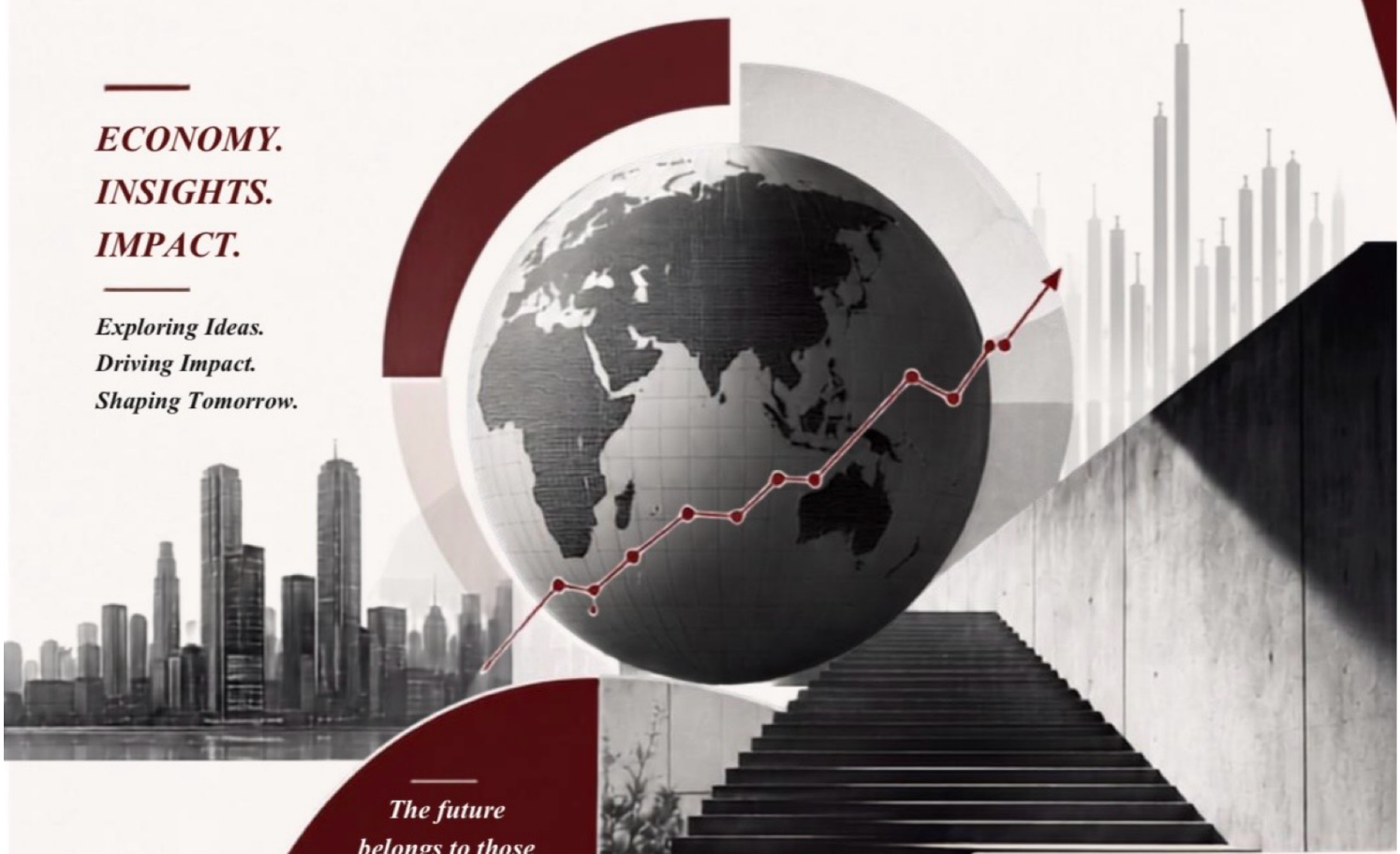
GCC (AUTONOMOUS)

EconPulse 2026

A Research Based Edition

ECONOMY.
INSIGHTS.
IMPACT.

Exploring Ideas.
Driving Impact.
Shaping Tomorrow.



The future belongs to those who understand it today.

RESEARCH
In-depth analysis of economic trends.

PERSPECTIVES
Diverse views from experts & thinkers.

POLICY & PRACTICE
Bridging theory with real world impact.

PUBLISHED BY

Department of Economics

গুৱাহাটী কমার্চ কলেজ (স্ব-শাসিত) অধ্যক্ষৰ কার্যালয়

ESTD: 1962

OFFICE OF THE PRINCIPAL
GAUHATI COMMERCE COLLEGE (AUTONOMOUS)
R.G. BAROOAH ROAD, GUWAHATI- 781021, PH. (0361) 2413095 (O)
Website: wwwgcc.ac.in e-mail: principal@gcc.ac.in
Accredited by NAAC with B++ Grade

Prof. Bipul Das,M.A , B.Ed , M.Phil , Ph.D
Principal

Ref. No. : ..... Date: .....

MESSAGE FROM THE PRINCIPAL

It gives me great pleasure to know that the Department of Economics, Gauhati Commerce College (A) , is publishing the 4th Edition of **'EconPulse'** 2026. I congratulate the Editorial Board, faculty members, and student contributors for their dedicated efforts in bringing out this publication.

The Magazine reflects the academic spirit of our institution by providing a platform for students to present their research, ideas, and perspectives on contemporary economic issues. Such initiatives encourage critical thinking, analytical skills, and a deeper understanding of the ever evolving economic landscape.

I am confident that the research papers featured in this edition will inspire intellectual curiosity and contribute meaningfully to academic discussions. I appreciate the Department of Economics for fostering a culture of research and innovation among students.

My best wishes to the entire team of **'EconPulse'** 2026 for the success of this publication and for their future endeavors.

With Best Wishes ,

Gauhati Commerce College (Autonomous) Guwahati-21

27/8/26

(Prof. Bipul Das)
Principal
Gauhati Commerce College
Guwahati-781021

Principal
Gauhati Commerce College
Guwahati-21

ESTD: 1962

GAUHATI COMMERCE COLLEGE (AUTONOMOUS)

R.G. Barooah Road, Guwahati- 781021, Ph. (0361) 2413095 (O)

E-Mail: gcciqac1962@gmail.com Website: www.gauhaticommercecollege.in

INTERNAL QUALITY ASSURANCE CELL (IQAC)

Ref. No.....

Date: 27/08/24

It gives me immense pleasure to congratulate the Department of Economics on the launch of the latest edition of '**EconPulse**'. In an era defined by rapid global economic shifts, emerging financial paradigms, and dynamic policy frameworks, fostering analytical thinking among students is vital. '**EconPulse**' serves as a vibrant platform that encourages intellectual curiosity, evidence-based commentary, and creative engagement with contemporary economic issues. The Internal Quality Assurance Cell (IQAC) continuously strives to create an ecosystem that promotes academic excellence, research oriented thinking, and student-centric initiatives. Publications like EconPulse showcase the academic vibrancy of the department while empowering students to bridge theoretical concepts with real world economic realities. I extend my heartfelt appreciation to the faculty members, the student editorial board, and all the contributors who have dedicated their efforts to bringing this edition to life. May **EconPulse** continue to inspire critical discourse and remain a proud reflection of academic creativity. Wishing the team endless success in all future endeavors!

Dr. Kaberi Bezbarua Coordinator,
Internal Quality Assurance Cell (IQAC)
Gauhati Commerce College Autonomous

Co-Ordinator
Internal Quality Assurance Cell(IQAC)
Gauhati Commerce College
Guwahati-21

গুৱাহাটী কমার্চ কলেজ (স্ব-শাসিত) অধ্যক্ষৰ কার্যালয়
ESTD: 1962
DEPARTMENT OF ECONOMICS
GAUHATI COMMERCE COLLEGE (AUTONOMOUS)
R.G.BAROOAH ROAD, GUWAHATI- 781021, PH. (0361) 2413095 (O)
Website: wwwgcc.ac.in e-mail: principal@gcc.ac.in
Accredited by NAAC with B++ Grade

Message from the Department

With immense pride the Department of Economics, Gauhati Commerce College, takes the pleasure to welcome you to the launch of the 4th edition of 'EconPulse' 2026, an online Departmental magazine. From researching the articles to designing the layout, the magazine has been entirely conceptualised and materialised by our students.

This edition is distinctive as under the guidance of Dr. R.U. Ahmed, it tends towards deep, research based articles , highlighting elements of rigorous academic investigation.

We extend our heart felt congratulations to the editorial board and all the contributors for their outstanding efforts .

Regards

27/8/2026.

DR.J.Bordoloi
H.O.D
Department of Economics

EDITORIAL

Dear Readers,

It is with great pleasure that we present this edition of ***EconPulse***, a platform dedicated to fostering curiosity, critical thinking, and academic exploration in the field of economics.

Research is often viewed as the domain of experienced scholars and professionals. However, every accomplished researcher begins with a first question, a first hypothesis, and a first attempt to understand the world through systematic inquiry. The papers featured in this issue represent those important first steps. Written by aspiring researchers and student authors, these contributions reflect a sincere effort to engage with contemporary economic issues, analyse emerging trends, and develop evidence-based perspectives.

The objective of ***EconPulse*** is not merely to showcase polished scholarship but to encourage a culture of research and intellectual engagement among students. The articles in this volume demonstrate enthusiasm, originality, and a willingness to explore diverse economic themes. While these works are introductory in nature, they embody the spirit of inquiry that lies at the heart of academic growth.

We extend our heartfelt appreciation to all contributors who invested their time and effort in transforming ideas into research papers. Their dedication and courage to participate in academic discourse deserve recognition. We are equally grateful to the faculty members and mentors whose guidance and encouragement helped shape this publication.

As readers, we invite you to approach these papers not only as academic exercises but as reflections of young minds seeking to understand and interpret the economic realities around them. We hope this edition inspires more students to ask questions, challenge assumptions, and contribute to the growing body of economic thought.

Thank you for your continued support of ***EconPulse***. We trust that this issue will provide insightful reading and encourage future research endeavors within our academic

Editorial Board

Shatadruty Gupta	Smeeta Bhownick	Santanu Kumar Deka
Editor	*Associate Editor*	*Assistant Editor*

CORE TEAM

ECONPULSE 2026

1. EDITORIAL TEAM	I. Editor: Shatadruty Gupta – M.Com 4th Semester	
	II. Associate Editor: Smeeta Bhowmick – M.Com 2nd Semester	
	III. Assistant Editor:	a. Santanu Kumar Deka – B.Com 6th Semester
2. REVIEW TEAM	1. Shatadruty Gupta – M.Com 4th Semester 2. Bidisha Hazra – M.Com 4th Semester 3. Sukanya Kumar – B.Com 6th Semester 4. Nilakshi Kalita – B.Com 6th Semester 5. Pallab Kashyap – B.Com 6th Semester 6. Chinmoy S Das – B.Com 6th Semester	
3. PROOF READING TEAM	1. Diya Chakraborty – B.Com 6th Semester 2. Nandini Kashyap – B.Com 4th Semester 3. Sanchari Das – B.Com 4th Semester 4. Titun Chanda – B.Com 2nd Semester 5. Anadin Kalita Dutta – B.Com 6th Semester	
4. DESIGNER TEAM	1. Himangshu Kalita – BBA 6th Semester 2. Anish Dutta – BCA 4th Semester 3. Natasha Kalita – BCA 4th Semester	

Our Team

The Minds Behind the Pulse

CORE TEAM

We write the ideas that inform and inspire.



IDEAS. RESEARCH. WORDS.



DESIGNERS

We design the pixels that capture attention and create impact.

DESIGN. VISUALS. IMPACT.

EconPulse

Research Based Edition

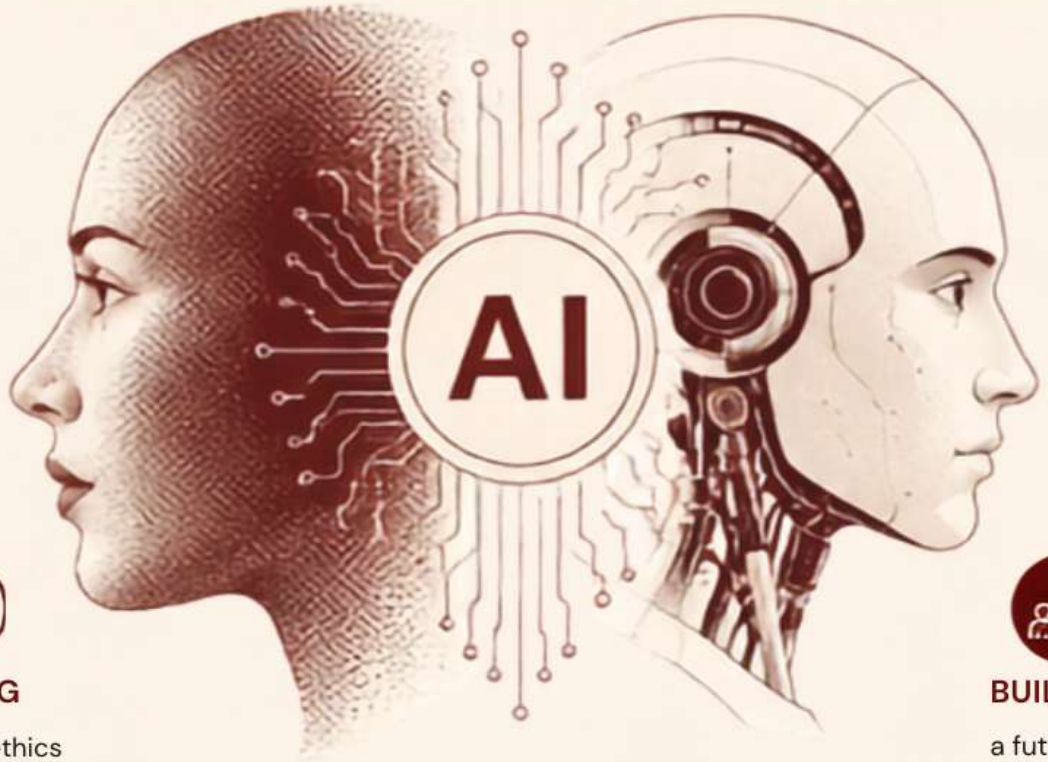
CONTENTS

		Writer	Page No.
01	Artificial Intelligence and Human Coexistence: An Investigation into The Opportunities, Challenges and Future Prospects	Shatadruty Gupta	8
02	Transforming Assam Through Artificial Intelligence: Economic Implications, Opportunities and Challenges	Bidisha Hazra	20
03	Women Entrepreneurship: 'An Impulse to Upswing Assam's Economy	Nilakshi Kalita Sukanya Kumar	34
04	Gender Inequality in Labour Market in India	Abinash Kalita Smeeta Bhowmick	54
05	A study on consumer behaviour in buying selfcare products based on their financial status	Bidipta Purkayastha	64
06	The Credit Card Debt Trap: A Behavioural Economics Analysis of Consumer Overspending	Diksha Deka	77
07	Financial Literacy and Economic Empowerment	Sourab Das	91
08	From Data to Decisions: The Transformative Power of AI in Contemporary Business Strategy	Priyanka Das	103
09	Cybersecurity and Ethical Hacking	Nandini Sarma Raj Paul	121
10	Board-Level Risk Oversight and Corporate Governance: An Analytical Study	Sanchari das	131

ARTIFICIAL INTELLIGENCE

AND HUMAN COEXISTENCE

An Investigation into the Opportunities, Challenges and Future Prospects



EXPLORING

the impact, ethics and future of Artificial Intelligence in harmony with humanity.

BUILDING

a future where technology empowers humans and creates a better world.

WRITER

Shatadruty Gupta

M.Com 4th Semester

PC-241-017-0031

DESIGNED BY

Himangshu Kalita

B.B.A 6th Semester

ABSTRACT

The rapid advancement and integration of Artificial Intelligence (AI) into various aspects of life have transformed the way humans interact, work, and live. As AI becomes increasingly ubiquitous, it is essential to investigate the opportunities, challenges, and future prospects of human-AI coexistence. This study aims to explore the complex relationships between humans and AI, examining the benefits and drawbacks of AI integration and its impact on human relationships, work, and society.

Researchers are investigating various aspects of human-AI interaction, including trust, communication, and collaboration. Understanding these dynamics is vital for designing AI systems that complement human capabilities and promote harmonious coexistence. However, concerns about job displacement, bias, and accountability are growing, highlighting the need for a comprehensive examination of human-AI coexistence.

Despite the potential benefits of AI, its impact on human relationships, work, and society is not yet fully understood. The study aims to investigate the opportunities and challenges of human-AI coexistence by examining the impact of AI on human relationships, work, and society. By exploring the future prospects of AI research and development, this study will provide insights into the potential consequences of human-AI coexistence and inform the development of AI systems that promote beneficial human-AI interaction.

INTRODUCTION

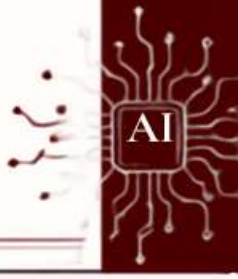
The terms Artificial Intelligence and Human Coexistence go hand in hand. They refer to the exploration of the complex relationship between humans and artificial intelligence (AI) systems.

This investigation seeks to understand how humans and AI can coexist, collaborate, and benefit from each other, while also acknowledging the potential challenges and risks associated with AI development and deployment.

The term coexistence implies a shared existence or mutual presence between humans and AI. This concept recognizes that AI is becoming increasingly integrated into various aspects of human life from healthcare and education to transportation and entertainment. As AI becomes more ubiquitous, it is essential to explore how humans and AI can effectively interact and thrive together. The investigation into opportunities, challenges, and future prospects of human-AI coexistence involves examining the potential benefits and drawbacks of AI integration. This includes exploring how AI can enhance human capabilities, improve decision-making, and drive innovation, as well as addressing concerns about job displacement, bias, and accountability. By understanding such benefits and risks, researchers and developers can design AI systems that promote harmonious interaction and benefit society as a whole.

The investigation into human-AI coexistence is timely, given the rapid pace of AI development and employment. This study will contribute to the growing body of research on human-AI interaction, providing a comprehensive understanding of the complex relationships between humans and AI.





A brief review of literature

- **Biagini (2025) in his study, aimed to evaluate the current state of research on Artificial Intelligence (AI) literacy, identifying thematic trends and recent developments. This review revealed that AI literacy encompasses not only technical proficiency but also ethical considerations, societal impacts, and practical applications. The study highlighted the importance of AI models, frameworks, and digital interaction literacy, while also noting a surg in AI literacy research, particularly in China and the United States.**

- **Oloruniana (2025) in his research provided an intensive study of the development and applications of Artificial Intelligence (AI), exploring its transformative impact on modern society. The objectives of this review were to examine the historical development of AI, its contemporary applications in various fields, and the challenging problems related to AI. The findings revealed that AI has revolutionized numerous sectors, including healthcare, education, finance, and environmental sustainability, with applications such as intelligent diagnosis, robot-assisted surgery, and adaptive teaching platforms.**

- **Mehdipore, Chitsaz, and Etmadi (2024) in their study conducted a comprehensive mixed-methods literature review of Human-Artificial Intelligence interaction dynamics, analyzing 153 articles from the Web of Science Database over the past five years. The objective was to identify evolving trends, patterns, and relationships in human-AI interaction research. The findings included a strong emphasis between AI interaction and human perception, technology acceptance, behavior, and satisfaction. The study provides valuable insights for researchers,and designers of enterprise systems, highlighting the importance of aligning AI advancements with human-centered approaches to ensure harmony with human needs and values.**

- **Dimitriadou and Lanitis (2023) in their study explored the integration of Artificial Intelligence (AI) in smart classrooms, discussing the concept of AI in education and its applications in smart classroom technology. The objectives of this study were to examine the emerging technologies, such as AI-related technologies, used in smart classes and to identify the key technologies that enhance classroom environments, teaching aids, and performance assessment. The findings reveal that AI plays a crucial role in smart classes, enabling effective class management, automated performance assessment, and personalized learning experiences.**

KEY INSIGHT

Recent literature consistently emphasizes the transformative potential of AI while urging stakeholders to address ethical, social, and technical challenges for sustainable coexistence.

- **Dwivedi, Hughes, Smagallova, and Aarts (2021) in their study examined the transformative potential of Artificial Intelligence (AI) in augmenting and replacing human tasks across various industrial, intellectual, and social applications. The objectives of this study were to explore the significant opportunities, challenges, and potential research agendas posed by the rapid emergence of AI, and to provide timely insight into AI's impact on the future of industry and society. The findings, compiled from expert contributors, reveal that AI has the potential to disrupt numerous industries, including finance, healthcare, manufacturing, and utilities, and that its impact will be significant.**

SCOPE OF THE STUDY

This study focuses on the current landscape of AI and its interaction with humans across multiple domains. It includes a review of literature published between 2010 and 2025, covering technological, social, ethical, and economic perspectives.

AI

SIGNIFICANCE OF THE STUDY

The study examines the link between Artificial Intelligence and Human Coexistence. Therefore, it is of great significance. It explores the complex and evolving relationship between humans and artificial intelligence. The following are some of the relevant importance of the study:

1. Contributes to the understanding of human AI Interaction: This study provides insights into the complex relationships between humans and AI systems, shedding light on the opportunities and challenges of human AI coexistence.
2. Information development and deployment: The study's findings can inform the development of AI systems that are designed to promote harmonious human AI interaction and benefit society.
3. Enhances human well-being: By examining the opportunities and challenges of human AI coexistence, this study can contribute to the development of AI systems that are promoted human well-being and improve quality of life.
4. Supports policy and decision-making: The study's findings can provide valuable insights for policymakers, industry leaders, and other stakeholders, informing decisions about AI development, deployment, and governance.
5. Provides a foundation for future research: The study's findings and recommendations can serve as a foundation for future research on human AI interaction, informing the development of new studies and projects that explore the complexities of human AI coexistence.

OBJECTIVES OF THE STUDY

The main objectives of this study are:

To examine the the dual nature of Artificial Intelligence and its impacts on various aspects of human life

To analyse the positive and negative consequences of Artificial Intelligence.

RESEARCH METHODOLOGY

Research Design: This study employs a descriptive research procedure to describe the concept of Artificial Intelligence and its major implications for human coexistence. This research design is chosen to provide a comprehensive and detailed account of the current state of Artificial Intelligence and its effects on human relationships, work, and society.

Population: The population of this study consists of individuals such as high school, college, or university students, employees, businessmen, and teachers, who use AI-powered devices or services, such as smartphones, visual assistants, or social media.

