and services. They derive characteristics through their experience of the product and make careful study on the negative effect and quality of product. They also approach the stockists of FMCG and make suitable purchase decision. They are able to collect maximum information of the product through Television advertisements. In the present study, various factors of consumer behaviour provide greater satisfaction towards FMCG durable goods. Hence, the present study concludes that the FMCG durable goods and services have beenproviding a lot of satisfaction to the consumers in salem District

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## EXPLORING THE USE OF EMOTION RECOGNITION TECHNOLOGY AND ARTIFICIAL INTELLIGENCE TO OPTIMIZE AD CREATIVES FOR EMOTIONAL RESONANCE AND EFFECTIVENESS

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#### Abstract:

The paper "Exploring the Use of Emotion Recognition Technology and Artificial Intelligence to Optimize Ad Creatives for Emotional Resonance and Effectiveness" investigates the transformative potential of integrating Emotion Recognition Technology (ERT) and Artificial Intelligence (AI) in advertising. The study reveals that these technologies can enhance ad effectiveness by enabling a more personalized and emotionally resonant approach to ad creation. ERT, which uses physiological indicators to identify human emotions, combined with AI's ability to learn and make predictions, allows for the analysis and prediction of audience emotional responses to different ad creatives. This innovative approach promises improved engagement and conversion rates, offering invaluable insights for marketers and advertisers. The paper underscores the potential of ERT and AI to revolutionize the advertising landscape by creating ads that not only capture attention but also emotionally resonate with the target audience.

#### Introduction:

In the rapidly evolving world of advertising, the quest for creating ads that resonate emotionally with audiences has become paramount. The paper titled, "Exploring the Use of Emotion Recognition Technology and Artificial Intelligence to Optimize Ad Creatives for Emotional Resonance and Effectiveness" delves into this fascinating intersection of technology and marketing.

The study explores how Emotion Recognition Technology (ERT) and Artificial Intelligence (AI) can be leveraged to optimize ad creatives. ERT, a technology that identifies human emotion based on physiological indicators, and AI, with its ability to learn and adapt, are combined to create a powerful tool for advertisers.

The objective is to enhance the emotional resonance of advertisements, thereby increasing their effectiveness. By understanding and predicting emotional responses to ad creatives, marketers can tailor their campaigns to evoke specific emotions, leading to improved engagement and conversion rates. This paper provides an in-depth analysis of this innovative approach, offering valuable insights for marketers, advertisers, and AI enthusiasts alike.

## **Objectives:**

**1.** To analyze narrative structures and storytelling techniques in ad creatives to understanding how emotion arcs influence viewer engagement and brand affinity compelling narratives.

**2.** To conduct longitude studies to assess the long-term emotional impact of ad creatives optimized using emotion recognition technology and AI, measuring brand loyalty, purchase intent, and share ability overtime.

**3.** To address ethical consideration in the use of emotion recognition technology and AI for ad optimization, ensuring transparency, fairness and user consent in data collection and emotional profiling.

## **Review of Literature:**

- 1. Emotion Recognition Technology (ERT): This technology identifies human emotions based on physiological indicators1. It's a rapidly evolving field with numerous studies exploring its potential applications, including its use in advertising.
- 2. Artificial Intelligence (AI) in Advertising: AI's ability to learn and adapt has been leveraged in various aspects of advertising. From optimizing ad delivery to personalizing ad content, AI has transformed the way advertisers reach their audience1.
- 3. **Emotional Resonance in Advertising**: The emotional impact of an advertisement on its audience is a critical factor in its effectiveness. <u>Studies have shown that ads that evoke strong emotions tend</u> to be more memorable and impactful1.
- 4. **Optimization of Ad Creatives**: The process of making an ad creative more effective by modifying various elements like the headline, body text, images, etc., is a well-researched area. <u>With the advent of AI and ERT, this process can be further enhanced1</u>.
- 5. Effectiveness of Ads: This area of research evaluates how well an advertisement achieves its intended objectives. <u>Metrics like brand awareness, ad recall, sales, and conversion rates are commonly used1</u>.