Sampling Frame: The Sampling Frame includes some major states of the country like Guwahati, Bengaluru, Mumbai, Hyderabad, Meghalaya, Kolkata, and Delhi, who actively use Artificial Intelligence in their day-to-day lives.

Sample Size: Under this research, a sample size of 150 was taken, but only 120 valid responses were received.

Sampling Techniques: The study uses convenient sampling techniques, as data were collected from easily accessible respondents through a structured questionnaire.

Sources of data: In the study, the data are collected mainly from two sources:

1. Primary Sources
2. Secondary Sources

1. The primary data for the study have been collected by distributing online questionnaires to the users of Artificial Intelligence within the cities of Guwahati, Kolkata, Bengaluru, Hyderabad, Mumbai, and Delhi. The questionnaire comprises multiple-choice questions, five-point Likert scale, open and closed end questions.
2. The secondary data has been collected from various journals, articles, websites, books and referrals.
3. Data Analysis: Analysis of the collection of data was done by using the Percentage Analysis Method. All the data collected by the respondents has been properly classified, tabulated, and graphically represented through bar diagrams, pie charts, and line charts.

Data Analysis Tools: - The data collected through the questionmaire is analysed with tabular and graphical representations for effective presentation. Some of the figures used in these reports are:

I. Tables
II. Bar diagrams
III. Pie charts

2. Data Analysis Technique: - The technique adopted for analysing the data is "Simple Percentage Method". Percentage of respondents = Number of respondents x 100 Total no. of respondents

DATA ANALYSIS

TABLE 1. REPRESENTING THE AGE GROUP OF THE RESPONDENTS:

Age Group	No. of respondents	Percentage (%)
18–24	89	74
25–34	22	18
35–44	6	5
45 and above	3	3
TOTAL	**120**	**100**

Source: Field Survey, February 2026

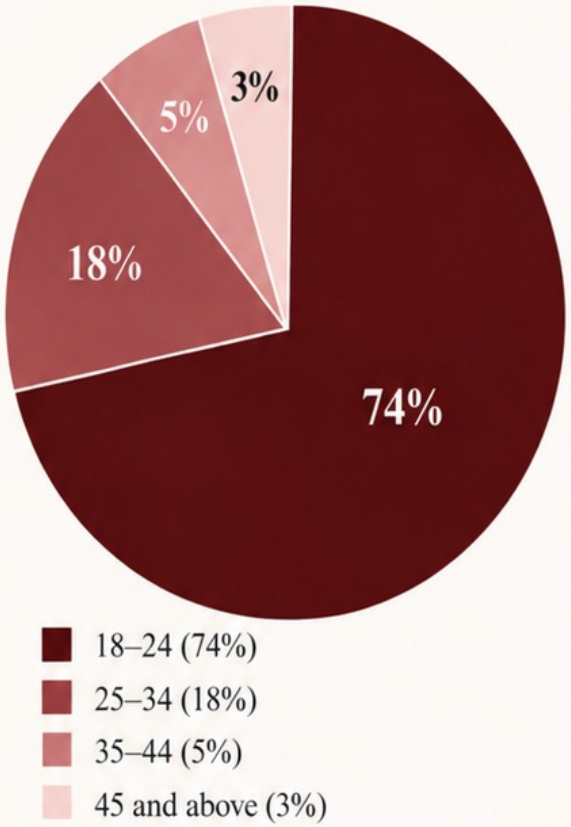


Figure 1: Pie chart showing the age group of respondents

INTERPRETATION

From Table 1 and Figure 1, it was found that 74% of the respondents were in the 18–24 age group, 18% were in the 25–34 age group, another 5% belonged to the 35–44 age group, and 3% were in the 45 and above age group.



TABLE 2. REPRESENTING THE GENDER OF THE RESPONDENTS

Gender	No. of Respondents	Percentage (%)
Female	66	55
Male	54	45
Others	0	0
Prefer not to say	0	0
TOTAL	**120**	**100**

Source: Field Survey, February 2026

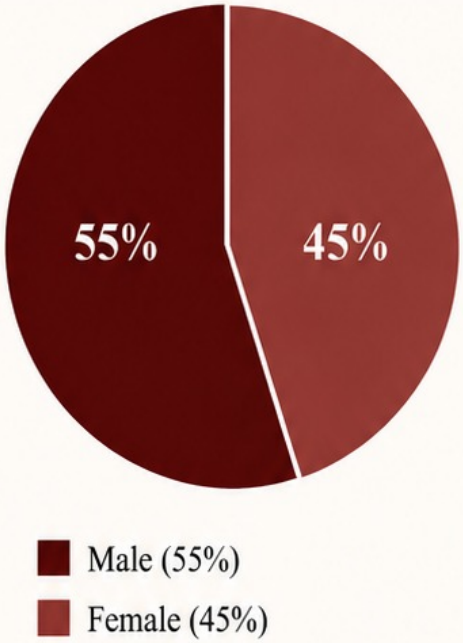


Figure 2: Chart showing the gender of respondents

INTERPRETATION

Table 2 and Figure 2 show that, out of 120 respondents, 55% are male and 45% are female.



DATA ANALYSIS

TABLE 3. REPRESENTING RESPONDENTS' PERSPECTIVE OF ARTIFICIAL INTELLIGENCE BEING A BOON OR BANE

Particulars	No. of Respondents	Percentage (%)
A boon	45	38
A bane	3	2
Neutral	67	56
Not sure	5	4
TOTAL	**120**	**100**

Source: Field Survey, February 2026

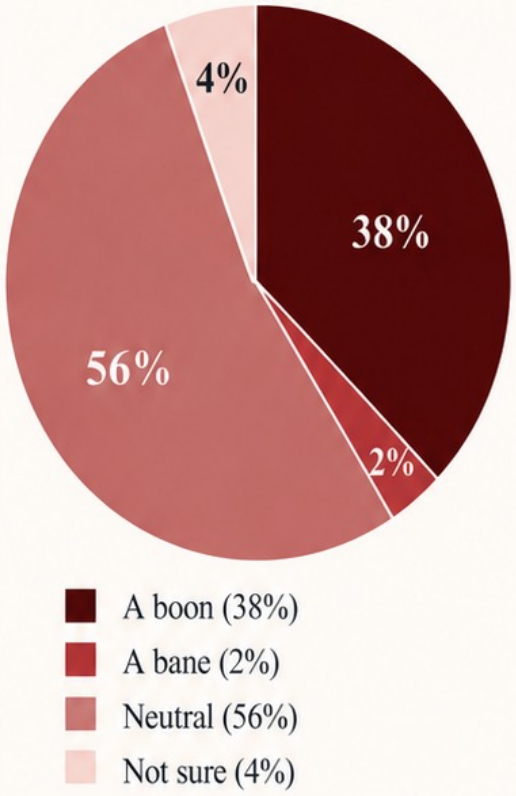
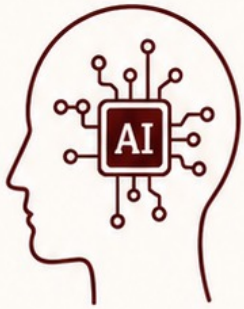


Figure 3: Pie chart showing respondents' perspective of AI being a boon or bane

INTERPRETATION

From the above table and figure 3, it is clear that 38% of the respondents think that Artificial Intelligence is a boon, and only 2% of them feel that it is a bane. A percentage of about 56% is neutral, and only 4% is not sure about AI being a boon or a bane.



DATA ANALYSIS

TABLE 4. REPRESENTING RESPONDENTS' VIEWS ON SOME OF THE POSITIVE IMPACTS OF ARTIFICIAL INTELLIGENCE

Particulars	No. of Respondents	Percentage (%)
Improved Efficiency	105	88
Automation of Repetitive Tasks	87	73
Enhancing Accuracy	76	64
Advancing Scientific Research	73	61
Improving Healthcare	46	39
Other	4	3

Source: Field Survey, February 2026

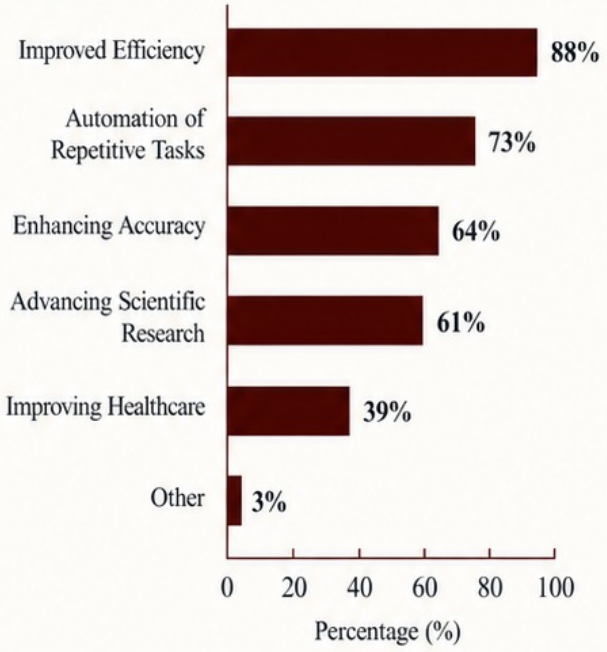
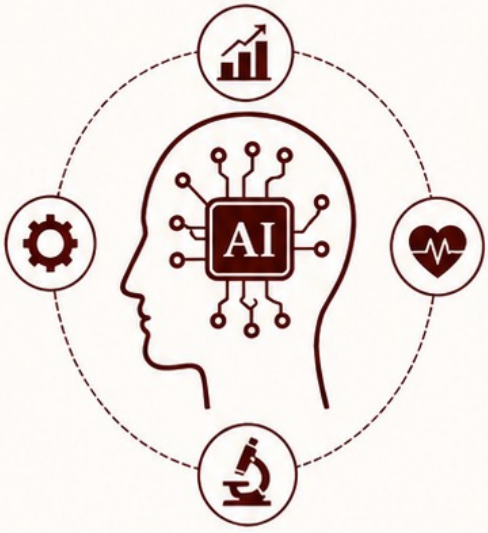


Figure 5: Bar graph showing respondents' views on some of the positive impacts of AI

INTERPRETATION

From the table and graph 5, it reveals that only 1% of the respondents believe that AI helps in Strategic Planning, Research, and is a teacher for life. However, 39% of them feel that AI helps in improving Healthcare. Another 61% feel that AI helps in Advanced Scientific Research, while 64% of them think that AI helps in enhancing accuracy. 73% of the respondents think that AI helps in the Automation of Repetitive Tasks, and 88% of them believe that AI improves efficiency.



DATA ANALYSIS

TABLE 5. REPRESENTING RESPONDENTS' VIEWS ON SOME OF THE NEGATIVE IMPACTS OF ARTIFICIAL INTELLIGENCE

Particulars	No. of Respondents	Percentage (%)
Job Displacement	95	79
Privacy Concerns	93	78
Ethical Implications	59	49
Bias and Discrimination	40	33
Loss of Human Touch	87	73
Other	3	2
TOTAL	**120**	**100**

Source: Field Survey, February 2026

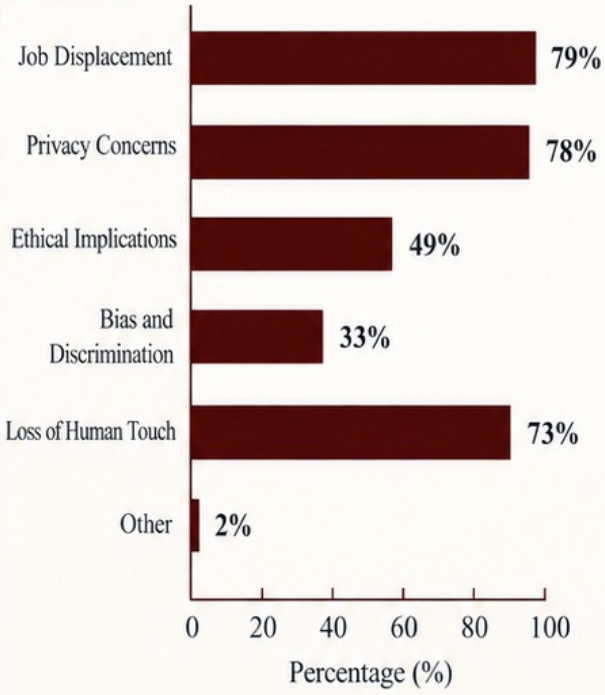
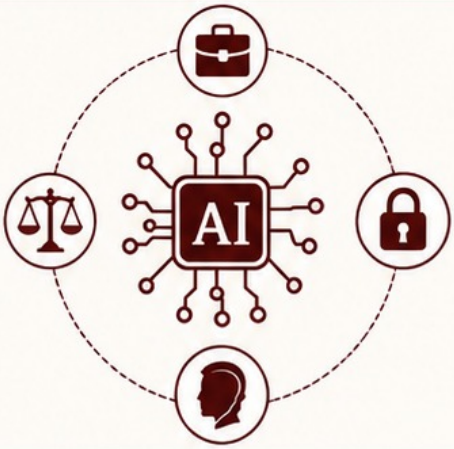


Figure 6: Bar graph showing respondents' views on some of the negative impacts of AI

INTERPRETATIONS

From the table above and chart 6, it is clear that 79% of respondents believe AI can lead to job displacement, and 78% believe it can lead to Privacy Concerns. However, 49% of them are concerned about its ethical implications, while 33% of them are concerned about its bias and discrimination. Another 73% of them believe that AI can lead to the Loss of Human Touch.



FINDINGS

The following are the findings of the study:

1. From the study it was found that the female respondents were the major users of Artificial Intelligence in their day-to-day lives, and they belonged to the age group of 18–24 years.
2. While other male respondents also believed that AI has a significant role to play in their everyday life, the majority of them also belonged to the age group of 18–24 years.
3. Further, it was found that only 3 respondents belonged to the age group of 45 and above, showing that the usage of Artificial Intelligence is almost negligible in terms of senior citizens.
4. It was also found that the majority of the respondents gave a practical and pragmatic response to the positive impacts of Artificial Intelligence and its implications on Human Coexistence.
5. While a small portion of them responded to the negative impacts of Artificial Intelligence and its implications on Human Coexistence.

SUGGESTIONS

Based on the feedback collected from the respondents, several thoughtful suggestions emerged to enhance the coexistence of Artificial Intelligence (AI) and humans.

1. **Promote Ethical AI Development:** Ensuring AI systems are designed with ethical guidelines to prevent bias, discrimination, and misuse is crucial for trust and fairness in AI applications. Transparent algorithms and inclusive data sets enhance accountability and reliability.
2. **Enhance Human-AI Collaboration:** Encouraging AI as a tool that augments human skills rather than replacing jobs can create opportunities for productivity and innovation. Training programs should prepare individuals to work alongside AI systems effectively.
3. **Address Privacy and Security Concerns:** Developing robust data protection mechanisms will safeguard individuals' privacy and increasing AI data usage. Security protocols must evolve continuously to prevent AI-related vulnerabilities.
4. **Mitigate Job Displacement Through Reskilling:** To counter the impact of automation, strategies for workforce reskilling and upskilling can help individuals transition into new roles created by AI advancements, ensuring economic stability.
5. **Integrate AI as a Mediator in Human Societal Systems:** AI should be an intermediary platform that facilitates consensus-building and negotiation processes in complex societal issues, leveraging AI's analytical power to surface common ground while respecting minority perspectives.

CONCLUSION

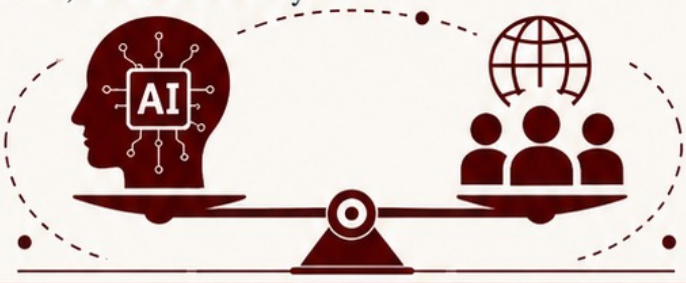
The Study reveals a multifaceted landscape where the transformative potential of AI intersects deeply with human society, culture, and individual experience. As AI technologies rapidly advance, they present unprecedented opportunities to enhance human capabilities, foster innovation, and address complex global challenges. However, this coexistence is far from straightforward or without tension.

The findings underscore that effective integration of AI into daily life and societal structures requires more than technical improvement—it demands a fundamentally new paradigm that embraces adaptability, ethical foresight, and inclusivity at its core.

As AI systems become more autonomous and pervasive, their design and deployment must prioritize transparency, accountability, and respect for human values to maintain trust and societal cohesion.

The study identifies that while AI offers substantial benefits such as increased efficiency, personalized learning, and improved healthcare outcomes, it simultaneously raises significant concerns including privacy erosion, algorithmic bias, the exacerbation of social inequalities, and potential job displacement.

These challenges are not merely technical issues but deeply social and political ones, necessitating cooperative efforts that span governments, industries, academia, and civil society.



BIBLIOGRAPHY

BOOKS

1. Kothari, C.R., & Garg, Gaurav. *Research Methodology: Methods and Techniques* (4th Edition). New Age International Private Limited Publishers.
2. Creswell, J.W. & Creswell, J.D.: *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (5th Edition). SAGE Publications.
3. Panneersvam R.: *Research Methodology* (2nd Edition). Phi learning PVT. LTD.
4. Seth, N.: *Human Edge in the AI Age* (1st Edition). Penguin Random House India Private Limited

JOURNALS AND ARTICLES

1. Biagini G. (2025, February 22). *Towards an AI Literate Future: A Systematic Literature Review Exploring Education, Ethics, and Applications*. University of Florence, Firenze, Italy.
2. Olorunlana T.J. (2025, April 4). *The Rise of Artificial Intelligence (AI): Challenges and Opportunities for Humanity*. Lamar University, 5230, S M L King Jr Pkwy, Beaumont, Texas, USA, 77705.
3. Mehdipour M, Chitsaz E, and Etemadi M (2024, August 13). *A Perspective on Human Interaction and Artificial Intelligence: Bibliometric Analysis with Co-occurrence Technique.* Department of Entrepreneurship Development, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran.
4. Dimitriadou E. and Lanitis A. (2023 February 6). *A critical evaluation, challenges, and future perspectives of using artificial intelligence and emerging technologies in smart classrooms*. Visual Media Computing Lab, Department of Multimedia and Graphic Arts, Cyprus University of Technology, Limassol, Cyprus CYENS Centre of Excellence, Nicosia, Cyprus.
5. Dwivedi, Y.K., Hughes, L., and Ismagilova, E (2021, April). *Artificial Intelligence (AI): Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice, and Policy*. Emerging Markets Research Centre (EMaRC), School of Management, Swanesa University, UK, International Business, Marketing and Branding Research Centre, School of Management, University of Bradford, Bradford, UK

WEBSITES

6. https://Artificial-Intelligence-AI-When-Humans-and-Machines-Might-Have-to-Coexist – Retrieved as on 15th January
7. [https://AI_and_the_Future_of_Humans_12_10_18.pdf] – Retrieved as on 15th January
8. https://ai-vs-human-intelligence-future-challenges-and-opportunities – Retrieved as on 16th January
9. https://coexistence-ai-human-skills-enhancing-productivity-evolving-job – Retrieved as on 22nd January
10. https://www.sciencedirect.com/ – Retrieved as on 23rd January
11. https://what-are-the-negative-impacts-of-artificial-intelligence – Retrieved as on 23rd January

TRANSFORMING ASSAM THROUGH ARTIFICIAL INTELLIGENCE: ECONOMIC IMPLICATIONS, OPPORTUNITIES AND CHALLENGES

An Investigation into the Opportunities, Challenges and Future Prospects



WRITER

Bidisha Hazra

M. Com 4th Semester

DESIGNER

Himangshu Kalita

BBA 6th Semester

ABSTRACT:

The study discusses the initiatives undertaken in AI and their implications with an emphasis on the economic and developmental aspects in Assam. It analyses the varied dimensions of AI transformation, including the enhancement of efficiency, innovation and decision making process in different sectors. It further elaborates on the prospects and pitfalls of AI deployment. With the use of a systematic research methodology, the study makes use of both primary and secondary data, gathered using questionnaire, reports and relevant literature. The findings show that such initiatives have great potential to contribute to economic growth, skill development and digital transformation, however, concerns such as lack of awareness, infrastructural limitations, and skill gaps persists. The study concludes by offering suggestions on how AI initiatives can be better implemented, calling for strategic planning, investment and capacity building to fully harness the benefits of artificial intelligence in the region.

INTRODUCTION :

Artificial Intelligence (AI) is recognised as the defining technology of the 21st century. It refers to the capacity of machines to stimulate human intelligence, enabling them to learn, analyze data and make decisions.

The impact of AI can be observed across diverse sectors, including healthcare, education, agriculture, finance and governance. Attracting investments, fostering entrepreneurship and ensuring competitiveness in the global arena by enabling advanced technologies for regions and enterprises are among the critical outcomes of such initiatives.

Despite having vast potential, AI comes with opportunities and challenges. It has opened up new opportunities for job creation in technology- driven sectors, improved service delivery and has been a catalyst for economic growth. However, on the other hand, many factors such as lack of digital infrastructure, skill gaps, data privacy and the absence of sufficient awareness can hinder its effective implementation.

In this article, the Memorandum of Understanding (MoU) signed between Assam Government and Google Cloud represents an important step towards AI based innovation in the North-eastern region of India. This article attempts to evaluate the economic impact, opportunities and challenges resulting from AI initiatives using the state of Assam as a case study.

BRIEF REVIEW OF LITERATURE:

Government of India, Press Information Bureau (2025) discussed the IndiaAI Mission as a transformative national initiative designed to democratise AI infrastructure, promote inclusive innovation, and enhance sectoral productivity. The release outlined AI's potential contribution to economic growth, employment generation, and improved public service delivery across sectors such as healthcare, agriculture, and education.

Inakhiya et al, (2025) provided a conceptual and policy review of artificial intelligence in relation to India's Smart City Mission which aimed to develop 100 cities by harnessing technology to modernise infrastructure administration and raise the living standards. The study highlighted AI's potential in enabling data–driven governance, efficient urban service delivery, and smart infrastructure management. It also identified challenges related to digital inequality, ethical concerns, and regulatory limitations, concluding that human–centric and inclusive policy frameworks are essential for sustainable smart city development.

Maisnam et al, (2025) looked into the significance of Artificial Intelligence (AI) and the Internet of Things (IoT) in strengthening agriculture extension services in North East India. It highlighted how AI and IoT enabled instantaneous information acquisition, predictive analytics, use of smart sensors, drones, and automated operations to improve crop monitoring, pest control, and resource efficiency. These technologies have demonstrated potential in improving yields, optimising resource use, and promoting sustainable agricultural practices. It also identified significant barriers to adoption in the region, including fragmented landholdings, infrastructural limitations, low digital literacy, and weak policy support, concluding that policy support and stakeholder collaboration are essential for sustainable agricultural transformation.

Musch and Borrelli (2025) analysed India's evolving artificial intelligence ecosystem and highlighted the country's sector–specific, innovation–oriented regulatory approach rather than a single comprehensive AI law. The report examined the role of the IndiaAI Mission and the Digital Personal Data Protection Act, 2023 in shaping ethical and responsible AI adoption, while also identifying gaps related to accountability, risk assessment, and regulatory clarity. The report emphasised the necessity of balanced oversight mechanisms that support innovation while ensuring data protection and trust.

NITI Aayog (2025) outlined artificial intelligence as a key driver for achieving India's long–term economic growth targets by enhancing productivity, accelerating innovation, and expanding technology–led services. It also highlighted AI adoption across industries, AI–enabled research and development, and data platform creation as central mechanisms for bridging India's projected growth gap. It further emphasised the role of sovereign AI infrastructure, skilled human capital, and inclusive access for MSMEs in realising AI–led growth. However, it also cautioned that talent shortages, data governance challenges, and privacy risks must be addressed to ensure sustainable and equitable outcomes.

Yomso (2025) reviewed the dynamics of AI adoption in corporate India and its consequences for entrepreneurship. He found that AI boosts productivity, innovation, and competitive advantage while reducing entry barriers for startups. However, it also noted bottlenecks including skill shortages, high implementation costs, and unequal access to digital infrastructure, particularly for MSMEs, highlighting the need for inclusive policy interventions.

SIGNIFICANCE OF THE STUDY:

1) The study provides new insights into academic knowledge by analysing the role of AI in regional development, specially in the under research context of Northeast India.
2) The study helps in highlighting the potential of AI in generating employment opportunities and promoting entrepreneurship in the region .
3) It provides key takeaways for policy makers to evaluate the effectiveness of public-private partnerships in implementing AI based initiatives.
4) This study showcases how AI can enhance public services such as education, healthcare and in governance.

OBJECTIVES OF THE STUDY:

1) To explore the impact of Artificial Intelligence (AI) initiatives undertaken through public - private collaborations in promoting innovation in Northeast India ;
2) To assess the economic implications of AI - driven initiatives on employment generation, skill development, and regional growth in Assam ; and
3) To examine the prospects and hurdles in developing an AI ecosystem in Assam.

RESEARCH METHODOLOGY:

A descriptive research design is employed in this study to explore the impact of AI initiatives in promoting regional development, its economic impact and its associated opportuniites and challenges. The population of the study includes individuals from Assam, for this research, particularly students and general respondents who are aware of or affected by AI initiative and digital developments in the region. The analysis is based on a sample size of 50 respondents. In this research study, convenience sampling technique has been adopted by the researcher where respondents are chosen by availability and intent to participate due to time and resource constraints.

The study effectively integrates both primary data and secondary data. The primary data for this article was gathered from the respondents via a structured questionnaire administered online. The questionnaire utilised a mix - method design, incorporating multiple - choice questions, 5 – point Likert scale questions, open – ended and close – ended questions. Secondary data has been collected from various sources such as government reports, policy documents, journal articles, news articles and institutional publications. The data collected is analysed using tables, bar charts and pie charts for effective presentation. Simple analytical tool such as percentage analysis have been used wherever applicable.

The geographical scope of this study is primarily confined to the state of Assam, with a broader analytical focus on its potential spillover effects across Northeast India.

Overview and implications of AI initiatives through Public – Private Collaborations : Economic Impact, Opportunities and Challenges :

Public–private partnerships in promoting AI initiatives have been a core driving force of digital transformation in India. One such significant initiative is the Memorandum of Understanding (MoU) signed between Assam Government and Google Cloud for improving administration through AI. It was signed on November 11, 2025, in the presence of Information Technology minister of Assam, Keshab Mahanta and Shri Ashish Wattal, Director and Country Head of Google Cloud and other senior officials and key stakeholders in Guwahati. The objective of this partnership is to speed up digital transformation in Assam. It will focus on AI governance for skill development among government officials and students and pilot project implementations in education, health and urban development. This partnership is a key part of Advantage Assam 2.0 which focuses on digital and industrial growth. Such collaborations is especially important for states like Assam, where technological development and digital inclusion are still evolving. However, the impact of such initiative depends on awareness, accessibility and implementation at the grassroots level.

The key features of this initiative is that it will support the setting up of an AI Centre of Excellence in Assam that will conduct research, innovation and skill development activities. It also supports the automation of public services and better management of administrative processes. The MoU aims to create a conducive environment for the growth of AI startups by facilitating access to funding, incubation and mentorship.

According to the Information Technology Department, Government of Assam, "The initial setup and implementation will be funded by Google and Paradigm IT as an in– kind strategic investment – minimising financial burden on the State Government. The partnership this ensures cost–effective adoption of state–of–the–art AI technologies, without obligations that may constrain future decision –making."

Economic Impact :

AI initiatives will generate thousands of high–skilled jobs in AI cloud computing, software development, digital services and related areas. By developing advance industries, the government aims to retain the local talent instead of losing youth migration to other parts of the country. Establishment of AI centre of excellence will provide industry–relevant technical skills to the youth which will help them become employable. The establishment of AI– ready hyperscale data centres in the state is positioning itself as data centre hub in the whole North–eastern region. AI initiatives will further boost important sectors of the state's economy, such a agriculture, tourism and small – scale industries, by enabling better data–driven decisions and improving efficiency.

Opportunities :

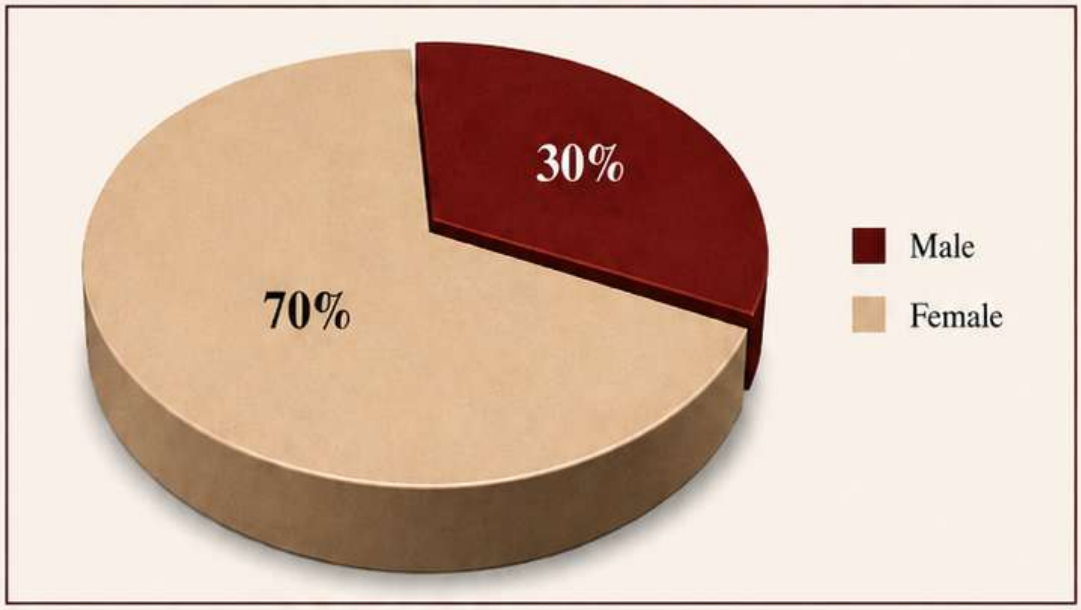
Major public and private investments have been attracted in Assam for the development of AI and digital infrastructure, including data centres and connectivity projects. AI in critical sectors can be developed to provide solutions relevant to local needs, such as in agriculture, tea industries, healthcare and disaster management. Assam has been a gateway to Northeast India and Southeast Asia. Its strategic location could be leveraged to make it a technology hub. Government support, various initiatives and policy–level decisions have been taken to build AI skills in the workforce and support startups with funding and incubation.

Challenges :

At present, Assam faces inadequate digital infrastructure, such a sufficient bandwidth, data centres and computing power. AI these limit the prospects of applying AI technologies at scale and in a smooth manner. The absence of well–articulated data privacy, security and ethical use policy for AI may give rise to misuse and biased decision–making and result in decreased confidence in AI systems among the general public. The lack of sufficient funds discourages innovation and retards the creation of a strong AI ecosystem in Assam. The disparity in technology access between urban and rural areas deepens the digital divide which leads to AI benefits being distributed unevenly, increasing social–economic inequality.

DATA ANALYSIS AND INTERPRETATION :

FIGURE 1: GENDER OF THE RESPONDENTS

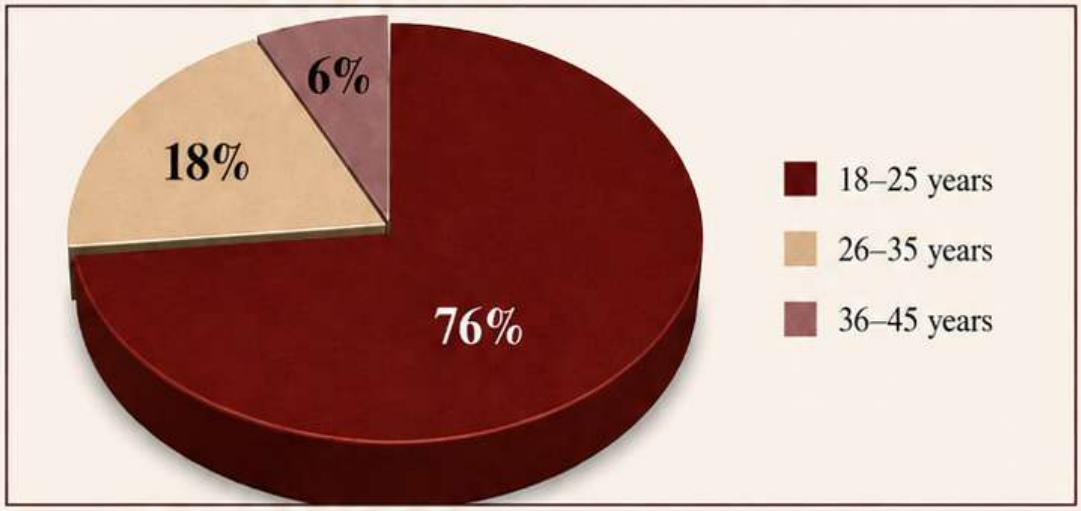


Source: Field Survey, March 2026

Interpretation:

From the above chart, it is evident that gender-wise, 30 % of the respondents were male and 70% respondents were female.

FIGURE 2: AGE OF THE RESPONDENTS

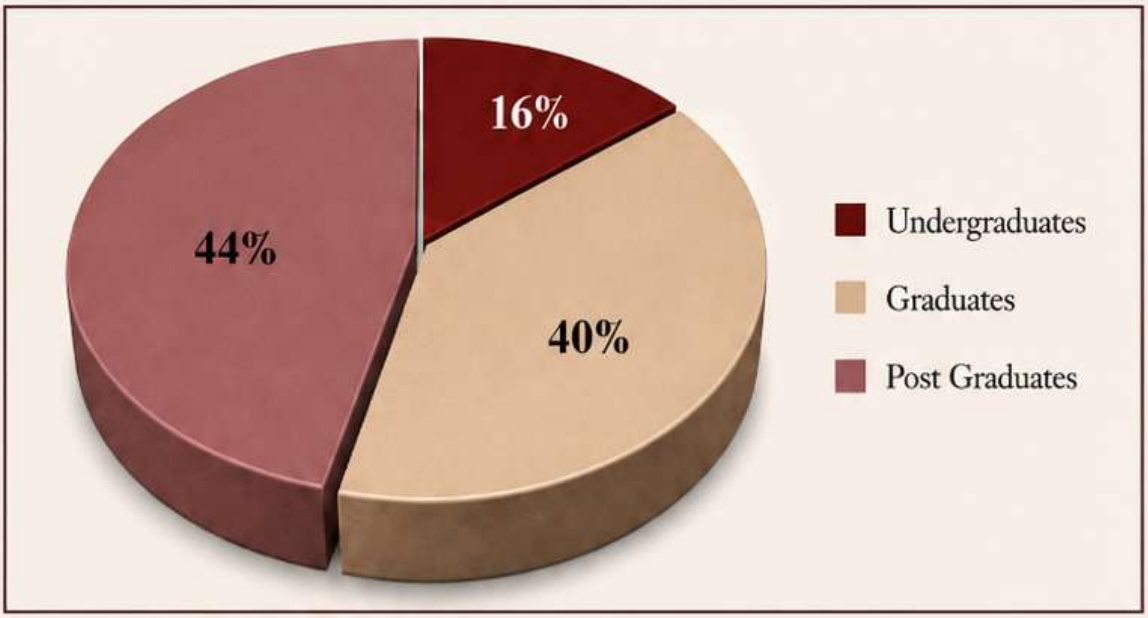


Source: Field Survey, March 2026

Interpretation:

From the above data, it i can be interpreted that majority of the respondents, i.e., 76% belonged to the age group 18–25, 18% of the respondents belonged to age group 26–35 and rest (6%) belonged to the age group 36–45.

FIGURE 3: EDUCATIONAL QUALIFICATION OF THE RESPONDENTS

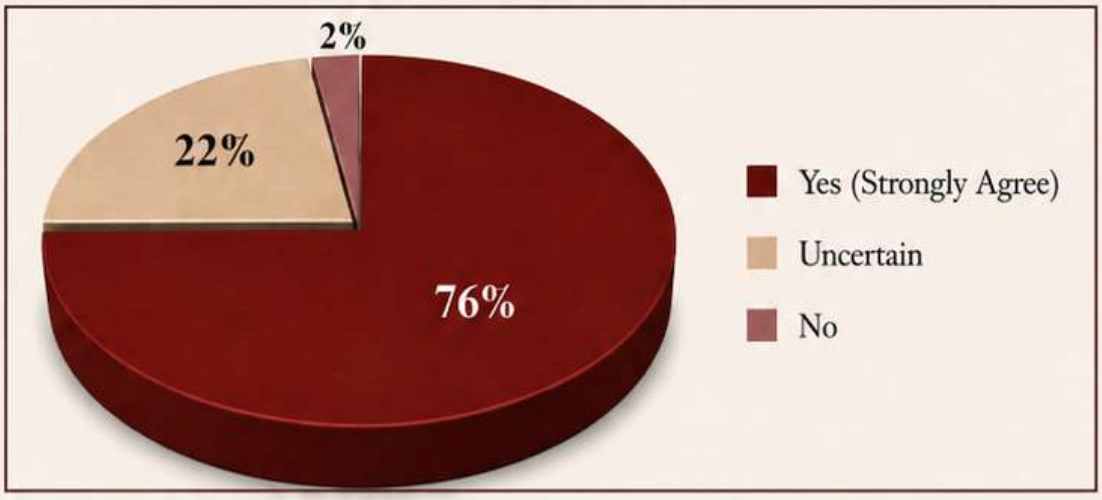


Source: Field Survey, March 2026

Interpretation:

From the above data, the educational profile of the respondents indicated that 16% respondents were undergraduates, 40% respondents were graduates, and majority, i.e., 44% of the respondents were post graduates.

FIGURE 4 : RESPONDENTS' OPINION ON WHETHER PUBLIC -PRIVATE COLLABORATIONS WILL PROMOTE TECHNOLOGICAL DEVELOPMENT IN ASSAM

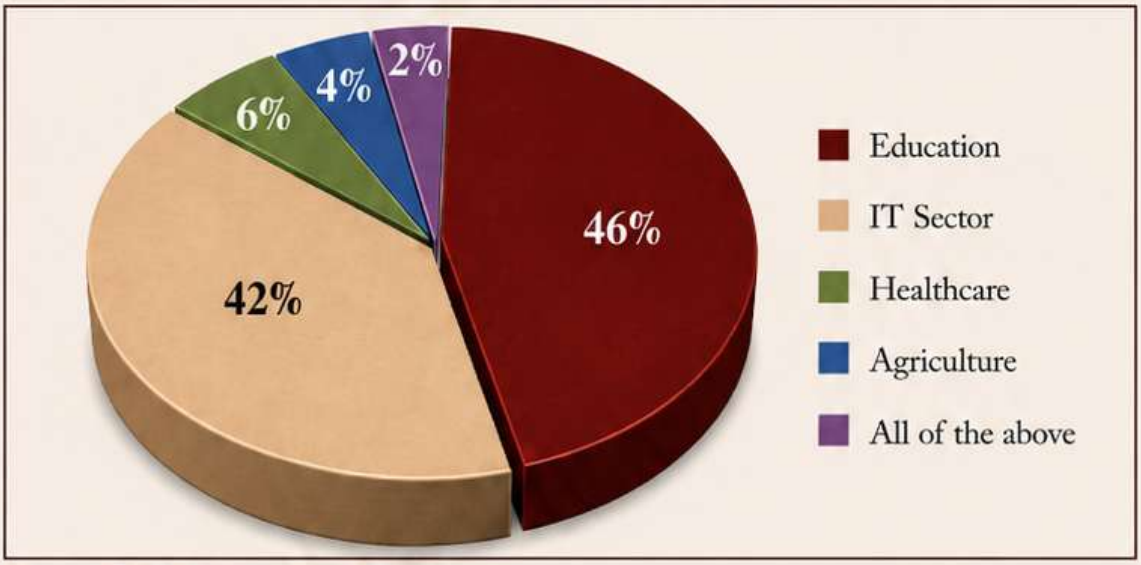


Source: Field Survey, March 2026

Interpretation:

The above chart reveals the respondents' opinion on whether government-private collaborations on AI initiatives will promote technological development in Assam. 76% of the respondents strongly believed that such collaborations will promote technological development, 22% of the respondents showed uncertainty about its impact and rest 2% answered no, suggesting minimal opposition.

FIGURE 5 : RESPONDENTS' OPINION ON SECTORS BENEFITING THE MOST FROM AI INITIATIVES

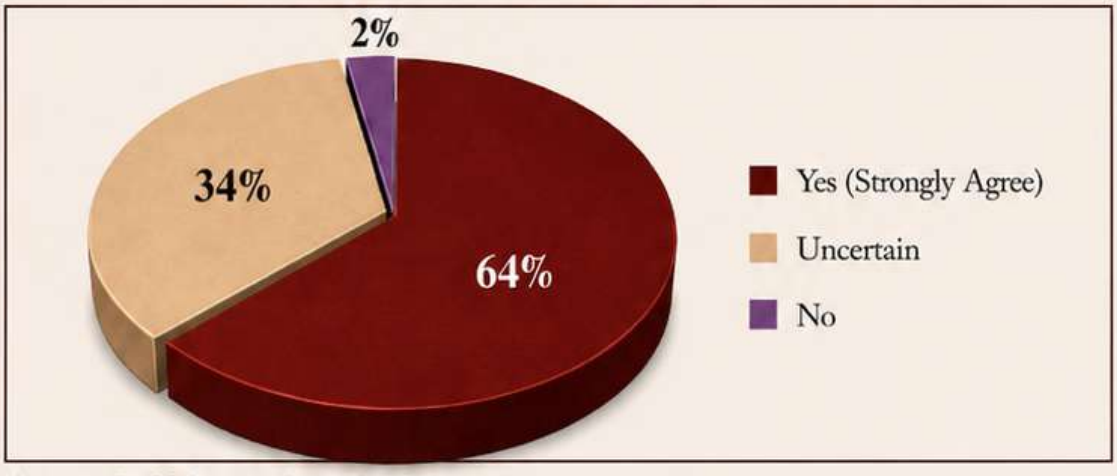


Source: Field Survey, March 2026

Interpretation:

The above data reveals that 46% of the respondents believed that the education sector will benefit the most, followed closely by IT sector (42%), least for healthcare sector (6%) and agriculture sector (4%). Rest 2% suggested that all the following sectors will be benefitted by AI initiatives.

FIGURE 6 : RESPONDENTS' OPINION ON WHETHER AI INITIATIVES WILL CREATE NEW JOB OPPORTUNITIES IN ASSAM

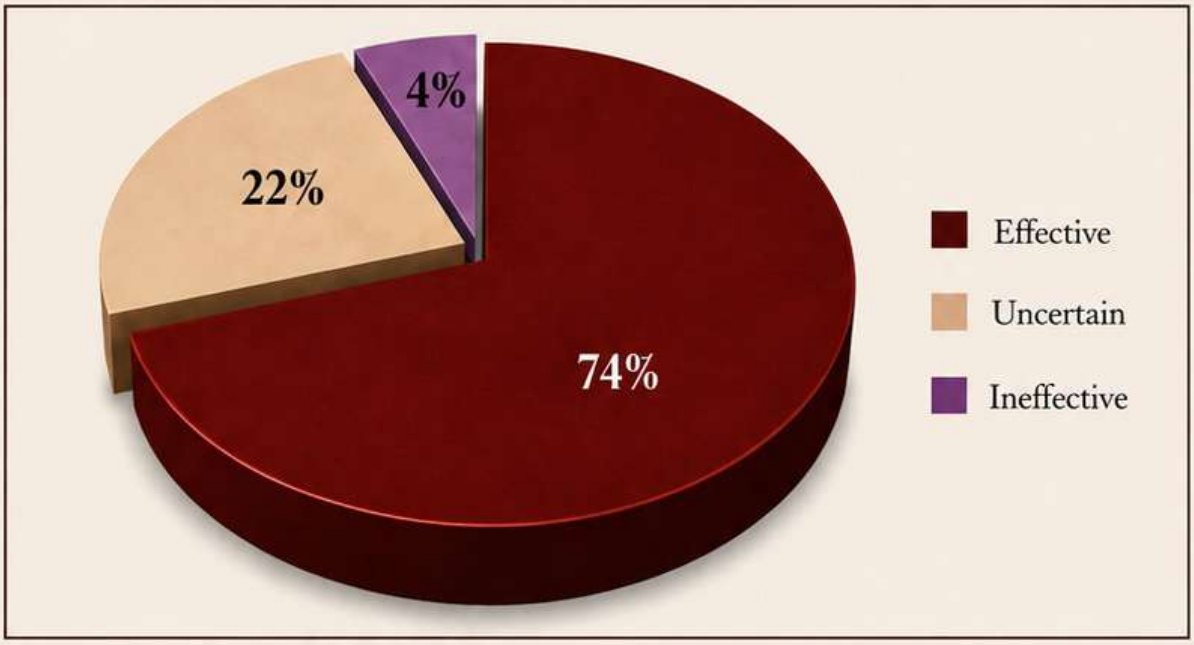


Source: Field Survey, March 2026

Interpretation:

The above data reveals that 64% of the respondents indicated a strong belief that AI will generate new jobs, whereas 34% showed uncertainty about AI's job-creation impact on the state and rest 2% of the respondents answered no, suggesting minimal opposition to the idea.