## **Research Design:**

Tools used: Percentile used for analyzing data.

Sample size: For this study, 117 respondents were selected using simple random sampling.

Sample procedure: The required information was collected via questionnaire.

Analysis and Interpretation:

S.NO	Particulars	Frequency	Percentage
	Gender		
1	Male	70	60%
2	Female	47	40%
	Geopraphy		
1	Rural	59	50%
2	Semi-Urban	23	20%
3	Urban	35	30%
	How often do you encounter advertisements in your daily life?		
1	Frequently	47	40%
2	Occasionally	29	25%
3	Rarely	29	25%
4	Never	12	10%

S.NO	Particulars	Frequency	Percentage
	What type of advertising platform or channels do you typically engage with?		
1	Television	17	14%
2	Social Media	48	41%
3	Radio	35	30%
4	Webstes	17	15%
	How does the narrative structure of an advertisement influence your		

	engagement and		
	interest in the		
	content?		
	Exited	35	30%
	Entertained	30	25%
	Annoyed	29	25%
	Bored	23	20%
	How do you think storytelling techniques contribute to building brand affinity and consumer trust in advertisement?		
1	By addressing consumer needs	30	25%
2	By conveying brand's value	23	20%
3	By creating emotional connection	41	35%
4	By providing context and background information	23	20%
	Do you believe that emotions play a role in influencing your response to advertisement?		
	Yes	53	45%
	No	6	5%
	Maybe	58	50%

S.NO	Particulars	Frequency	Percentage
	How 2 are you to consider purchasing the product or service advertised after viewing the advertisement?		
	Very likely	35	30%
	Likely	11	9%
	Neutral	41	35%
	Prefer not to say	30	26
	or considered purchasing the advertised product or service since viewing the advertisement?		
	Yes	64	55%
	No	12	10%
	Maybe How likely are you to engage with the advertisement by liking, commenting, or sharing it on social media platform?	41	35%
	Frequently	35	30%
	Occasionlly	23	20%
	Rarely	52	44%
	Never	7	6%
	What is your		

understanding of how artificial intelligence is used to analyze and interpret emotions in advertising content?		
By analyzing consumer purchase history	18	15%
By analyzing social media activity and interactions-9	53	45%
By measuring physiological responses	23	20%
By tracking user interactions	23	20%

S.NO	Particulars	Frequency	Percentage	
	What level of transparency would you except from companies regarding the use of AI for emotional profiling in advertising?			
	Full transparency	53	45%	
	Limited transparency	30	27%	
	Partial transparency	11	9%	
	Prefer not to say	23	19%	
	Do you think			
	consumers should			
	actively agree to their			
	emotional data being			

gathered and assessed for advertising objectives?		
Yes	58	50%
No	24	20%
Maybe	35	30%

### **Interpretation:**

## According to the study, the interpretation was resulted by age category, the respondents were from various age group. The above percentile analysis shows;

**18-30 Age Group**: 20% of respondents are in this age group. Most of them are males from rural areas who frequently consume media through television. They feel excited by brands addressing their needs and are very likely to share personal information. They appreciate full transparency from brands.

**31-40** Age Group: 16% of respondents are females from semi-urban areas. They occasionally consume media through social media and feel entertained by brands conveying their value. They are likely to share personal information occasionally and prefer limited transparency from brands.

**41-50 Age Group**: Respondents from urban areas rarely consume media through radio and feel annoyed by brands creating an emotional connection. They are neutral about sharing personal information and prefer partial transparency from brands.

**Above 51 Age Group**: Respondents never consume media through websites and feel bored by brands providing context and background information. They prefer not to say whether they share personal information and prefer not to comment on the level of transparency from brands.