FIGURE 7 : RESPONDENTS OPINION ON EFFECTIVENESS OF TRAINING PROGRAMS IN IMPROVING AI-RELATED SKILLS



Source: Field Survey, March 2026

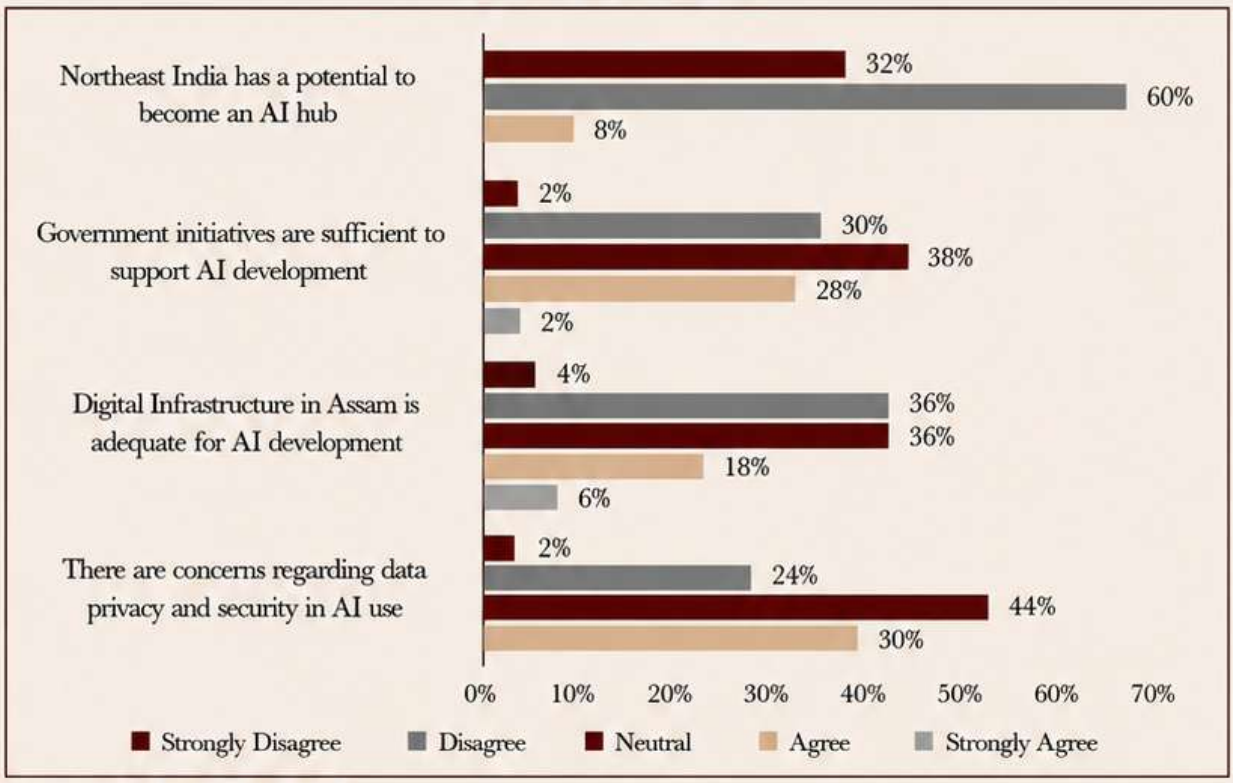
Interpretation:

The above data reveals that training programs are perceived to be effective in improving AI-related skills by a large majority of the respondents (74%), ineffective by a very small minority (4%), and rest 22% of the respondents were uncertain about its effectiveness.



Source: AI

FIGURE 8 : RESPONDENTS' PERCEPTION ON AI DEVELOPMENT IN NORTHEAST INDIA : INITIATIVES, INFRASTRUCTURE AND PRIVACY CONCERNS



Source: Field Survey, March 2026

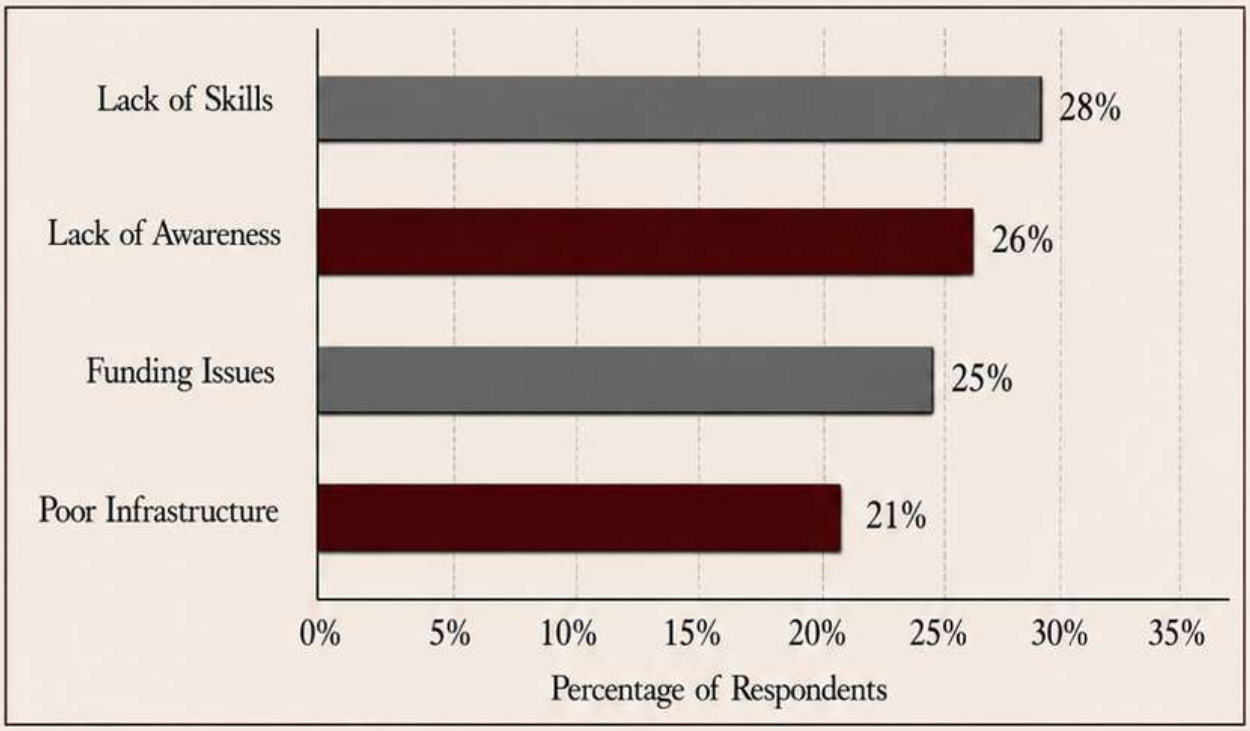
Sl. No.	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
1.	Northeast India has a potential to become an AI hub.	0%	0%	32%	60%	8%	100%
2.	Government initiatives are sufficient to support AI development.	2%	30%	38%	28%	2%	100%
3.	Digital infrastructure in Assam is adequate for AI development.	4%	36%	36%	18%	6%	100%
4.	There are concerns regarding data privacy in security in AI use.	2%	0%	24%	44%	30%	100%

Interpretation:

The above table and the corresponding chart shows the respondents' perception on AI development in Northeast India, focusing on initiatives, infrastructure and privacy concerns.

- 68% of the respondents (60% agreed and 8% strongly agreed) believe that Northeast India can become an AI hub, indicating market potential.
- Only 30% of the respondents believes that Government support is sufficient to support AI development, whereas 38% remained neutral and rest 32% disagreed showing government initiatives are inadequate, highlighting policy gaps.
- 40% of the respondent believe that Assam's digital infrastructure is inadequate for AI development, whereas only 24% believed that the digital infrastructure is sufficient and another majority of 36% remained neutral on this matter.
- 74% of the respondents viewed their worries regarding data protection in AI use and remaining 24% were neutral on this matter.

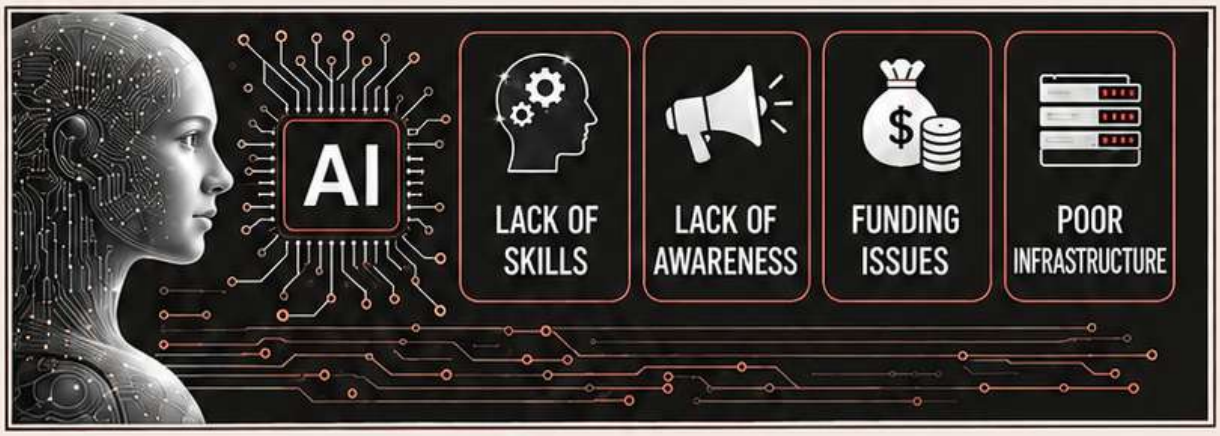
FIGURE 9 : RESPONDENTS' PERCEPTION ON MAJOR CHALLENGES IN AI ADOPTION



Source: Field Survey, March 2026

Interpretation:

The above data reveals that 28% of the respondents believed that lack of skills is a significant barrier, indicating a shortage of qualified talent for AI implementation. Lack of awareness follows by 26%, indicating many potential users are uninformed about AI benefits and application. It is followed by funding issues (25%), highlighting financial constraints hindering implementation of AI projects. Poor infrastructure is reported by 21% as another barrier, suggesting inadequate digital facilities obstructing AI deployment.



Source: AI

FINDINGS

From the study, it has been found that 70% of the respondents are female and the remaining 30% are males. Majority of them fall in the age group 18-25. In terms of educational qualification, most respondents are postgraduates, followed by graduates and undergraduates.

The study further indicates that majority of the respondents hold the view that Government - Private collaborations in AI will promote technological development in Assam. They perceive education sector as most likely to be benefitted from AI initiatives, followed by the IT sector. Healthcare and agriculture sector are considered to have comparatively lesser impact from such initiatives. Majority of them are of the opinion that AI initiatives will generate new employment opportunities in Assam.

It is also revealed from the study that most of the respondents perceive AI - related training programs as effective in developing the skills for AI related jobs. However, a small minority considered them ineffective or are uncertain, indicating scope for improvement in training programs. Majority of them believe that North East India has the potential to emerge as an AI hub. However, a considerable number of respondents remained uncertain about it. The opinions on Government support are divided, with many respondents questioning its adequacy in AI development . A significant portion perceive Assam's digital infrastructure as inadequate for AI development. It also highlights their worries about data protection and confidentiality.

The study also identifies several key challenges in AI adoption, including lack of skills, lack of awareness, funding constraints and inadequate infrastructure. Among these barriers, skill gaps and awareness issues are identified as major barriers.

SUGGESTIONS

The researcher makes the following suggestions in light of the findings :

I. There is a need to organize workshops, seminars and digital campaigns to increase public awareness of AI - based initiatives.

II. AI-centric courses, certifications and vocational trainings should be added by the educational institutions and policymakers to help fill the skill gap by reskilling and upskilling the workforce.

III. It is suggested that there be a focus on making AI more attainable through existing training programs and industries-specific policies embedding AI within key sectors like education, IT, healthcare and agriculture.

IV. The government needs to support startups, innovation hubs and incubation centres to generate more employment opportunities and create the growth environment required for technological innovations in Assam.

V. More investments should be channelled into improving the digital infrastructure of the state, especially regarding data connectivity, data centers and technological resources in semi- urban and rural areas.

VI. The government should take stringent regulations and proper implementation plans related to data security, privacy and ethical AI usage for building and retaining public trust.

VII. Financial support, incentives and educational initiatives should be provided to overcome the critical bottlenecks, particularly limited awareness, inadequate financial resources and infrastructural constraints.



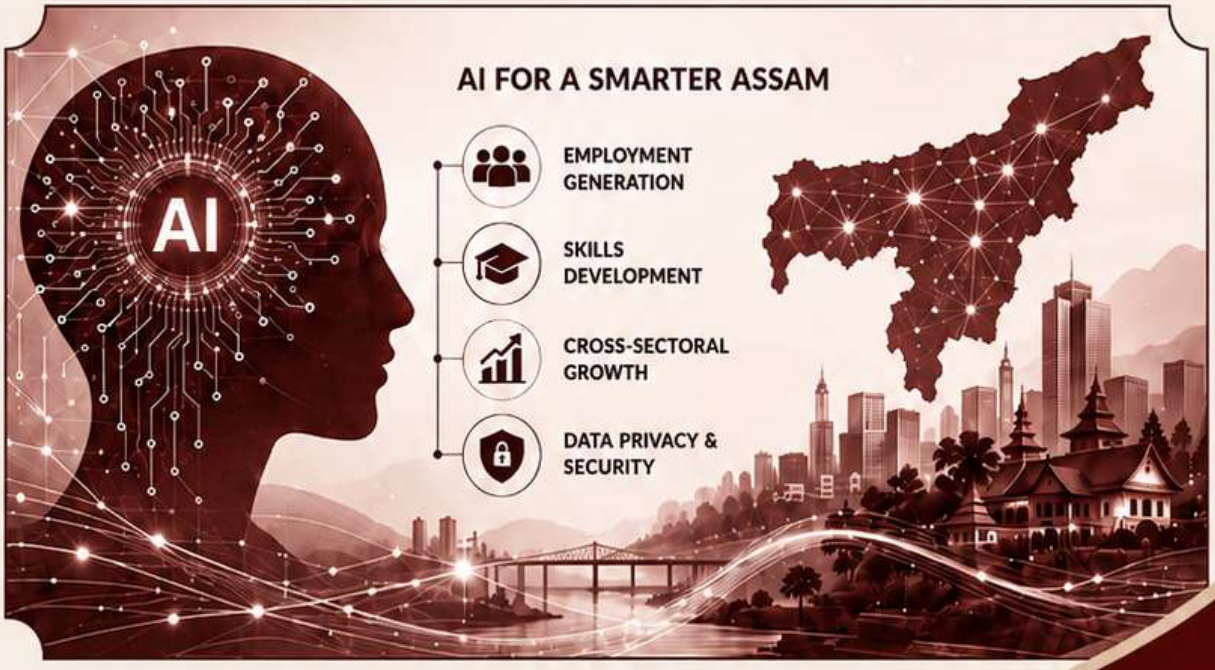
Source: AI

CONCLUSION

The study analysed the impact of Artificial Intelligence and the Assam - Google Cloud Memorandum of Understanding (MoU) in enhancing technology and innovation in Assam. The findings indicate that the objectives of the study are substantially achieved because respondents expressed favourable attitude toward AI initiatives and recognised the enormous potential of AI initiative to catalyse growth and development within the state.

The study further revealed that employment generation, skills development and other cross- sectoral growth will be significantly impacted by AI. In this context, the growing need of AI and digital skills also points to a shift in the economy's orientation towards more technology-based activities, making such initiatives more meaningful and relevant.

However, key constraints are also recognised in the study, such as low level of awareness among the public, skill deficits, infrastructural constraints and concerns over data privacy and security. Thus, despite the vast potential of the state to develop into a centre for AI- led innovations in the near future, this can only be achieved with effective implementation of such initiatives, improved infrastructure and stronger policy support.



Source: AI

REFERENCES

Journal Articles :

1. Inakhiya, G. (2025). Artificial intelligence and smart cities in India: A conceptual and policy review. *Town and Regional Planning*, 87, pp. 148–160. https://doi.org/10.38140/trp.v87i.9623
2. Maisnam, G., Sharma, S., Khoisnam, N., & Singh, R. (2025, March). Agricultural extension in Northeast India: Harnessing artificial intelligence (AI) and the Internet of Things (IoT) for sustainable development. *Scope Journal*, 1541–1552. https://scope-journal.com/published_paper/1352/Agricultural%2BExtension%2Bin%2BNortheast%2BIndia%3A%2BHarnessing%2BArtificial%2BIntelligence%2B%28AI%29%2Band%2Bthe%2BInternet%2Bof%2BThings%2B%28IoT%29%2Bfor%2BSustainable%2BDevelopment?utm_
3. Yomso, M. (2025, December). Dynamics of AI Adoption In Corporate India And Its Implications For Entrepreneurship: A Conceptual Review. *Journal of Novel Research and Innovative Development*, 3(12). https://www.tijer.org/jnrid/papers/JNRID2512015.pdf?

Government Reports :

1. Government of Assam. (2025, November 11). Report on the MoU Signing Ceremony between Government of Assam and Google Cloud on "Artificial Intelligence (AI) in Governance". Sewa Setu Assam. https://sewasetu.assam.gov.in/site/docs_download?p=p3EipzSaMFDG1WHDHfjMT9wqI1yoaEmY1WypT9lqqS9iovgOnTIsGJ9IK1AcM25cozsgD2JIMj1ioaysLzI0q2lyoy9Uo3Mypz5gMJ50K29zK0SmpzSgK2ShMS9Uo29aoTIsD2kiqJEso25sZGS0nS9Bo3MyoJWypksZwN1AF5jMTL=
2. NITI Aayog, (2025, September). AI for Viksit Bharat: The Opportunity for Accelerated Economic Growth. https://niti.gov.in/sites/default/files/2025-09/AI-for-Viksit-Bharat-the-opportunity-for-accelerated-economic-growth.pdf?

Institutional Report :

1. DPO India. (2025, April). India AI ecosystem brief 2025. https://dpo-india.com/Resources/AI_and_Privacy_laws/India-AI-Ecosystem-Brief-2025.pdf?utm_

Press Release :

1. Press Information Bureau . (2025, December 30) . Transforming India with AI . Government of India. https://www.pib.gov.in/PressReleaseDetail.aspx?PRID=2209737&reg=6&lang=1

Websites :

1. https://northeastupdate.com/assam/assam-partners-with-google-cloud-to-become-indias-ai-hub/ - Retrieved on 7 April, 2026
2. https://aiforgood.itu.int/challenges-and-opportunities-of-artificial-intelligence-for-good/ - Retrieved on 8 April, 2026
3. https://timesofindia.indiatimes.com/city/guwahati/assam-signs-mou-with-google-to-improve-administration-with-ai/amp_articleshow/125255517.cms - Retrieved on 8 April, 2026
4. https://www.sandpaper.guru/blog/post/ai-utility-assam-flooding-economic-challenges - Retrieved on 8 April, 2026
5. https://datamites.com/blog/whats-driving-the-demand-for-artificial-intelligence-in-guwahati/?srsltid=AfmBOopP_gn469ntgdnmiL6I2jC9Q-p5EmuY8HHY1vutWZDmCECgOyvG - Retrieved on 8 April, 2026



Source: AI

WOMEN ENTREPRENEURSHIP

EMPOWERED WOMEN EMPOWER ECONOMY

'AN IMPULSE TO UPSWING ASSAM'S ECONOMY'.







"When women succeed, societies thrive and economies grow.

EMPOWERMENT ENTREPRENEUR IMPACT

WRITER:

Nilakshi Kalita
Sukanya Kumar
B.Com 6th Semester

DESIGNER:

Himangshu Kalita
B.B.A 6th Semester

SIGNIFICANCE OF THE STUDY:

The study is of great significance as women are the foundation of life and an integral part of the social fabric that sustains it. A. This study highlights the capabilities of confident women who challenge maledominated industries and venture into entrepreneurship. B. This paper will help identify the strengths and challenges of women entrepreneurs in Assam, thereby paving the way for practical solutions to their problems. C. This paper will help aspiring entrepreneurs identify their own potential to start independent ventures, thereby contributing to socio-economic development.

OBJECTIVES OF THE PAPER:

The following are the objectives of the paper:

- To analyse the reasons that motivate women to choose entrepreneurship.
- To study the current situation of women entrepreneurship in Assam.
- To identify areas where changes can be made with regards to opportunities for women in the field of self-establishment.
- To examine the social and economic factors that contributes towards the entrepreneurial talent of women.

RESEARCH METHODOLOGY

The research has been carried out by collecting data through a close ended questionnaire, with the population size being the entire state of Assam and sample size being 20 comprising of women entrepreneurs, along with secondary data gathered primarily from academic journals, white papers, and government websites. The study is both descriptive and illustrative in nature. Women entrepreneurship and the various contributing and restraining factors are studied by presenting the responses in an elaborate format suitable for comprehension and collation. For the area of study, certain districts of Assam are selected based on feasibility to interpret.

The data has been made reliable and comparable with the calculation of percentages and presentation through bar graphs, pie charts, and frequency distribution (histogram style).

2. REVIEW OF LITERATURE:

Swargiary and Roy (2023) elucidate that women-led startups face many complications in scaling up their ventures, because they do not have adequate access to suitable training courses and financial support. Ineffective institutional aid makes it difficult for them to design and formulate new plans and to compete in larger markets. The analysis indicates that without appropriate assistance, many women do not feel confident enough to expand their ventures. The authors also highlight the need for both the government and private sectors to work in unison to offer better training and financial support. As a result, they report that a robust support mechanism is essential for the growth and long-term sustainability of female-led enterprises.

Dutta and Radha (2022)

studied how family responsibilities influence female entrepreneurs. They found that balancing domestic duties and running a business is very challenging for female entrepreneurs, presenting various obstacles in the smooth operation of their businesses. The study points out that family support and flexible regulations can help to minimise these constraints. It also highlights that inclusivity is just as essential as providing cost-effective opportunities.