## **Conclusion:**

In conclusion, the paper "Exploring the Use of Emotion Recognition Technology and Artificial Intelligence to Optimize Ad Creatives for Emotional Resonance and Effectiveness" presents a compelling exploration of how the intersection of ERT and AI can revolutionize advertising. By leveraging these technologies, advertisers can optimize their creatives to resonate emotionally with their audience, thereby enhancing the effectiveness of their campaigns. This innovative approach not only promises improved engagement and conversion rates but also opens up new avenues for personalized and emotionally intelligent advertising. The insights offered by this paper are invaluable for marketers, advertisers, and anyone interested in the transformative potential of AI in the realm of advertising. Emotion Recognition Technology (ERT) and Artificial Intelligence (AI) are transforming the advertising landscape by enabling a more personalized and emotionally resonant approach to ad creation.

ERT uses physiological indicators to identify human emotions. This can include facial expressions, body language, tone of voice, and even physiological responses like heart rate or skin conductivity. By analyzing these indicators, ERT can provide insights into a person's emotional state at any given moment.AI, on the other hand, brings its ability to learn, adapt, and make predictions based on large amounts of data. When combined with ERT, AI can analyze the emotional responses of audiences to different ad creatives and learn which elements evoke specific emotions. Over time, the AI can use this knowledge to predict how future ad creatives might be received by the audience.By integrating ERT and AI, advertisers can create ads that notonly capture attention but also resonate emotionally with their target audience. This can lead to improved engagement, as ads that evoke positive emotions are more likely to be remembered and acted upon. Furthermore, this approach allows for a more personalized advertising experience, as ads can be tailored to evoke specific emotional responses in different segments of the audience.

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## EXPLORING THE IDEAS BEHIND IN AFFILIATE MARKETING OVER AI -DRIVEN VOICE-OVERS: AN EMPIRICAL STUDY

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#### Abstract:

In this context, this study investigates the conceptual ideas behind in affiliate marketing over AIdriven voice-overs. The use of artificial intelligence (AI) in affiliate marketing, particularly through AI-powered voice overs, is transforming digital advertising. This change redefines business-consumer connections and improves marketing strategies. AI in voice technology optimizes user interactions and efficiently delivers targeted messages, resulting in more engaging and personalized experiences. To be competitive, marketers need to keep up with the latest developments in digital technology. The combination of AI and affiliate marketing portends well for digital advertising, giving companies previously unheard-of chances to reach larger audiences and achieve their marketing objectives. AI playing a bigger and bigger part in changing conventional marketing tactics, which will result in more creative and successful methods for digital advertising.

#### **Introduction:**

In recent years, the convergence of affiliate marketing and artificial intelligence (AI) has sparked a revolution in digital advertising. This synergy has given rise to innovative strategies, particularly in leveraging AI-driven voice overs to enhance the effectiveness of affiliate marketing campaigns. As technology continues to evolve, understanding the conceptual ideas behind this fusion becomes imperative for marketers seeking to stay ahead in the competitive landscape. Affiliate marketing, a performance-based advertising model, has long been recognized for its ability to drive sales and generate revenue for businesses. By partnering with affiliates who promote products or services through various channels, companies can reach broader audiences and achieve targeted marketing objectives. However, the traditional methods of affiliate marketing are undergoing transformation with the integration of AI technologies.

## **Objectives:**

**1.** To explore the preferences and behaviour of target audience in relation to AI-driven voiceovers in affiliate marketing, aiming to uncover insights that can inform personalized and engaging content strategies.

**2.** To analyze consumer perceptions and acceptance of AI-driven voice-overs compared to human-generated ones in affiliate marketing.

**3.** To analyze how consumers perceive and respond to affiliate marketing content delivered through AI-driven voice-overs, with a focus on understanding the psychological factors influencing their engagement and conversion.

**4.** To investigate the potential of AI-driven voice-overs to facilitates voice commerce and traditional capabilities within affiliate marketing, enabling seamless purchase transactions, order placement, and payment processing through voice commands.