Kar & Roy (2022)

Their analysis of the Barak Valley region focuses on the practice of microfinance and informal financial networks. Formal banks remain largely inaccessible, primarily due to excessive paperwork requirements, lack of collateral and geographical constraints. As a result, women usually depend on local moneylenders or self-help groups that provide limited capital but at higher costs. This study reveals that such dependence leads to slower growth and aggravates financial vulnerability of women. For making women of Barak Valley financially empowered,they suggested the need to establish formal microfinance and banking services to rural regions to ensure equitable access.

Sharma (2021)

This study examines the divergence between urban and rural entrepreneurs in Assam, specifically in Guwahati city. The study highlights the significant financial and accessibility gap that exists between rural and urban women workers. Urban women entrepreneurs benefit from adequate infrastructure, market accessibility, capital support, digital commerce facilities, and adequate recognition for their efforts. In contrast, rural women are deprived of all these advantages. Rural women are mostly reliant on local moneylenders and self-help groups, which provide limited capital at higher costs, thus restricting their access to larger markets. The study highlights the divide created in terms of resources and infrastructure. The author concludes by recommending that bridging this gap will require targeted policy measures and technology-based integration approaches.

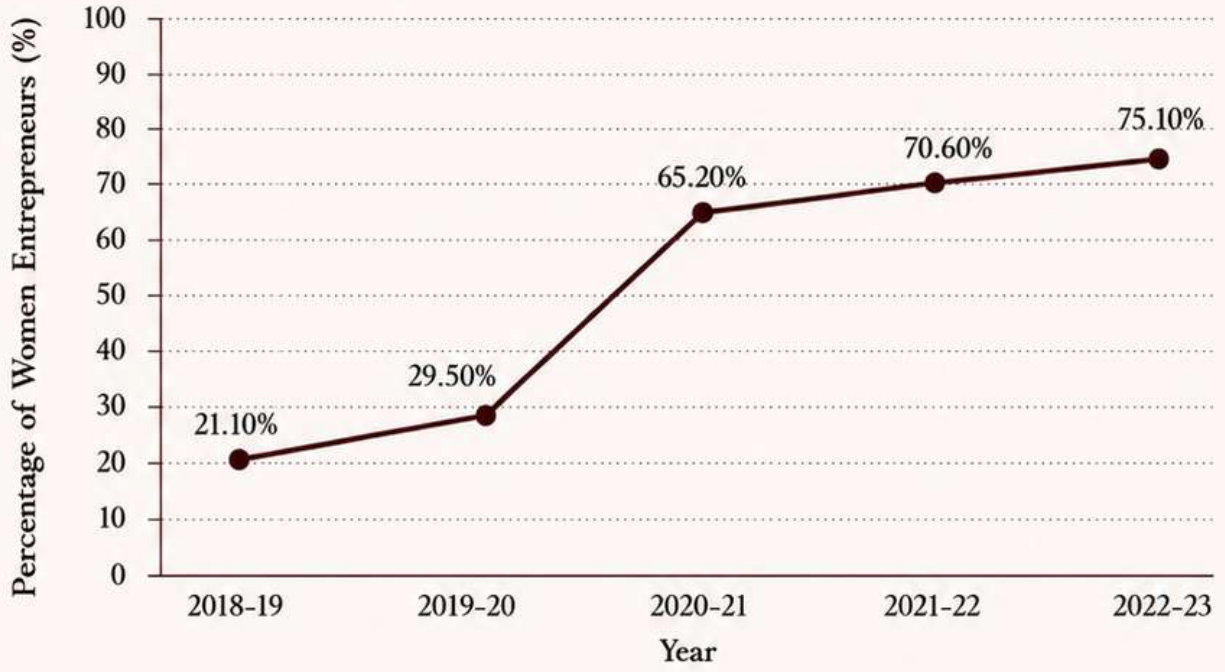
Devi & Goswami (2014); Borah (2014):

The studies conducted by both authors emphasise the positive impact of entrepreneurship on women's empowerment. Their research states that women-owned startups enhance financial independence, decision-making authority, and community leadership among women. Their findings confirm that entrepreneurial activities foster confidence and social recognition. The potential is indeed transformational when it comes to women in business. They advocate for policies that further develop women's skills as a pathway towards empowerment.

DATA ANALYSIS

Percentage increase in women entrepreneurs of Assam from 2018 to 2023.

SOURCE: ANNUAL REPORT OF PERIODIC LABOUR FORCE SURVEY 2022-23.



The above graph represents the gradual increase in percentage of women entrepreneurs in Assam.

PRIMARY (ONLINE SURVEY)

Category	Variables	Frequency (a = 20)	Percentage %
Age group	18–24 years	13	65%
	25–32 years	3	15%
	33–39 years	2	10%
	40 & above	2	10%
	Total:	**20**	**100%**

District	Frequency (a=20)	Percentage %
Kamrup(M)	9	45%
Kamrup (R)	4	20%
Nalbari	2	10%
Jorhat	1	5%
Bongaigaon	1	5%
Dima Hasao	1	5%
Barpeta	1	5%
Sonitpur	1	5%
Total:	**20**	**100%**

Monthly Income	Frequency (a=20)	Percentage %
Below 20,000	10	50%
20,000–40,000	9	45%
40,000–60,000	1	5%
Total:	**20**	**100%**

Entrepreneurial Activity	Frequency (a=20)	Percentage %
Food processing	10	50%
Handloom/Handicraft	8	40%
Others	2	10%
Total:	**20**	**100%**

Economic problems faced	Frequency (a=20)	Percentage %
Unable to ask for help from family	8	40%
Have not receive government scheme	6	30%
Unable to get loans banks	5	25%
Tax related problem	1	5%
Total:	**20**	**100%**

Socio economic problems	Frequency (a=20)	Percentage %
Burden of household responsibilities	11	55%
Family not supportive	5	25%
Patriarchal problems	4	20%
Total:	**20**	**100%**

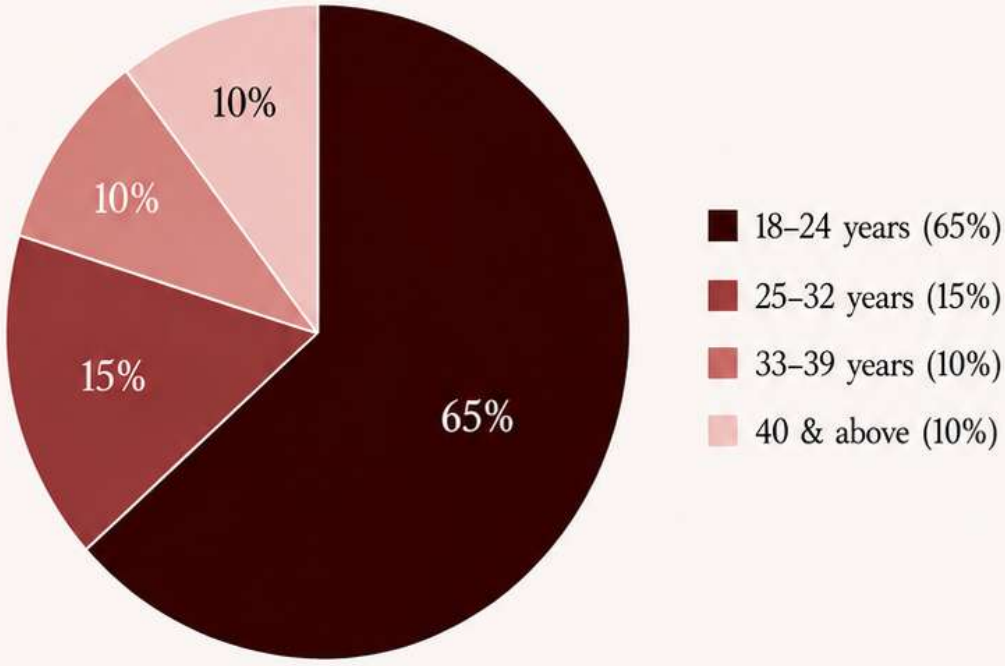
Training	Frequency (a=20)	Percentage %
No formal education of entrepreneurship	9	45%
Skill upgrading program	4	20%
Specialized in business	4	20%
No	3	15%
Total:	**20**	**100%**

Marketing techniques used	Frequency (a=20)	Percentage %
Social media	12	60%
Local vendor	7	35%
Newspaper ads and local exhibitions	1	5%
Total:	**20**	**100%**

Staff so hired	Frequency (a=20)	Percentage %
No Staff (self managed)	13	65%
Permanent Staff	4	20%
Temporary	3	15%
Total:	**20**	**100%**

Govt. scheme	Frequency (a=20)	Percentage %
Orunodoi Scheme	4	20%
Any other scheme	13	65%
Mukhya Mantri Mahila Udyamita Abhiyan (MMUA)	3	15%
Total:	**20**	**100%**

1. Age Responses.



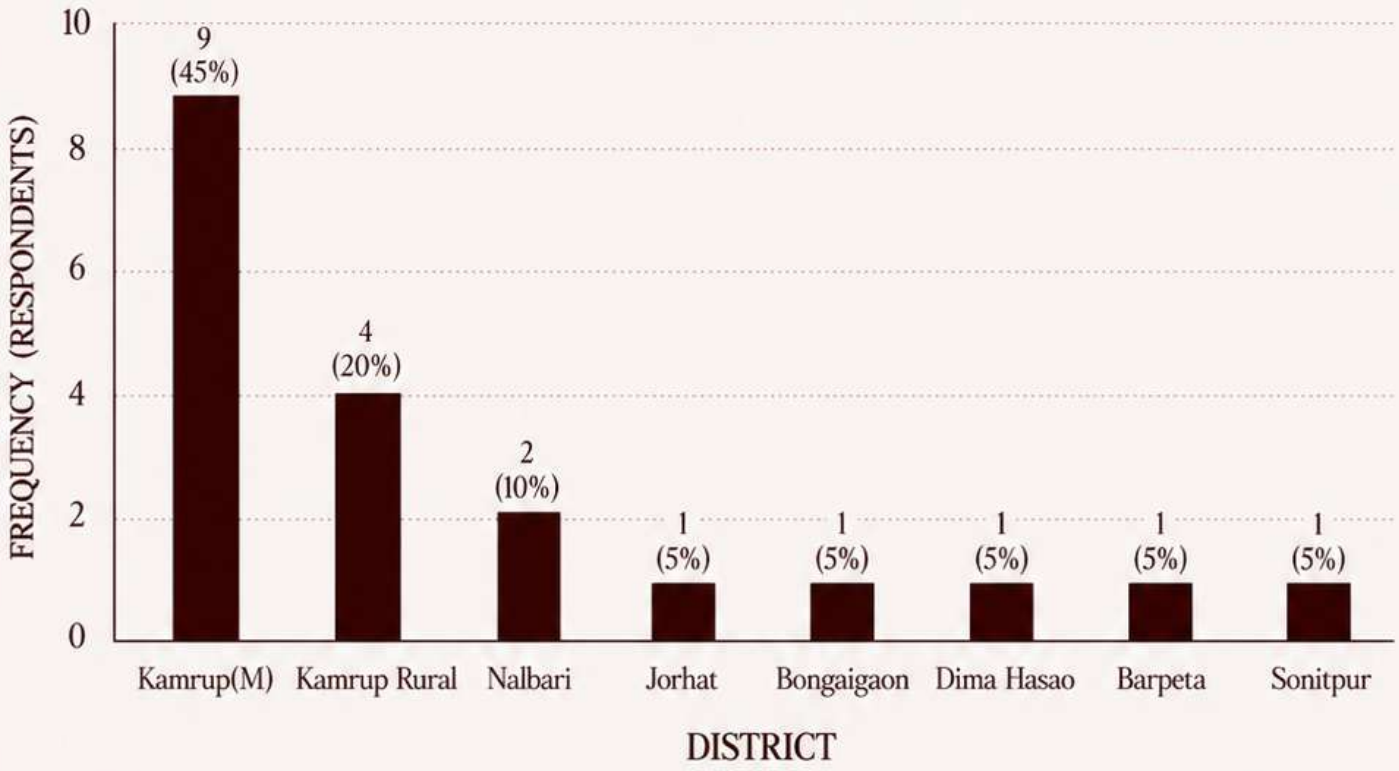
Interpretation:

The above pie chart represents the age distribution of the respondents. It shows that a predominantly young population is engaged in entrepreneurial activities.

13 respondents (65%) belong to the age group of 18 to 24,
3 respondents(15%) are in the 25 to 32,
2 (10%) in the 33 to 39 and
another 2 (10%) in the 40 and above age group.

This suggests that youth are actively driving entrepreneurship in the region.

2. SELECTION OF RESPECTIVE DISTRICTS.



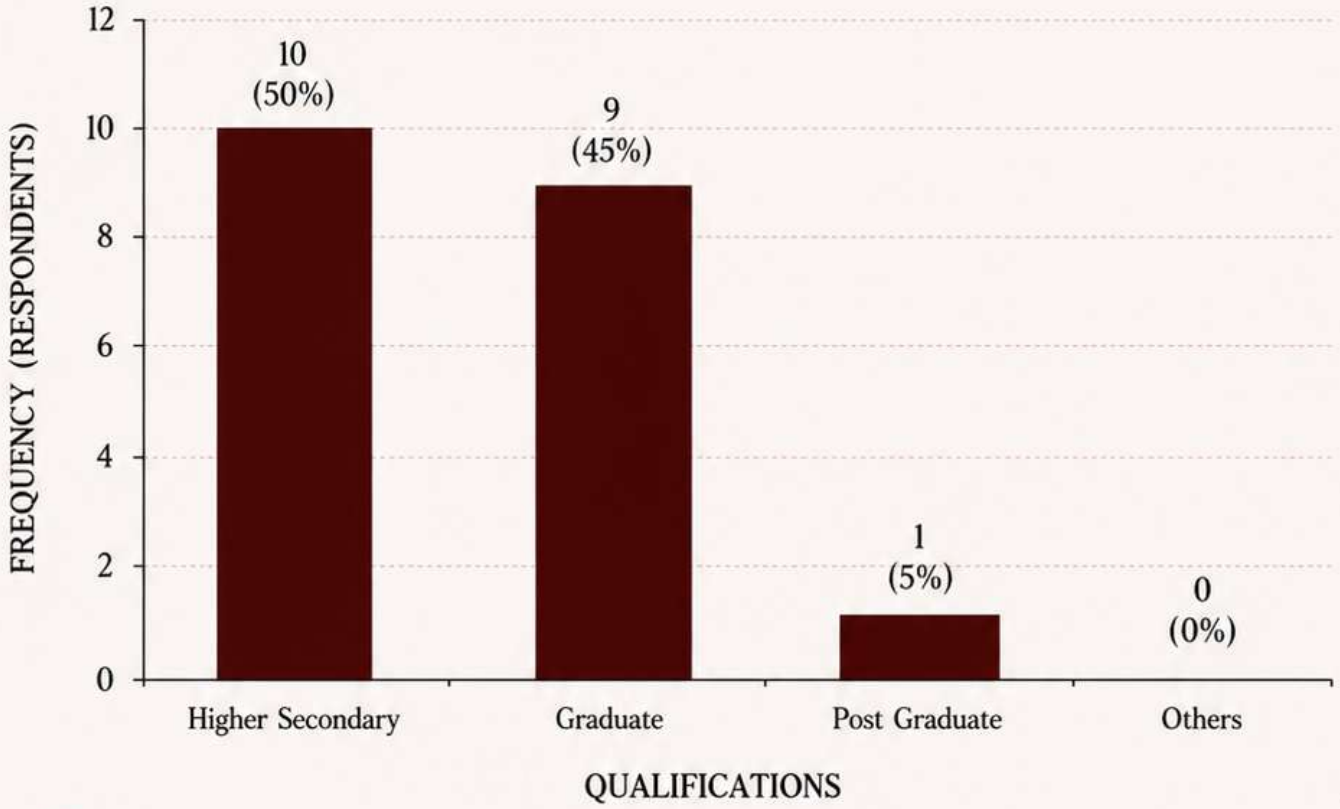
Interpretation:

This bar graph represents the districts to which the respondents belong.

It shows that most respondents are from the Kamrup (M) district, constituting 9 respondents (45%), Kamrup Rural (20%) , Nalbari (10%) and all other districts each account for 1 respondent (5%).

This indicates that the data is geographically concentrated in Kamrup (M), which is identified as the primary district in this study's analysis.

3. QUALIFICATIONS OF RESPONDENTS.



Interpretation:

This data represents the educational qualifications of the respondents.

The majority have completed higher secondary education, accounting for 10 respondents (50%), while 9 out of 20 respondents (45%) are graduates. This indicates that most of them possess a basic to. intermediate level of education.

4. INCOME GENERATED:

Monthly Income	Frequency (a = 20)	Percentage %
Below ₹20,000	10	50%
₹20,000 – ₹40,000	9	45%
₹40,000 – ₹60,000	1	5%
Total:	**20**	**100%**

Interpretation:

This data highlights the monthly income of the respondents.

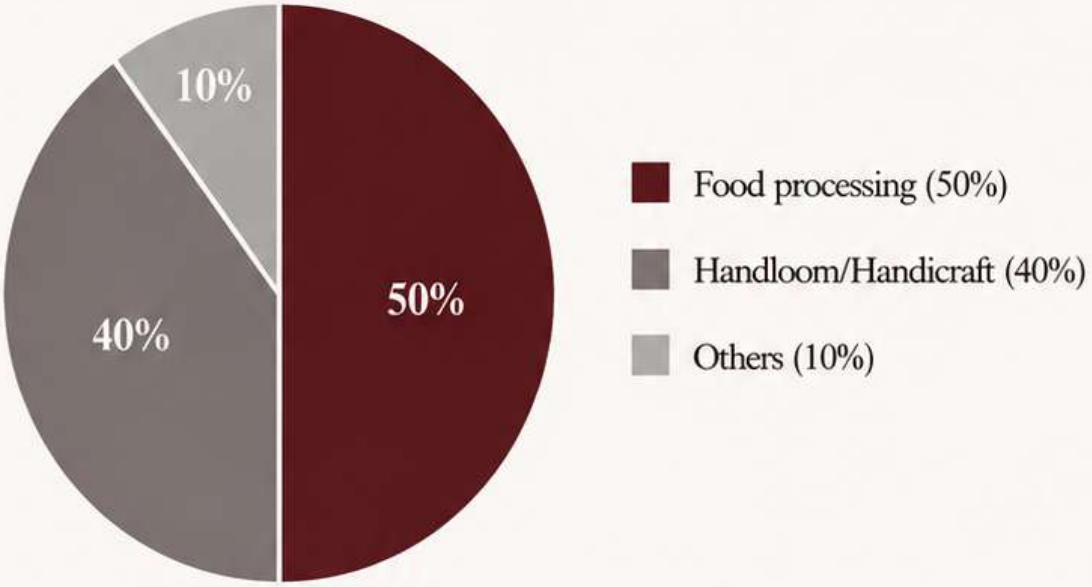
It shows that most respondents earn below ₹20,000, accounting for 10 respondents (50%), while 9 respondents (45%) generate ₹20,000 to ₹40,000 in monthly income and 1 respondent (5%) earn ₹40,000 to ₹60,000.

This indicates that they are either in the early stage of their business or operating at a small-scale level.

5. ACTIVITIES ENGAGED IN :

Category	Variables	Frequency (n=20)	Percentage (%)
Entrepreneurial Activity	Food processing	10	50%
	Handloom/Handicraft	8	40%
	Others	2	10%
Total:		**20**	**100%**

ACTIVITIES ENGAGED IN (n=20)



Interpretation:

This chart represents the different types of activities in which the respondents are engaged.

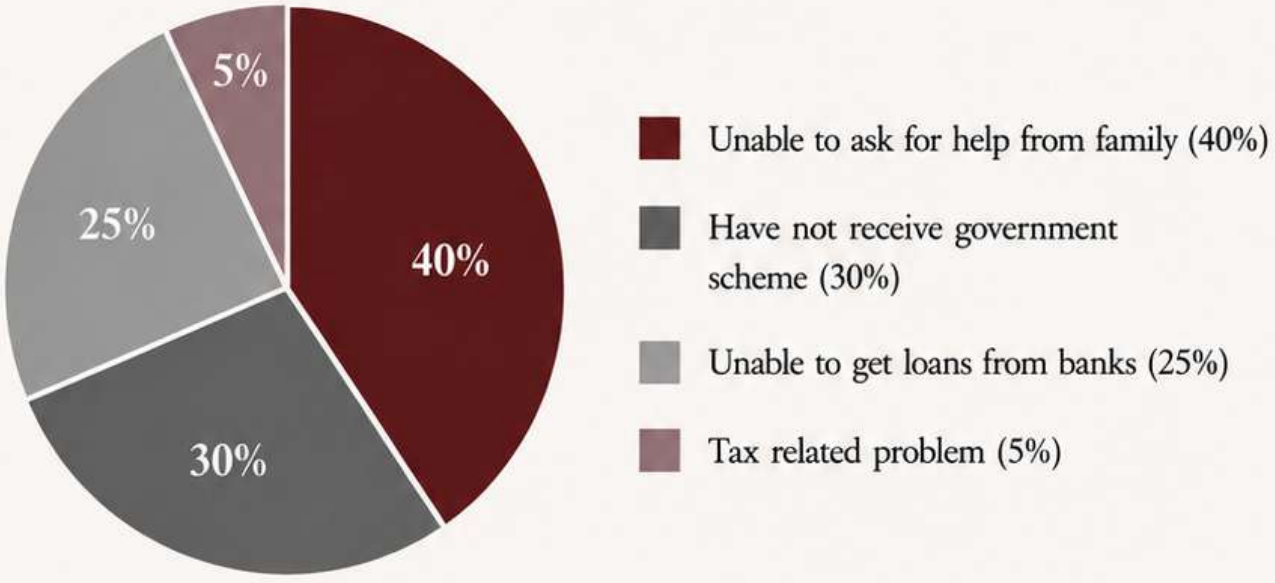
Out of 20 respondents, 10 (50%) are in food and food manufacturing, 8 (40%) in handloom/handicraft, 2 (10%) in other activities are engaged in any entrepreneurial activity.

This clearly shows the predominance of home-based and traditional industries over technology-driven startups.