## **Review of literature:**

- Severalindustrial revolutions have had happened during humankind's historical timeline. The first industrial revolution happened in Europe, where there was extensive use of steam-powered machines, this welcomed an era of steam locomotives, mass production, and efficiency in production lines, the second industrial revolution was brought about using electricity, here electricity-powered machineries further improved industrial efficiency and of course the lives of people. The third industrial evolution is kickstarted by computers and the birth of the internet; through networks and connectivity, it brought people more closer and information more accessible in our fingertips (Duggal et. al., 2021).
- (Birkstedt et al., 2023). This approach not only aligns with principles of responsible governance but also contributes to the creation of a more ethical, inclusive, and sustainable AI landscape.
- Artificial intelligence (AI) has emerged as a powerful tool for optimizing network performance and efficiency (Kibria, et al., 2018; Wang, et al., 2015).

## **Research design:**

Tools used: Chi-square test analysis for analyzing the Data.

Sample Size: For this study, 128 respondents were selected using simple random sampling.

Sampling procedure: The required information was collected via questionnaire.

## Analysis and Interpretation:

#### Tabel 1.1

## Crosstab

#### Count

		1	2	3	4	Total
VAR 01	1	25	2	2	12	41
	2	9	6	5	19	39
	3	12	9	4	6	31
	4	7	0	6	4	17
Total		53	17	17	41	128

## **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	31.188 <sup>a</sup>	9	.000
Likelihood Ratio	31.365	9	.000
Linear-by-Linear Association	.302	1	.582
N of Valid Cases	128		

a. 4 cells (25.0%) have expected count less than 5. The minimum expected count is 2.26.

## Interpretation:

According to the study, the above Tabulation 1.1 shows;

**Pearson Chi-Square**: The Pearson Chi-Square value is 31.188 with 9 degrees of freedom. The p-value (Asymptotic Significance) is .000, which is less than the common alpha level of 0.05. This indicates that there is a statistically significant difference between the observed and expected frequencies in the categories.

**Likelihood Ratio**: The Likelihood Ratio Chi-Square value is 31.365 with 9 degrees of freedom. The p-value is .000, which is less than 0.05. This also indicates a statistically significant difference between the observed and expected frequencies.

**Linear-by-Linear Association**: The Linear-by-Linear Association value is .302 with 1 degree of freedom. The p-value is .582, which is greater than 0.05. This suggests that there is no significant linear trend between the categories.

N of Valid Cases: The total number of valid cases in the data set is 128.

**Cell Counts**: 4 cells (25.0%) have an expected count less than 5. The minimum expected count is 2.26. This is important to note because the Chi-Square test assumes that all cells have expected counts of 5 or more. If this assumption is violated, the results of the test may not be reliable.

#### Tabel 1.2

#### Crosstab

Count

		1	2	3	4	Total
VAR03	1	17	18	9	5	49
	2	10	б	8	7	31
	3	6	б	7	4	23
	4	9	4	4	8	25
Total		42	34	28	24	128

## **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.191 <sup>a</sup>	9	.335
Likelihood Ratio	10.162	9	.338
Linear-by-Linear Association	2.473	1	.116
N of Valid Cases	128		

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is 4.31.

#### **Interpretation:**

According to the study, the above Tabulation 1.2 shows;

**Pearson Chi-Square**: The Pearson Chi-Square value is 10.191 with 9 degrees of freedom. The p-value (Asymptotic Significance) is .335, which is greater than the common alpha level of 0.05. This indicates that there is no statistically significant difference between the observed and expected frequencies in the categories.

**Likelihood Ratio**: The Likelihood Ratio Chi-Square value is 10.162 with 9 degrees of freedom. The p-value is .338, which is greater than 0.05. This also indicates no statistically significant difference between the observed and expected frequencies.

**Linear-by-Linear Association**: The Linear-by-Linear Association value is 2.473 with 1 degree of freedom. The p-value is .116, which is greater than 0.05. This suggests that there is no significant linear trend between the categories.

N of Valid Cases: The total number of valid cases in the data set is 128.

**Cell Counts**: 2 cells (12.5%) have an expected count less than 5. The minimum expected count is 4.31. This is important to note because the Chi-Square test assumes that all cells have expected counts of 5 or more. If this assumption is violated, the results of the test may not be reliable.