6. ECONOMIC PROBLEMS FACED :

Problems Faced	Frequency (n=20)	Percentage (%)
Unable to ask for help from family	8	40%
Have not receive government scheme	6	30%
Unable to get loans from banks	5	25%
Tax related problem	1	5%
Total:	**20**	**100%**

ECONOMIC PROBLEMS FACED (n=20)



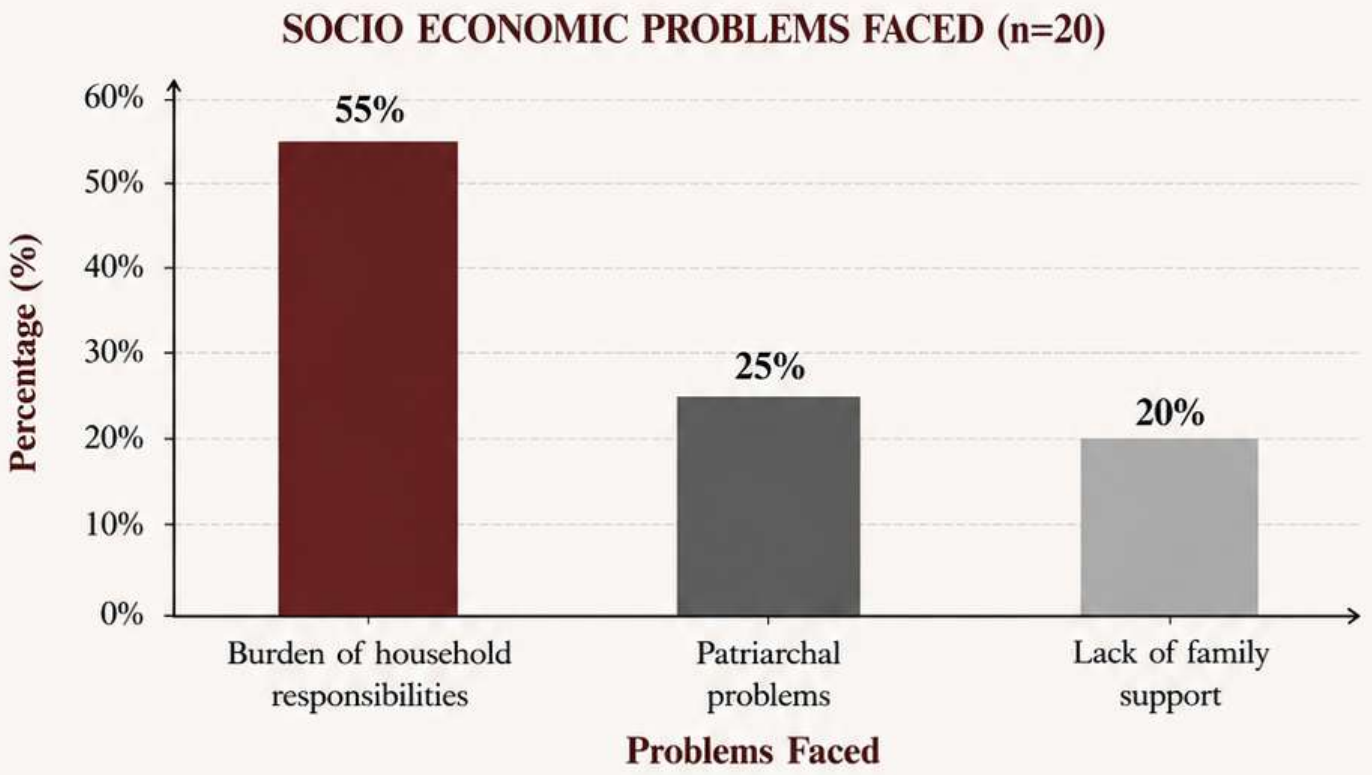
Interpretation:

This data highlights the economic problems faced by respondents.

It shows that 30% of respondents have not received government scheme support, while another 40% are unable to seek financial help from their families. Additionally, 25% face difficulties in obtaining loans from banks, and 5% have tax-related problems.

7. SOCIO ECONOMIC PROBLEMS FACED

Problems Faced	Frequency (n=20)	Percentage (%)
Burden of household responsibilities	11	55%
Patriarchal problems	5	25%
Lack of family support	4	20%
Total:	**20**	**100%**



Interpretation:

This graph highlights the socio-economic challenges faced by respondents.

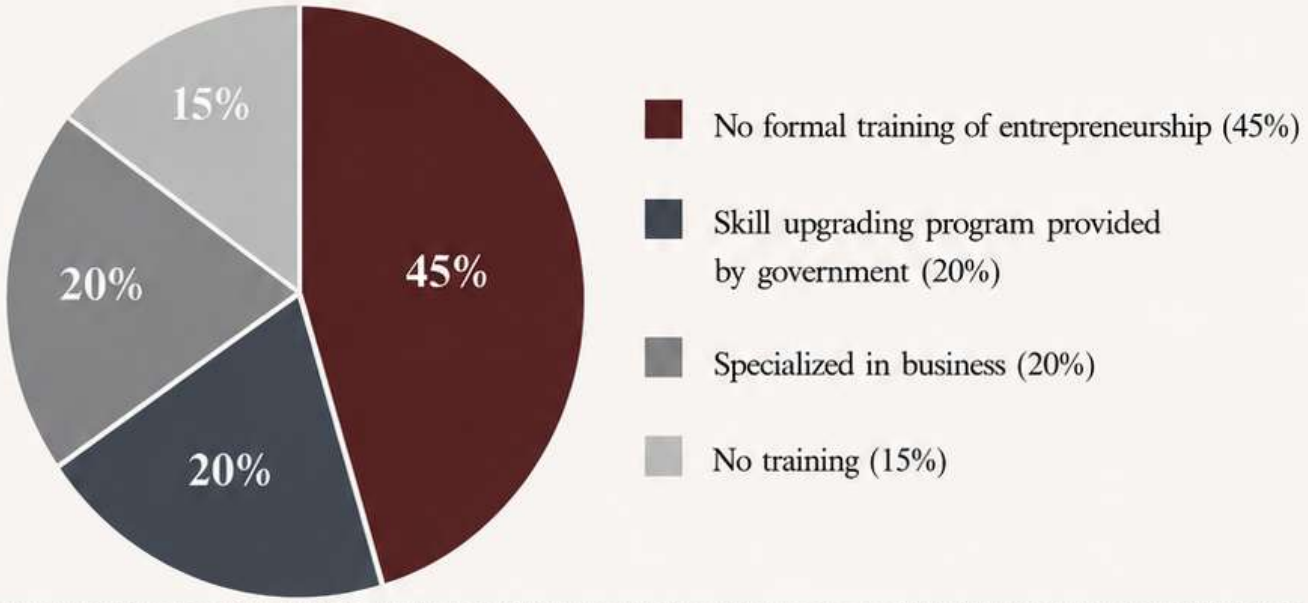
It shows that 11 respondents (55%) face the burden of household responsibilities, 5 (25%) faces patriarchal problems and 4 (20%) lack family support.

These issues affect them both mentally and physically.

8. TRAINING RECEIVED BY RESPONDENTS :

Training Received	Frequency (n=20)	Percentage (%)
No formal training of entrepreneurship	9	45%
Skill upgrading program provided by government	4	20%
Specialized in business	4	20%
No training	3	15%
Total:	**20**	**100%**

TRAINING RECEIVED BY RESPONDENTS (n=20)



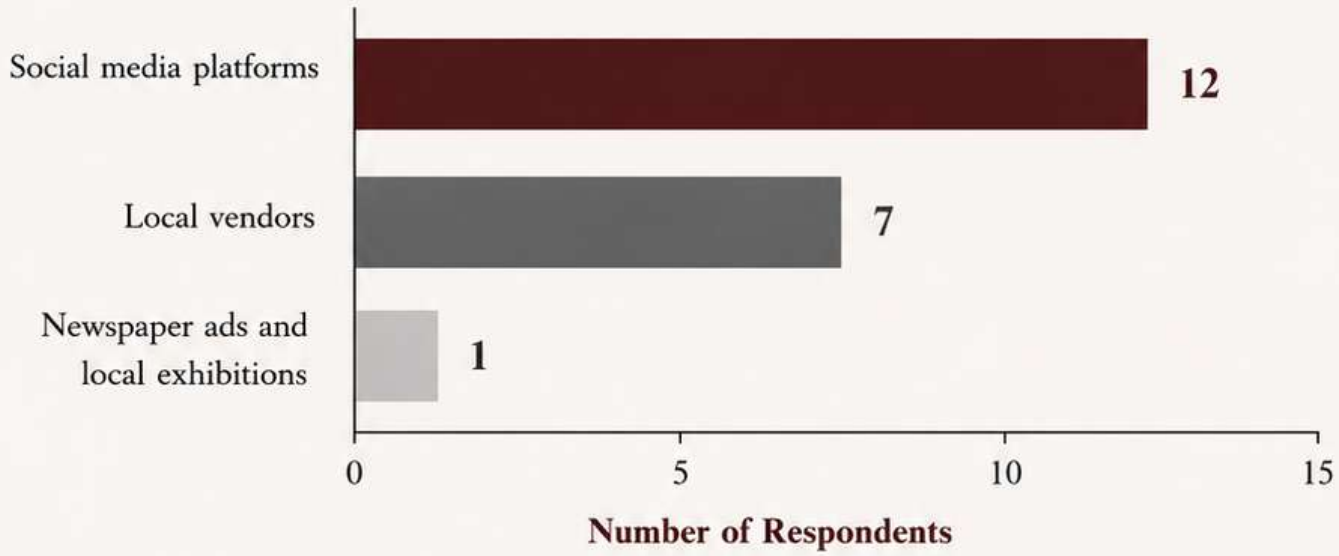
Interpretation:

This chart shows the training received by the respondents.
It indicates that 45% have not received any formal training to start and operate a business, 20% have participated in skill upgrading programmes provided by the government , another 20% have completed a specialisation in business and no training have not been received by 15% of respondents.
This highlights a high proportion of untrained individuals among respondents.

9. MARKETING TECHNIQUES USED :

Marketing Techniques	Frequency (n=20)	Percentage (%)
Social media platforms	12	60%
Local vendors	7	35%
Newspaper ads and local exhibitions	1	5%
Total:	**20**	**100%**

MARKETING TECHNIQUES USED (n=20)



Interpretation:

This data highlights the marketing techniques used by respondents.

Out of 20 respondents, 12 (60%) use social media platforms to promote their products or services, while 7 (35%) rely on local vendors and 1 (5%) on newspaper ads and local exhibitions.

This shift indicates that digitalisation provides an easily accessible and cost-effective means to advertise products and services to a wider audience.

10. STAFF SO HIRED

Staff So Hired	Frequency (n=20)	Percentage (%)
No staff (own business)	13	65%
Permanent staff	4	20%
Temporary staff	3	15%
Total:	**20**	**100%**



Interpretation:

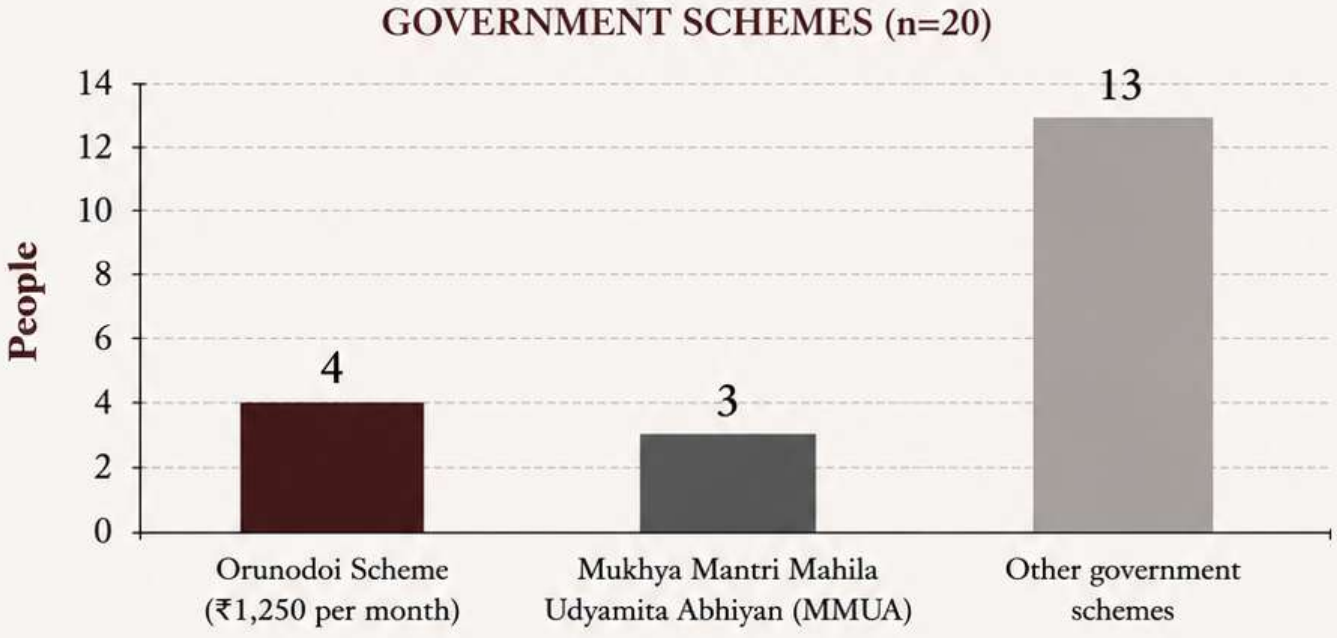
This graph represents the staffing pattern among respondents.

It shows that 13 respondents (65%) operate their businesses entirely on their own with no staff, 4 respondents (20%) have permanent staff and 3 (15%) have hired workers on a temporary basis.

This reflects the limited capital available and the small scale of these ventures, which in turn restricts their capacity to generate long-term employment.

11. GOVERNMENT SCHEMES

Government Schemes	Frequency (n=20)	Percentage (%)
Orunodoi Scheme (₹1,250 per month)	4	20%
Mukhya Mantri Mahila Udyamita Abhiyan (MMUA)	3	15%
Other government schemes	13	65%
Total:	**20**	**100%**



Interpretation:

This data shows the different government schemes received by respondents.

It reveals that 4 respondents (20%) have benefited from the Orunodoi scheme, which provides ₹1,250 on a monthly basis; 3 respondents (15%) has benefited from the Mukhya Mantri Mahila Udyamita Abhiyan (MMUA), a scheme introduced by the Assam government to make women self-reliant and foster entrepreneurship; and 13 respondents (65%) have received benefits from other government schemes.

FINDINGS:

1. 65% of respondents are in the adult stage. This indicates developing eagerness among the group of participants in starting own ventures.

2. Majority of the respondents are from the Kamrup(M)district of Assam. This points out that the sample predominantly centers around metropolitan atmosphere.

3. Over half of the respondents have attained higher secondary and graduation studies. This shows that the sample is proportionately knowledgeable.

4. Govt schemes act as a notable component in the elevation of nascent entrepreneurs. From the above data it is obvious that majority of the respondents were not willing to divulge the identified schemes leveraged by them accentuating their vulnerability. Moreover MMUA along with Orunodoi scheme were of subsequent importance for the other 35% of informants combined.

5. Regarding the obstacles faced in establishing their ventures, the majority of respondents indicated that they did not receive any support from their families.

6. The data also reveals that 45% of respondents did not receive any formal training on how to start or manage a business, and lacked clear guidance in this regard.

7. Significantly higher number of the participants primarily used social media platforms to market and promote their products or services. Moreover, majority of them didn't hire staff while the rest of the sample focussed on hiring permanent and temporary staff.

SUGGESTIONS:

1. The findings of this study indicate an urgent need to upskill aspiring women entrepreneurs and provide them with financial assistance. From the very young stage the youth should be taught the art of self reliance, the primary driver of which is Entrepreneurialism'.

2. The study also recommends organising awareness seminars and training campaigns so that women can better understand market dynamics and business opportunities. Skill enhancement programs will further strengthen their zeal.

3. The research also emphasises the need to educate women entrepreneurs to harness various other sources of funding rather than solely relying on government schemes. Financial literacy is primal in this regard.

4. The analysis indicates that identifying the social and economic factors affecting women will significantly contribute to promoting and nurturing the entrepreneurial talent of women in Assam.

5. Startups are now the life and blood of our economy which necessitates the conduct of periodic review meetings at the state level to assess the progress of women entrepreneurs.

CONCLUSION:

Women entrepreneurship in Assam is one of the most rapidly growing forces, no longer confined to the boundaries of economic activity alone. It has reshaped families, markets, and community structures as a transformative social process. The present study brings to light how women entrepreneurs possess remarkable resilience, creativity, and managerial competence in order to undertake, sustain, and grow their business ventures. Their participation across various domains — food processing, handicrafts, and small-scale services — embodies a significant shift in social attitudes and reflects a growing desire for financial independence and self-determination.

However, the present research also makes evident that women continue to face a broad array of obstacles, including limited access to capital, inadequate exposure to structured training programmes, and socio-cultural barriers that restrict their mobility and independent decision-making. These challenges prevent women from expanding their entrepreneurial ventures and accessing larger commercial markets.

BIBLIOGRAPHY

WEBSITE:

1. [https://cm.assam.gov.in/schemes-] Retrieved as on 15.03.2026

GOVERNMENT REPORT: Ministry of Statistics & Programmte Implementation (22 JULY 2024). ANNUAL REPORT PERIODIC LABOUR FORCE SURVEY 2018-23.

RESEARCH PAPER:

1. Swargiary, K., & Roy, K. (Dec 21,2023). A survey study on women entrepreneurship in the BTR area of Assam. https://doi.org/10.32388/HMETSZ.

JOURNAL ARTICLE:

2. Dutta, D., & Radha, T. (2022). Work-life balance among women entrepreneurs of Assam. Journal of Extension Education, 34(1), 6766-6773. https://doi.org/10.26725/JEE.2022.1.34.6766-6773
3. Kar, T., & Roy, N. (2022). Women entrepreneurship and self-reliant India: A case study of Barak Valley in Assam. International Journal of Research and Review, 9(12), 457-465. https://doi.org/10.52403/ijrr.20221251
4. Sharma, P. (2021). A study on the problems and prospects of women entrepreneurs with special reference to Guwahati city. Journal of Information Technology in Industry, 9(1), 409-5.
5. Devi, A., & Goswami, G. (2014). Women entrepreneurship development in Assam with special reference to Kamrup district, India. Clarion: International Multidisciplinary Journal, 3(1), 149-156.
6. Borah, A. (2014). Socio-economic status of women entrepreneurship: A case study of Morigaon district in Assam. IOSR Journal of Humanities and Social Science, 19(7), 26-33.

GENDER INEQUALITY IN THE LABOUR MARKET

A Study of Challenges, Legal Frameworks and the Path Towards Equal Opportunities



UNDERSTAND

Examine the root causes and socio-economic factors behind gender inequality in the labour market.

ANALYZE

Analyze the impact of legal frameworks, workplace policies, and societal norms on women's participation and progress.

ACT WISELY

Recommend practical solutions to build an inclusive, equitable and empowered workplace for all.

WRITERS

1. Abinash Kalita
M.Com 2nd Semester

2. Smeeta Bhowmick
M.Com 2nd Semester

DESIGNER

Natasha Kalita
BCA 5th Semester

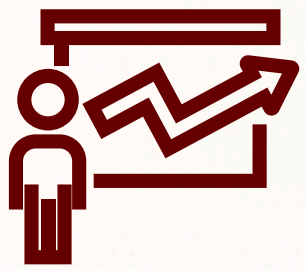
ABSTRACT

This study attempts to evaluate the persistence of gender discrimination within the labour market, identifying the differences between legislative measures and the socio-economic realities of women within the sector. This study compares workplace laws with actual struggles women face to see why gender inequality continues. Although women have achieved remarkable progress in both education and in acquiring professional skills they remain significantly underrepresented in the workforce, especially when compared to men. We look at the issue through a methodological framework which uses primary data from surveys along with in-depth analysis of secondary data which also includes international studies. Our research examines the issues which are causing persistent gaps in workplace inequality which include wage gaps and restricted access to top management. Although certain laws exist to protect maternity and health at work, they often aren't followed in reality, especially in the informal sector.. In conclusion our research indicates that fixing gender inequality means more than just making new laws, it demands a shift in societal mindsets and workplace cultures to ensure women have equal opportunities.

INTRODUCTION

In recent decades, considerable attention has been directed towards reducing gender disparities however statistical evidence continues to reveal persistent inequalities in the labour market. The noticeable gap in participation rates between men and women highlights the ongoing challenges in achieving true economic inclusivity. Based on the official Periodic Labour Force Survey ***(PLFS)*** conducted by National Statistical Office ***(NSO), MoSPI,*** and ***e-Shram*** portal statistics, the labour force participation rate among females is 32.4% and among males is 77.6% in rural India. Urban female unemployment rate witnessed decline to 9.1% in December, 2025 from its yearly highest level of 9.7% observed in October, 2025, in the age group 15 years and above. However a 0.6% drop in unemployment doesn't imply the problem is solved. Notwithstanding advances in the realms of education and employment there still exists a prominent gap in areas such as job security, promotion, unpaid domestic labour, etc. Despite significant progress, women continue to face inequality across various aspects of life particularly in the labour market.

Labour laws are a primary tool for addressing gender inequality in the workplace by establishing legal frameworks for equal treatment. As stated by ***Ministry of Labour*** more than 80-90% workers are engaged in the informal sector, consequently the effective implementation of reformed labour law benefits remain a significant challenge. These disparities are more common in developing nations where women tend to quit their jobs after giving birth because there is no support available. Propitiously under the ***Maternity Benefit*** (Amendment) ***Act, 2017*** employees are permitted 26 weeks of paid maternity leave which is significantly higher than many developed nations The new codes ***(Social Security Code)*** also introduce provisions for Work from Home (WFH) after maternity leave where feasible. The ***POSH Act (2013)*** and other laws require companies to have internal committees to handle complaints which should make the workplace safer for women. The true advancement of gender equality is not determined solely by the presence of such legal frameworks but by the extent to which they are effectively implemented across both formal and informal sectors. It is within these operational institutional practices and everyday workplace conditions that the actual impact of policy interventions is realised.



BRIEF REVIEW OF LITERATURE

Gogoi and Hazarika (2025) In their study, "The Gender Inequality in Education and Employment" analysed secondary data from the PLFS and NSSO to examine disparities in human capital and workforce access. Their findings reveal that while a significant gender gap exists in both sectors, lack of education is not the sole driver of limited female labour market participation rather; the gap is deeply rooted in social norms, traditional gender roles, and cultural attitudes toward women's education. While they note a slight improvement in educational access following the implementation of the Samagra Shiksha Axom scheme in 2018-19, the authors conclude that the government must look beyond enrolment numbers to address the underlying societal customs that restrict women's economic agency. To achieve true parity, they suggest that policy interventions must tackle these social deterrents alongside institutional educational reforms.