#### Tabel 1.3

#### Crosstab

Count

		1	2	3	4	Total
VAR05	1	10	17	9	10	46
	2	9	19	10	8	46
	3	5	15	5	3	28
	4	2	4	0	2	8
Total		26	55	24	23	128

## **Chi-Square Tests**

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.630 <sup>a</sup>	9	.865
Likelihood Ratio	6.170	9	.723
Linear-by-Linear Association	.653	1	.419
N of Valid Cases	128		

a. 4 cells (25.0%) have expected count less than 5. The minimum expected count is 1.44.

### Interpretation:

According to the study, the above Tabulation 1.3 shows;

**Pearson Chi-Square**: The Pearson Chi-Square value is 4.630 with 9 degrees of freedom. The p-value (Asymptotic Significance) is .865, which is greater than the common alpha level of 0.05. This indicates that there is no statistically significant difference between the observed and expected frequencies in the categories.

**Likelihood Ratio**: The Likelihood Ratio Chi-Square value is 6.170 with 9 degrees of freedom. The p-value is .723, which is greater than 0.05. This also indicates no statistically significant difference between the observed and expected frequencies.

**Linear-by-Linear Association**: The Linear-by-Linear Association value is .653 with 1 degree of freedom. The p-value is .419, which is greater than 0.05. This suggests that there is no significant linear trend between the categories.

N of Valid Cases: The total number of valid cases in the data set is 128.

**Cell Counts**: 4 cells (25.0%) have an expected count less than 5. The minimum expected count is 1.44. This is important to note because the Chi-Square test assumes that all cells have expected counts of 5 or more. If this assumption is violated, the results of the test may not be reliable.

#### **Conclusion:**

In conclusion, the integration of artificial intelligence in affiliate marketing, particularly through AI-driven voice overs, has revolutionized the landscape of digital advertising. This evolution has not only enhanced the effectiveness of marketing campaigns but also transformed the way businesses interact with consumers. The use of AI in voice technology has facilitated more engaging and personalized experiences, thereby optimizing user interactions and delivering targeted messages more effectively. As the digital realm continues to evolve, staying abreast of these advancements is crucial for marketers to remain competitive. The fusion of affiliate marketing and AI signifies a promising future for digital advertising, offering unprecedented opportunities for businesses to reach wider audiences and achieve their marketing objectives. As we move forward, the role of AI in transforming traditional marketing methods will undoubtedly become more significant, paving the way for more innovative and effective strategies in the world of digital advertising.

The convergence of AI and affiliate marketing is transforming the digital advertising landscape, offering innovative solutions to traditional challenges. As this trend continues, businesses that adapt and leverage these technologies will gain a competitive edge in the market. The future of digital advertising lies in the synergy of AI and affiliate marketing, and it's an exciting prospect for marketers worldwide.

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## EXPLORE THE PSYCHOLOGICAL DETERMINANTS THAT INFLUENCE THE MOTIVATION LEVELS OF INDIVIDUALS PARTICIPATING IN ONLINE LANGUAGE COURSES.

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## **ABSTRACT:**

"Our study contradicts the common wisdom that prior enrolment and social contacts are important motivators by examining the psychological characteristics influencing motivation among persons enrolled in online language courses. Remarkably, information from Tables 1.1 and 1.2 does not show any discernible relationship between learners' willingness to register in or achieve language learning objectives and their prior course enrolments, contacts with peers, or teachers. In both instances, the acceptance of the null hypotheses is supported by the chi-squarevaluesof0.000and0.001, respectively.

These results imply that other psychological variables influence learners' motivation more significantly. Our research intends to: (1) investigate the relationship between learners' self-efficacy beliefs and course participation; and (2) examine the impact that clear, difficult, and achievable goals have on motivation; and (3) look at how social support net work such as those made up of peers, teachers, and online communities affectmotivation.

More investigation into alternative motivating determinants is necessary in light of the absence of association. Gaining an understanding of these elements might greatly improve the planning and execution of online language education, which would ultimately increase studentperformance and motivation."

### **INTRODUCTION:**

The emergence of digital technology has brought about a significant transformation in language learning, as online courses provide hitherto unattainable levels of language proficiency. But the students' motivation is typically the deciding factor in how effective these courses are. The complex and multifaceted psychological characteristics that impact motivation in online language learning include things like attitudes, self-efficacy, and the particular difficulties presented by the digital learningenvironment.

We will explore the several psychological aspects in this introduction that are crucial in determining how motivated people are to take online language courses. We will examine how these factors combined affect a learner's motivation and dedication to language learning, including topics such as the influence of intrinsic and extrinsic motivators and the function of the virtual classroom environment. To build compelling and effective online learning experiences that meet the different needs of language learners worldwide, educators and course designers must have a thorough understanding of these variables.

A complex interplay of psychological characteristics influences the motivation of students enrolled in online language classes. Self-efficacy, or the conviction that one can succeed, and attitudes towards language acquisition have a big influence on persistence and engagement. The role of the teacher and the digital learning environment, which includes interactive components and course design, can either help or hurt students' motivation. Maintaining motivation also involves feeling at ease on the internet and engaging in social relationships. In the end, extrinsic motivation—which depends on outside rewards—is less durable than intrinsic motivation, which derives from personal interest and delight. Teachers can design more engaging and successful online language learning environments by taking these variables into consideration.

### **OBJECTIVE:**

- Examine the Impact of Goal Setting on Motivation:Investigate how setting specific, challenging, and attainable goals influences learners' motivation levels in online language courses.
- Explore the Role of Self-Efficacy Beliefs in Motivation:Determine the relationship between learners' beliefs in their own abilities to learn a language and their motivation to engage in online language courses.
- Investigate the Influence of Social Support on Motivation:Explore how social support networks, including peers, instructors, and online communities, affect learners' motivation to persist and succeed in online language courses.

## **RESEARCH DESIGN:**

Sample size: For this study, 112 participants were selected using simple random samplingmethod.

Sampling Procedure: The required information was gathered via a questionnaire. The sample was picked from among the students. By answering a predefined questionnaire, it was obtained. With the aid of a statistical tool, the data was assessed.

Tools: chi-square used for analysing data.

### Table 1.1

Relationship between Have you previously enrolled in online language coursesand What motivates you to enroll in online language courses.

## **Case Processing Summary**

	Cases					
	Valid		Missing		Total	
	Ν	Percent	Ν	Percent	Ν	Percent
Have you previo enrolled in or language courses * What motivates to enrol in or language courses	usly112 iline you iline	100.0%	0	0.0%	112	100.0%

Have you previously enrolled in online language courses\*What motivates you to enrol in online language coursesCrosstabulation

Count

	What course					
		1	2	3	4	Total
Have you	9	0	0	0	0	9
previously 1	0	34	9	13	13	69
enrolled in2 online language courses	0	17	4	9	4	34
Total	9	51	13	22	17	112

## **Chi-Square Tests**

			Asymptotic Significanc
	Value	df	e(2-sided)
Pearson Chi-Square	26.244ª	8	.001
Likelihood Ratio	14.330	8	.074
N of Valid Cases	112		

a. 14 cells (93.3%) have expected count less than 5. The minimum expected count is .15.

### **INTERPRETATION:**

The above table 1.1 show that there is no relationship between Have you previously enrolled in online language courses and What motivates you to enrol in online language courses. The chi-square value is 0.001 which is more than a critical value. So, null hypotheses has been accepted.

#### Table 1.2

Relationship between to what extent do interactions with peers in your language courses motivate you to persist and succeed in your language learning goalsandHow does feedback and guidance from instructors influence your motivation to continue with your online language course.