Bordoloi and Bedamatta(2022) found that the North Eastern Region (NER) of India is relatively more gender equal by pointing out a large and increasing gender gap in labour market outcomes between 2011 and 2020. Although the region has generally fared better in terms of development
indicators, the authors show that the female labour force participation rate has fallen, and the female unemployment rate in the NER is significantly higher than the national average. These results indicate that there is a double failure: supply side factors (obstacles to women participating in the labour force) and the inability to provide adequate job opportunities for women in a complex regional setting characterised by geographical remoteness, natural disasters, and political instability.

Parmar and Thomas (2021) analyse the systemic barriers that suppress female labour force participation (FLFP), concluding that gender inequality at the workplace manifests through severe imbalances in power and command. Their findings highlight that women face a glass ceiling where they are unable to ascend to higher paid positions as quickly as men and are consistently denied equal opportunities for promotion, training, and professional development.

To address these issues, the study suggests that increasing female employment is essential for reducing overall inequality, but emphasized that organisational management must be restructured to ensure safety and equity, moving beyond mere hiring to protecting women from the uncertainties and physical or professional risks inherent in biased labour markets.

Lama and Majumder (2018): In their 2018 study, they utilize NSSO (2011-12) data to highlight that the Indian labour market is riddled with imperfections and entry barriers that specifically deter women. Their primary finding, supported by the Oaxaca decomposition technique, is that substantial wage disparities exist across all regions and sectors, with the gender wage gap being driven overwhelmingly by direct discrimination in wage distribution rather than differences in worker qualifications.

Peinado and Serrano (2018): Their 2018 study examines the evolution of gender labour market inequalities within the European Union specifically France, Germany, Italy, Spain, and the UK during the period of the Great Recession. The researchers find that despite global political efforts toward equality, significant gender gaps in employment, unemployment, and pay persist across these major economies. A key finding is that the Great Recession exerted a particularly detrimental impact on labour market outcomes, though the specific effects varied across the selected countries.



SIGNIFICANCE OF THE STUDY

1. This study helps us understand why women are still earning less than men even after so many laws have been made to protect them in the workplace.

2. This study helps us find out why women are not participating in the workforce as much as men especially in urban areas where they are more educated.

3. This study helps us look at how workplace discrimination is still happening in India and what can be done at the ground level to fix it in both small and large organisations.

OBJECTIVES OF THE STUDY

1. To critically analyse gender pay gap and opportunity gap prevailing in the market.

2. To examine the current femaleparticipation in the Labour market across diverse sectors.

RESEARCH METHODOLOGY

1. Research design:
The Research undertaken herein is founded upon a descriptive and analytical framework with the objective of examining nature and extent of gender inequality within labour markets. The descriptive part of the study provides a profile of the economic and demographic characteristics of the participants and includes a detailed description of their perceptions of workforce equality, wages and career opportunities.

2. Sources of Data
The Research is derived from well considered integration of primary and secondary data, which helps at understanding both practical and theoretical relevance. The primary data for the article has been collected from respondents using structured questionnaires as the main source of collecting data, which encompasses important variables such as gender, age group, occupational status, nature of occupation and perceptions towards gender inequality.
The secondary data, on the other hand, has been collected from academic literature and previous research used to examine gender disparities in the labour market. The secondary sources include annual reports of Periodic Labour Force Survey, Press information bureau release , Ministry of labour data and National Statistical office (NSO) statistics.

3.Sample Design:
Under this sampling design, respondents were selected according to their attainability and voluntary participation in the survey process. The sample primarily comprises of individuals from 18- 34 age group including both male and female respondents.

4.Sampling Frame:
The sampling frame includes cities and districts like Guwahati, Pune, Bangalore, Tinsukia, Jorhat to obtain information on several socio-economic determinants.

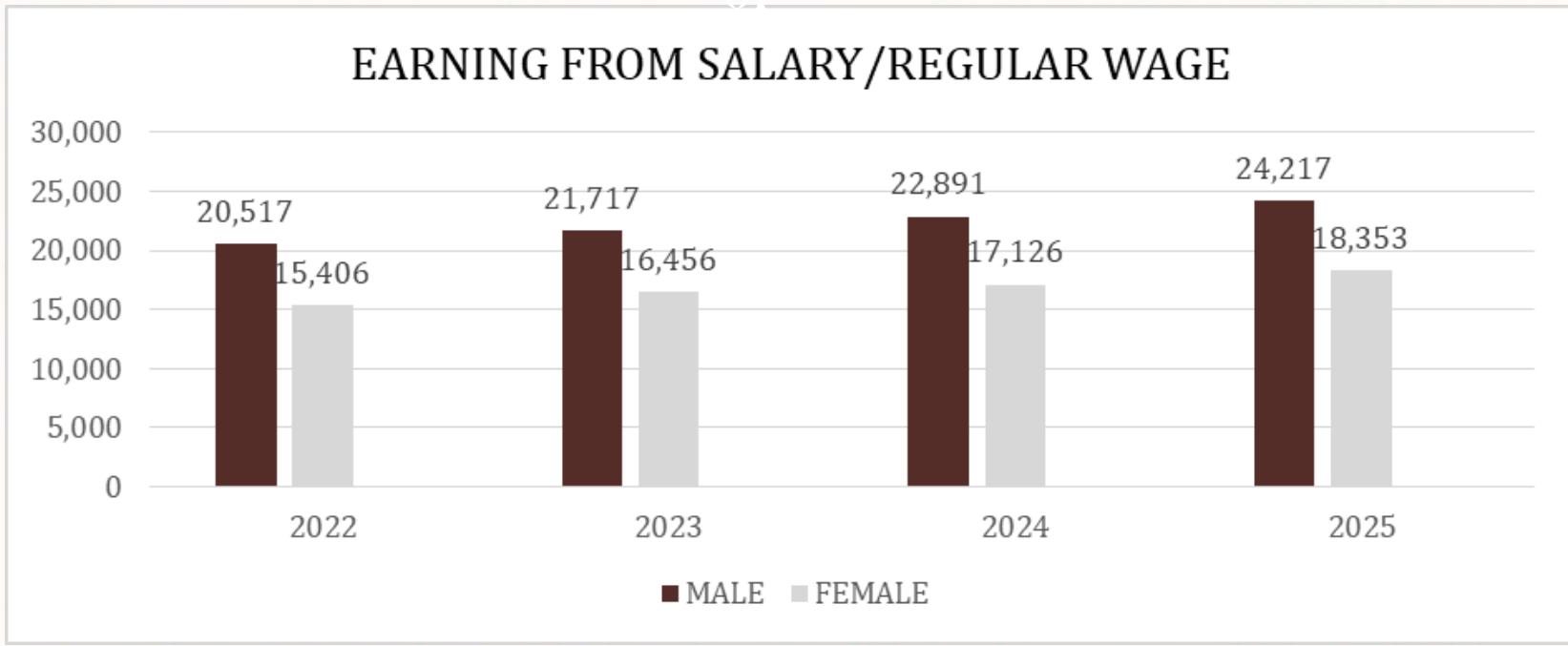
5.Sample size:
Under this study, a sample size of 30 was taken out of which only 24 valid responses were obtained and utilised for final analysis.

6.Data Analysis Tools:
The primary and secondary data collected are analysed and interpreted with graphical representation:

- Pie chart
- Bar diagram
- Column diagram
- Line chart

DATA ANALYSIS AND INTERPRETATION

1. CHART REPRESENTING SHIFT IN EARNINGS OF WORKERS (2022-2025)

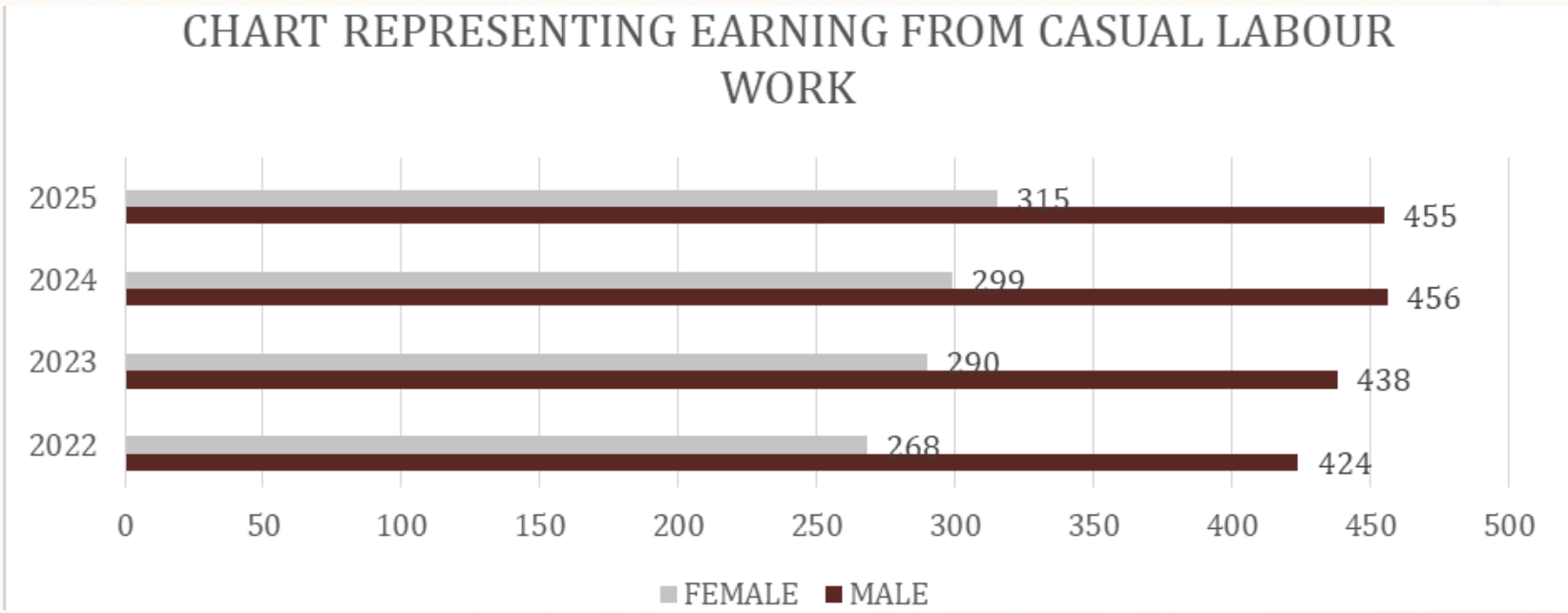


Source: Annual report of Periodic Labour Force Survey 2022-2025 and Press Information Bureau releases.

INTERPRETATION

The salaries of male workers rose from 20,517 in 2022 to 24,217 in 2025 representing a total increase of approximately 18% while salaries of female workers grew from 15,406 to 18,353 showing an increase of 19%.

2. CHART REPRESENTING SHIFT IN EARNING IN INFORMAL SECTOR

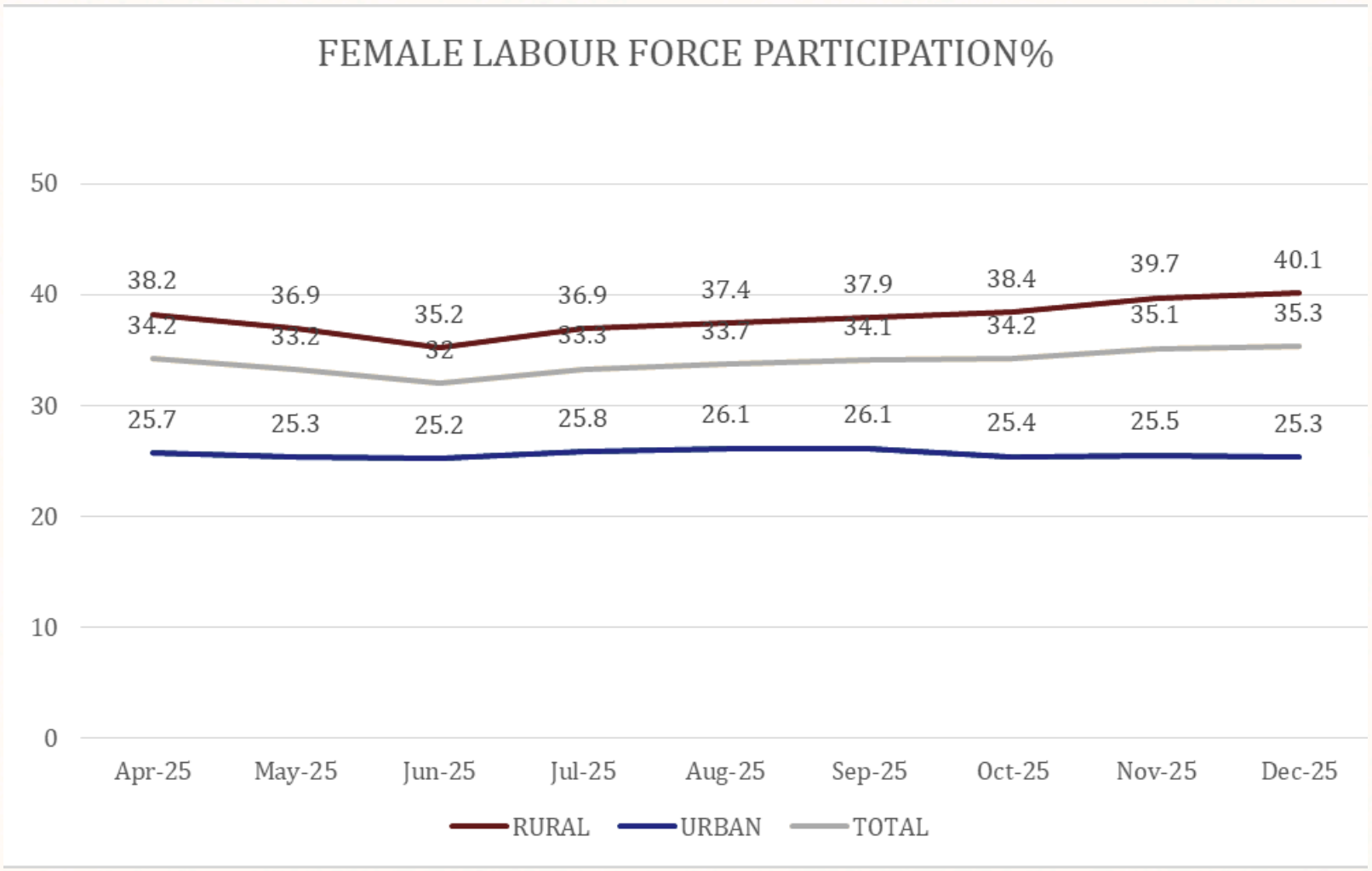


Source: Annual report of Periodic Labour Force Survey 2022-2025

INTERPRETATION

The above chart represents female casual labour earnings grew consistently from 268 to 315 while male earnings grew from 424 to 456 by 2024 but experienced a decline to 455 in 2025.

3. CHART REPRESENTING %WOMEN LABOUR PARTICIPATION ACROSS RURAL AND URBAN SECTORS DURING APRIL-DECEMBER 2025

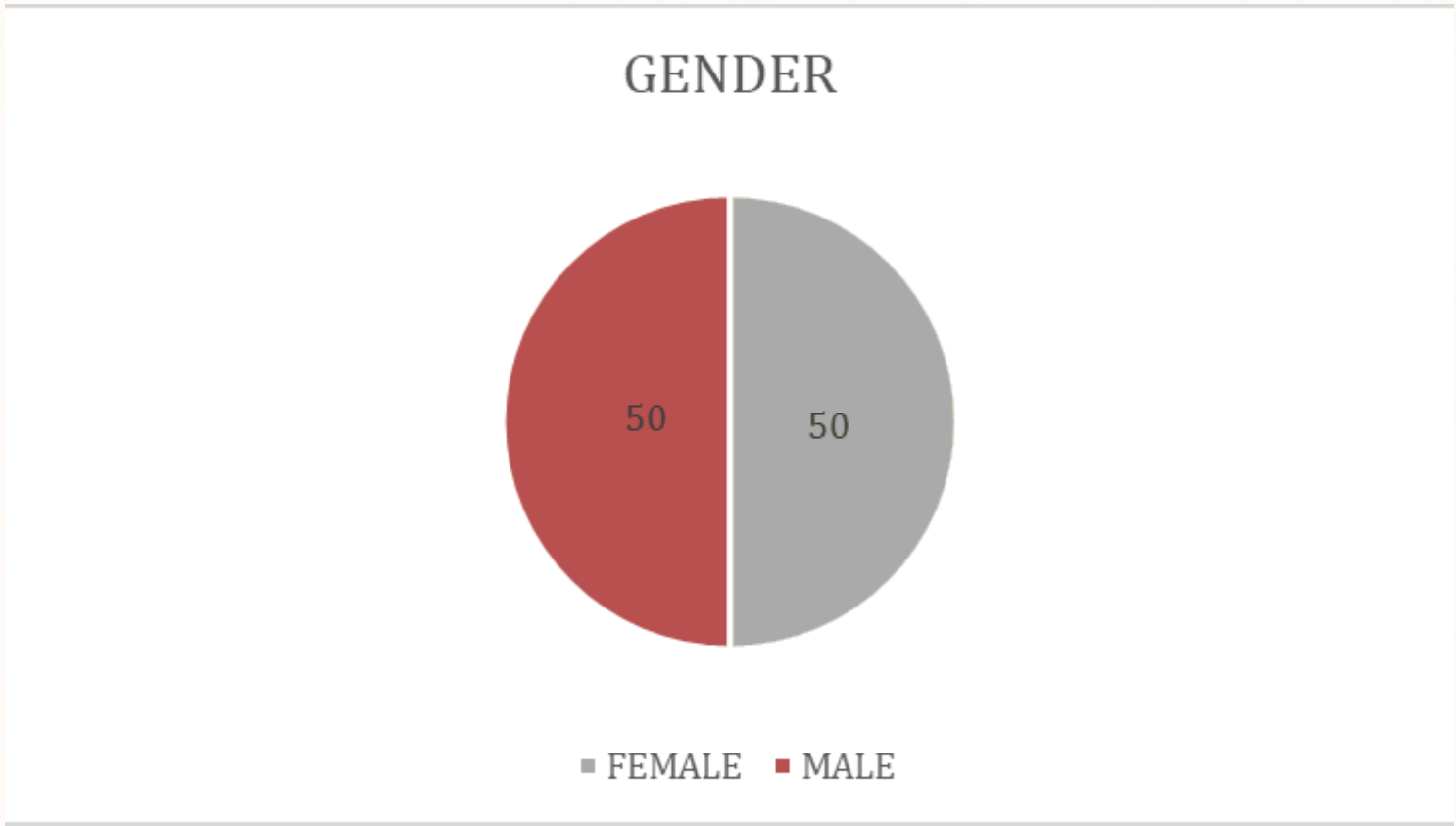


Source: Press information bureau release-15 Jan 2026

INTERPRETATION

The above chart indicates significant gap exist between rural and urban female participation. Rural female LFPR remains consistently high throughout the period starting at 38.2% in April and ending at 40.1% in December. Urban female LFPR remains steady and relatively low starting at 25.2% ending at 26.1%.

4. CHART SHOWING GENDER OF THE RESPONDENTS (PRIMARY DATA)

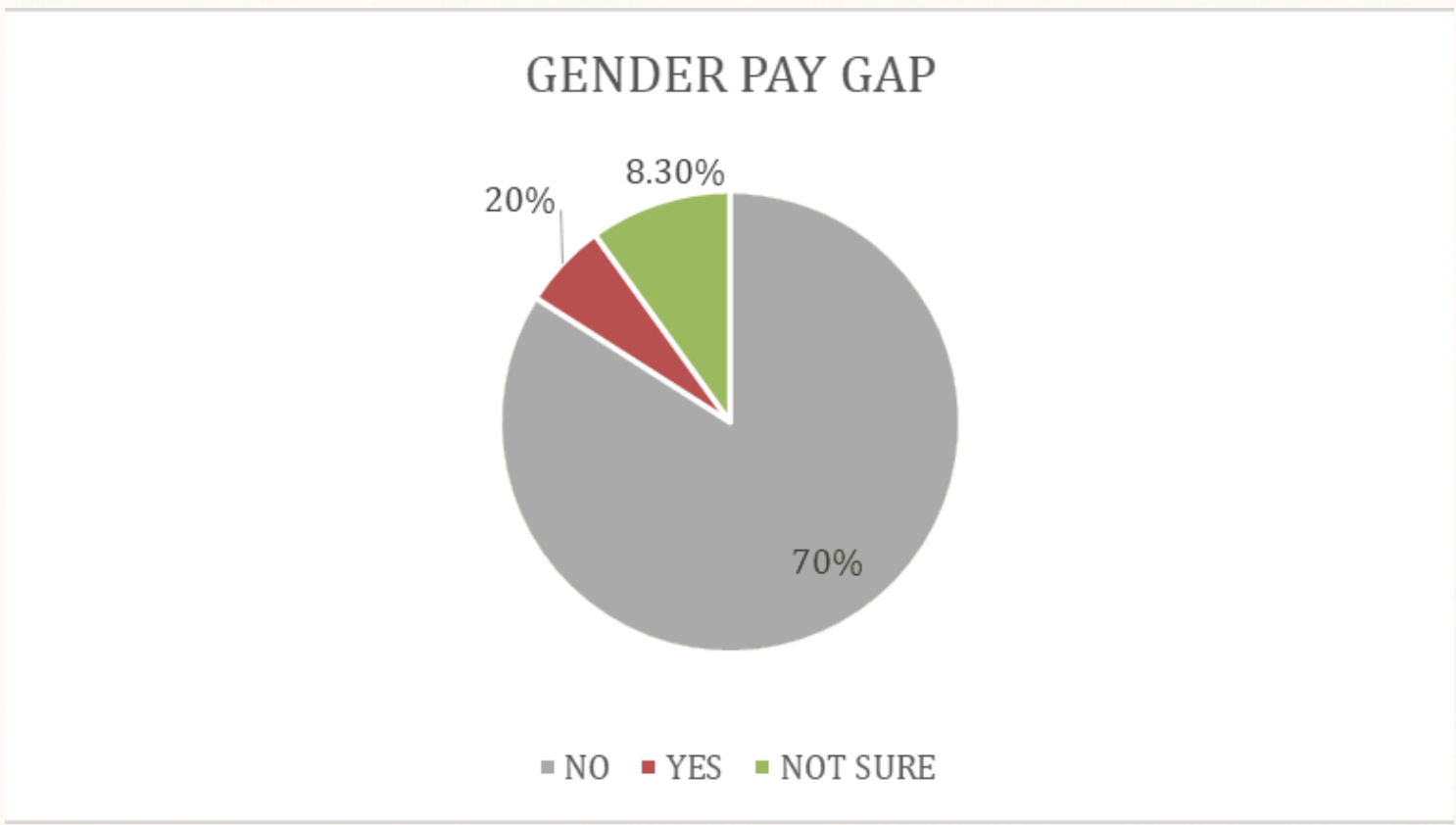


Source: Field Survey, March 2026

INTERPRETATION

From the above chart, it is evident that 50% of the respondents i.e., 12 were females and 50% were male.