#### **Case Processing Summary**

Cases					
Valid		Missing		Total	
N	Percent	Ν	Percent	Ν	Percent

To what extent do	112	100.0%	0	0.0%	112	100.0%
interactions with peers						
in your language						
courses motivate you to						
persist and succeed in						
your language learning						
goals * How does						
feedback and guidance						
from						
instructorsinfluence						
your motivation to						
continue with your						
online language course						

To what extent do interactions with peers in your language courses motivate you to persist and succeed in your language learning goals \* How does feedback and guidance from instructors influence your motivation to continue with your online language course**Crosstabulation** 

Count

How does feedback and guidance from instructors influence your motivation to continue with your online language course						
			1	2	3	Total
To what		9	0	0	0	9
extentdo	1	0	34	13	0	47
interactions	2	0	39	0	9	47
with peers in your language courses motivate yo uto persist andsucceed in your language learning goals	3	0	9	0	0	9
Total	<u>//</u>	9	82	13	9	112

#### **Chi-Square Tests**

			Asymptotic
			Significance
	Value	Df	(2-sided)
Pearson Chi-Square	32.593 <sup>a</sup>	9	.000
Likelihood Ratio	22.073	9	.009
N of Valid Cases	112		

a. 14 cells (87.5%) have expected count less than 5. Theminimum expected count is .15.

### **INTERPRETATION:**

The above table 1.2 show that there is no relationship between, To what extent do interactions with peers in your language courses motivate you to persist and succeed in your language learning goalsandHow does feedback and guidance from instructors influence your motivation to continue with your online language course. The chi-square value is 0.000 which is within the critical value. So, hypotheses has been accepted.

### **CONCLUSION:**

Based on the data presented in Tables 1.1 and 1.2, it appears that there is no significant correlation between the desire to enrol in online language courses and one's previous enrolmentin those courses, or between the desire to succeed in language learning goals and the feedback and interactions from peers and instructors. The accepted null hypotheses in both situations are indicated by the chi-square values of 0.000 and 0.001, respectively.

This suggests that factors other than prior enrolment and the type of interactions with peers and instructors may be psychologically influencing the motivation levels of those taking online language classes. It implies that there are other elements that are more important in encouraging people to participate in and succeed in online language learning. These factors may be inherent in the learners themselves or connected to the course content and delivery.

To learn more about what motivates students in the setting of online language instruction, more investigation into these additional potential factors is necessary. These kinds of findings could be quite helpful in creating courses that can motivate students more effectively and help them succeed as a result.
## **REFERENCE:**

• Ushida, E. (2005). The Role of Students' Attitudes and Motivation in Second Language Learning in Online Language Courses. CALICO Journal, 23(1), 49-78. This study investigates the impact of motivation and attitudes on second language study within an online language course context.

## ABOUT CONFERENCE

In today's world, digital horizon is in the minds of many organizations a promises to modernize the existing process, enhancing customer experiences and fosteringnew innovations. It serves as a compelling metaphor when contemplating the future management and finance. The theme insights into successful digital transformation of case studies & it facilitates networking opportunities for professional experts and business people. It creates the vision for the attendees in commerce and management. The comprehensive analysis deves into how emerging technologies such as artificial intelligence, blockchain, and big data are reshaping the landscape of business, altering consumer behavior, and redefining competitive dynamics. This Conference provides a roadmap for organizations to navigate this transformative era, highlighting innovative strategies and best practices for digital integration, agile management and customer- centric approaches. This seminal work is an essential guide for business leaders, strategists, and Vocational seeking to understand and harness the power of digital technologies to drive growth, efficiency, and competitive advantage in the 21st century. This conference aims to bring together leading academicians, researchers and students to share their experiences and results on all aspects of the digital horizon.

## ABOUT LOYOLA COLLEGE

Loyola College, Mettala, is a minority Catholic Co-Educational Institution, Affiliated to the Periyar University, Salem. The College obtained 2(f) status from the University Grants Commission, New Delhi. It is one among the six colleges, run by the Chennai province of the Society of Jesus. All these institutions under the chairmanship of the provincial of the Jesuit Chennai Province, follow a common policy for admissions, appointments and administration. As a minority Institution the college caters primarily to the formation of Catholic students. However, it keeps it's portals open to any student without discrimination of caste and creed. The college Emblem with the motto "Let your light shine" brings lights of hope and liberation to others.

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