5. CHART REPRESENTING RESPONDENTS PERSPECTIVE OF GENDER PAY GAP IN WORKPLACE:

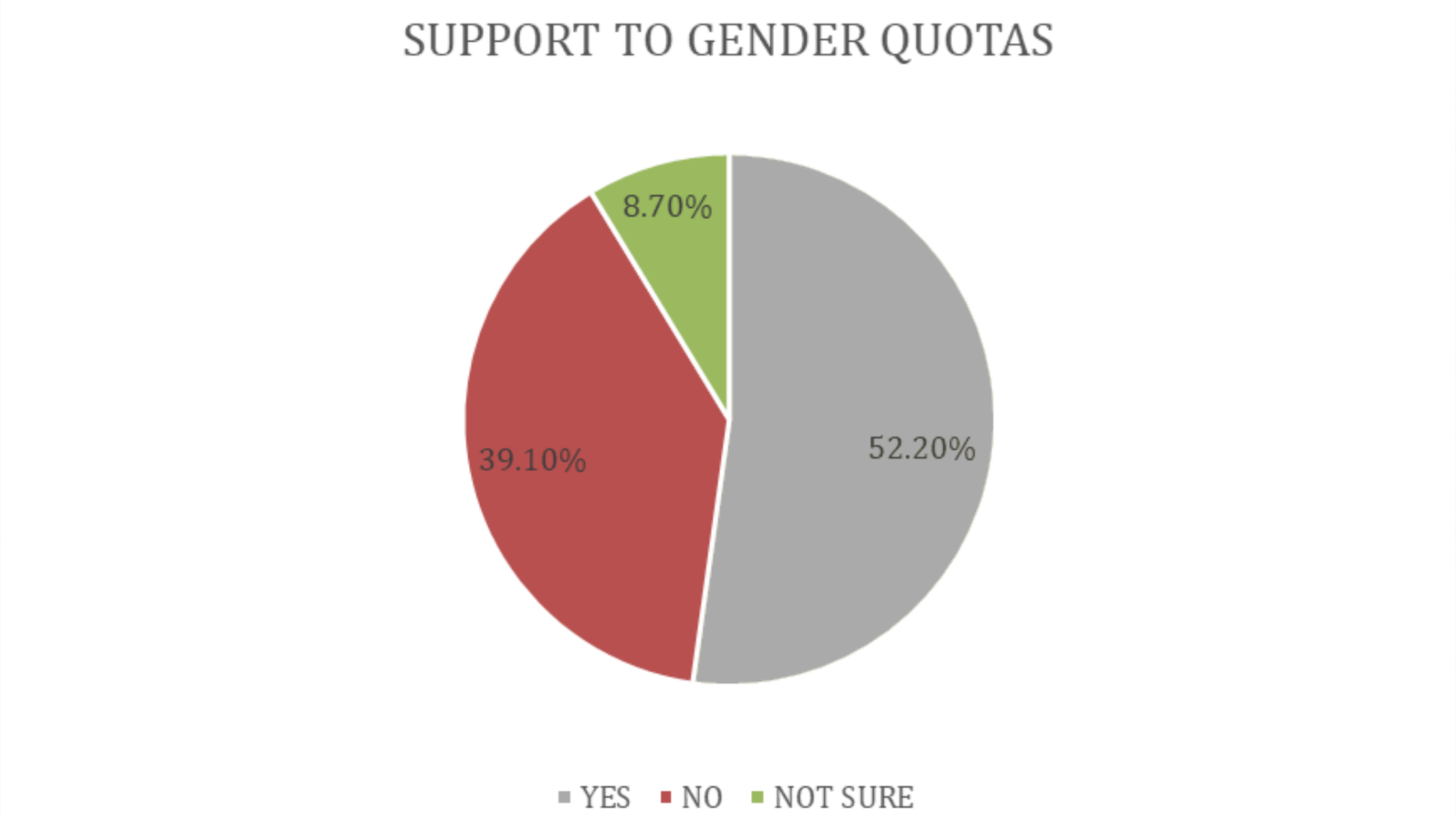


Source: Field Survey, March 2026

INTERPRETATION

From the above chart, it is evident that 70% i.e. 17 respondents have not faced gender pay gap ,only 20% i.e. 5 respondents have faced gender pay gap , and 8.3% is not sure about gender pay gap in their workplace or industry.

6. CHART REPRESENTING RESPONDENTS SUPPORT TO GENDER QUOTAS TO INCREASE WOMEN PARTICIPATION



Source: Field Survey, March 2026

INTERPRETATION

From the above chart, it is evident that 52.2% respondents support implementation of quota systems to improve women participation. 39.1% do not favour and 8.7% of the respondents are indecisive.

FINDINGS

1. According to the PLFS data, the female labour force participation rate stands at 32.4% compared to 77.6% for males in rural India reflecting a gap of 45.2 percentage points. This study finds that this gap is not narrowing at any meaningful pace despite existing legislative interventions.

2. Between 2022 and 2025 male salaries grew from Rs. 20,517 to Rs. 24,217 while female salaries grew from Rs. 15,406 to Rs. 18,353. Despite women recording a slightly higher growth rate of 19% against men's 18% the absolute earnings difference of Rs. 5,864 remains, confirming that proportional growth alone does not translate into wage equality.

3. In the informal sector, female casual workers earned Rs. 315 against the male earnings of Rs. 455 in 2025 a gap of nearly 31%. Given that 80 to 90% of India's workforce operates in this sector, this study finds that the majority of working women remain concentrated in the most economically unprotected segment of the labour market.

4. The primary survey reveals that while 70% of respondents reported no personal experience of a gender pay gap 20% confirmed they had directly faced it. This study finds that the absence of salary transparency in most workplaces leads to significant underreporting of wage discrimination.

5. Rural female LFPR rose from 38.2% to 40.1% between April and December 2025, while urban female LFPR moved only from 25.2% to 26.1% during the same period. This study finds that urban women despite higher education levels participate far less in the labour force pointing to social and structural barriers specific to urban settings.

6. Only 52.2% of respondents supported gender quotas in leadership, while 39.1% opposed them. This study finds that societal resistance to structural interventions remains a critical obstacle to achieving gender balanced representation at decision making levels.

SUGGESTIONS

1. Companies must publicly disclose salary bands internally to reduce the hidden wage gap that persists between men and women in the work.

2. Since 80 to 90% of workers are in the informal sector and women earn 31% less there as per data therefore it becomes essential that equal pay and maternity protections must be legally enforced in this segment.

3. Every company regardless of size must publish an annual gender score card showing pay ratios, promotion rates and leadership numbers. This score should be visible to job seekers making gender fairness a competitive hiring advantage for them.

CONCLUSION

In conclusion, it may appear that significant progress has been made towards achieving gender equality in the labour market however, our study concludes that disparities still exist in the market. Despite the existence of laws and administrative policies women still continue to face challenges such as lower participation rates compared to males, fewer growth opportunities and the burden of unpaid domestic work, which restrict their full involvement in economic activities.

The findings clearly indicate that the issue is not merely about the availability of opportunities but about the unequal value and recognition given to women's work. This imbalance not only affects individual growth and independence but also limits the overall efficiency and development of the economy as a whole. Therefore, it becomes essential to move beyond basic measures and focus on practical changes in societal attitudes and workplace systems. Equal opportunities, fair treatment and shared responsibilities are necessary to reduce this gap. Only through such efforts can a more inclusive and balanced labour market be achieved benefiting both individuals and society as a whole.

BIBLIOGRAPHY

JOURNALS AND ARTICLES

1. Gogoi, P., Hazarika, M., & Gogoi, M. (2025, March 18). The Gender Inequality in Education and Employment: A Study in India. International Journal of Economics and Management Review.

2. Bordoloi.M& Bedamatta.R, (2022)"Gender Gap in the Labour Market of India's North-east: 2011-2012 to 2019-2020" .The Indian Journal of Labour Economics, Springer; The Indian Society of Labour Economics (ISLE), vol. 65(4).

3. Parmar.S and Thomas.B (2021 April 07). A study on gender equality with reference to Labour force participation: A study undertaken in selected Villages of Anand District .Sardar Patel University, Gujarat.

4. Lama. S, and Majumder. R. (2018, December) Gender inequality in wage and employment in Indian Labour Market. University of Munich, Germany.

5. Peinado.P andSerrano.F (2018 , September)Gender Inequality in the Labour Market and the Great Recession University of the Basque Country, Bilbao, Spain.

WEBSITES

1. https://www.pib.gov.in -retrieved as on 14 th may 2026
2. https://www.mospi.gov.in -retrieved as on 2nd April 2026
3. https://labour.gov.in - retrieved as on 29th March 2026
4. https://www.ilo.org/ -retrieved as on 2nd April 2026

UNDERSTANDING THE MODERN CONSUMER

A Study of Consumer Behaviour in Buying Selfcare Products Based on Their Financial Status



UNDERSTAND

Explore the factors influencing consumer behaviour while purchasing selfcare products based on their financial status.

ANALYZE

Examine how income, lifestyle, demographics and perceptions shape buying decisions in the modern consumer market.

ACT WISELY

Understand consumer needs to make better choices and build meaningful connections.

WRITER

Bidipta Purkayastha

B.Com 2 Semester

DESIGNER

Natasha Kalita

BCA 5th Semester

ABSTRACT

This research article highlights how consumers behave while purchasing selfcare products. The key element on which the importance is given, is the financial position of the customers while putting light on the demographic factors like age, income, gender and so on. Through various mathematical tools, efforts have been made to get an idea of the consumers' behaviour while buying a product. Comparisons have been made and it is seen that different individuals act differently while purchasing a product. Some consumers earn more and can spend more, while others earn less and spend less. There are also some people who earn more but do not tend to spend much on selfcare products. Therefore, all the aspects are studied and analysed here carefully.

INTRODUCTION

According to Walter and Paul, "Consumer Behaviour is the study of what they buy, why they buy, when they buy, where they buy, how often they buy it and how often they use it."

It is known to us that consumers behave differently in different situations. Various situations make them act in a varied pattern. It is a complex study as the mind of the consumer cannot be read by the producer or the marketer. Therefore, a detailed analysis is required to understand consumer behaviour.

In this study, an attempt has been made to collect information from various types of consumers like businessman, students, employee (govt. & private) and analyse how consumers behave while purchasing selfcare products. Along with that, their financial status is also linked and it is observed how the consumers purchase a particular product on the basis of their financial status. The research is done in a particular urban area of Silchar, Assam.

LITERATURE REVIEWS

- E. Rogers (1983) in his study observed how several factors hamper consumer behaviour while choosing products of alternative brands. These factors consist of the price of the products, comparison between the quality of the products, advantages and disadvantages, etc. The influence of family and companions, image of the brands, after-sale services etc., were also highlighted in his research article.
- K. R. Poranki (2015) in his study showed the various methods for acquiring information on the perception of consumers and what they expect, which influences their buying behaviour. He mainly focused on personal care products and cosmetics. He also emphasised how companies should focus on their advertisements because they play a vital role in influencing consumer behaviour.
- A. Jose (2016) in her study revealed the severe increase of today's ecological problems, the irresponsibility of corporations towards the environment and the importance of behaving in an ecologically favourable fashion, which is not only convenient but also very crucial.
- S. Sharma and M. Singh (2018) in their research study emphasised the promotion of products. They showed how sales promotion and advertising play a vital role in marketing and influencing the choices of customers.
- Md. S. Hossain and N. Sultana Shila (2020), in their study showed that especially female customers are more concerned about specialised and branded products. So, while advertising a product, marketers should keep their entire focus on portraying the special designs and how the product is suited for female consumers. They should focus on advertising the features of its customisation, which will attract consumers.
- Dr. M. Kotteeswari (2021) has studied the different factors influencing the buyers' behaviour and the influence of the financial position of the consumers. Those consumers who earn more are seen to spend more and those earning less are seen to spend less on their personal care products, although sometimes variations can be seen.

SIGNIFICANCE OF THE STUDY

Through this study on "Consumer behaviour on buying selfcare products" it can be understood how consumers behave while buying products for their personal care. Another aspect which is also very important is the financial position. A study on the financial position and then linking it with the buying behaviour of the consumers helps to get an idea about how people buy the products depending upon the amount of money they can afford. The study also shows how there can be various different response by consumers having similar financial status. Therefore, a detailed study will help to understand how variedly consumers behave in a given situation.

OBJECTIVES OF THE STUDY

1. To get an idea about the concept of consumer behaviour in purchasing selfcare products.
2. To analyse the impact of demographic factors.
3. To understand how the consideration of financial status is important while selecting selfcare products.

RESEARCH METHODOLOGY

The nature of the particular study is descriptive and both primary as well as secondary data has been used. Secondary data has been collected from various published sources, mainly from "Consumer Behaviour in selection of personal care products based on their financial status" published by Dr. M. Kotteeswari, Assistant Professor, Department of Commerce, Sastha Arts and Science College, Chennai. Primary data has been collected by sharing questionnaires through Google forms. The study covers a small urban area of Silchar, Assam as the area of study. The accumulated data has been compiled, tabulated and analysed through simple statistical tools such as tables, percentages, etc. Graphical representation through Bar graphs, Histograms and others have been used for better understanding.

Data Collection

A questionnaire was circulated to the target consumers in the form of Google forms and around 125 responses were collected. Maximum primary data is collected through questionnaires along with secondary source like e-journals has been taken for the study. The conceptual information was collected from designated websites.
The sampling technique used here is Convenience Sampling, which comes under the main heading of Non-Probability Sampling. Under this type of sampling technique participants are selected based on their availability and the researcher's convenience. So, according to the convenience responses have been gathered from a small locality of the city Silchar.
The article projected here will help us to understand clearly the meaning of consumer behaviour and some concepts related to that. Also, how the financial status of the consumers affect the consumption behaviour will be narrated. Some other aspects like demographic factors have also been put up with reference to the topic. All these elements have been collected as primary data by sharing google forms.

DATA ANALYSIS AND INTERPRETATION

Secondary Data

Key types of Consumer Buying Behaviour

- **Complex Buying Behaviour** occurs when consumers' involvement is high in an expensive, infrequent purchase and they research extensively to understand differences between brands.

- **Dissonance**- Reducing Buying Behaviour - There exists high involvement, but low brand difference. The consumer may buy quickly but experience doubt (dissonance) afterwards, fearing they made the wrong choice, such as buying a new phone.

- **Habitual Buying Behaviour** - There is low involvement and very little brand difference. Purchases are routine work such as buying milk or bread, where the consumer does not think deeply about the choice.

- **Variety** – Seeking Buying Behaviour - Involvement of consumers is comparatively less, but significant brand differences can be seen. Consumers switch brands frequently, not due to dissatisfaction, but to seek novelty, such as trying a new type of snack.

- **Impulsive Buying Behaviour** - Unplanned, spontaneous purchases driven by emotion or immediate desire. These are frequently triggered by in-store displays or limited-time online offers.

- **Loyalty Driven Buying Behaviour** - Based on high trust, satisfaction, and an emotional connection to a specific brand, leading to repeat purchases despite competitors.

- **Economic Buying Behaviour** - Focused on finding the best value of the product. Also focused on maximum value for money, prioritizing price, and careful comparison.

Primary Data

I. FACTORS THAT INFLUENCE CONSUMER BEHAVIOUR

There are several factors which influence Consumer Behaviour. They can be as follows.

- Psychological
- Social
- Economic
- Cultural
- Personal

In selection of selfcare products, the following factors are taken into consideration to analyse their impact in the selection process. Psychological factors speak about the psychology and the feelings of a person, which influence their purchasing behaviour. The social factors determine the status of a person in the society; therefore, it is also an important factor that influences consumer behaviour. Economic factors are inevitable while buying a product. Apart from all these factors, decision making is largely influenced by cultural and personal factors.

Table No.: 1
Demographic details of the Respondents

Demographic Factors	Classifications	No. of Respondents	Percentage
Age Group	Less than 25 years	49	39.5
	25 to 35 years	31	25
	36 to 45 years	13	10.5
	More than 45 years	31	25
	Total	**124**	**100**
Gender	Male	53	42.7
	Female	71	57.3
	Total	**124**	**100**
Income per month	Less than Rs. 15,000	63	50.8
	Rs. 15,000 to Rs. 35,000	24	19.4
	Rs. 35,001 to Rs. 55,000	15	12.1
	More than Rs. 55,000	22	17.7
	Total	**124**	**100**
Type of family	Nuclear family	87	70.2
	Joint family	37	29.8
	Total	**124**	**100**
Marital Status	Married	48	38.7
	Unmarried	76	61.3
	Total	**124**	**100**
Occupation	Government sector	44	35.5
	Private sector	13	10.5

Occupation	Business	1	0.8
	Student	55	44.3
	Unemployed	11	8.9
	Total	**124**	**100**
Qualifications (Education)	Undergraduate	75	60.5
	Postgraduate	32	25.8
	Professional	17	13.7
	Total	**124**	**100**

Source: Primary data

The above table indicates that the data was collected from 124 respondents. Majority (39.5%) of the respondents come under the age group of less than 25 years. Around 57.3% of the respondents are female. Under the monthly income category almost half (50.8%) of the respondents come under the income group Rs. 15,000 per month. When comparison is made between the types of families, it was seen that nuclear family respondents (70.2%) are more as compared to joint family. Additionally, maximum respondents are unmarried (61.3%) while students' participation is (44.3%). Most of the respondents are undergraduate (60.5%).

So, from the above table we can see that the respondents are mainly female and youth of the particular area who are students. Therefore, from this we can say that the youth of this generation are very cautious about how they look and try to take good care of themselves.

II. GENDER AND BRANDED PRODUCTS.

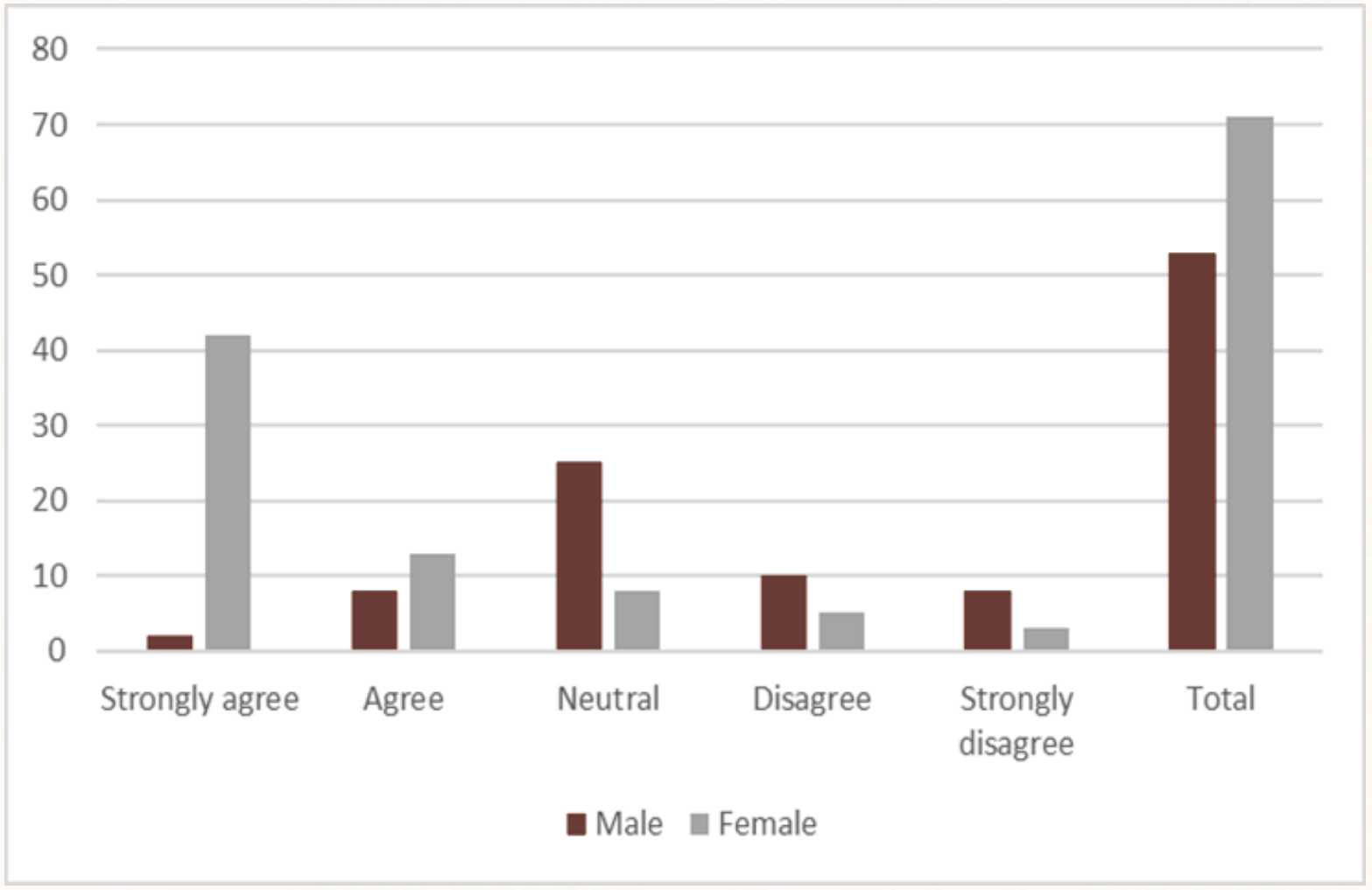
A question was asked as to what is their opinion on spending money on purchasing branded products. The responses are given in the table followed by a bar graph for an easy comparison.

Table No.: 2
Gender and Branded Products

Opinion	Male	Percentage	Female	Percentage
Strongly Agree	2	3.8	42	59.2
Agree	8	15.1	13	18.3
Neutral	25	47.2	8	11.3
Disagree	10	18.8	5	7
Strongly Disagree	8	15.1	3	4.2
Total	**53**	**100**	**71**	**100**

Source: Primary data

Bar Graph



From the following table and graph it can be concluded that females are more concerned about selfcare. As we can see in the table as well as in the graph that females are more inclined towards branded products. A majority (59.2%) of the female respondents strongly agree on the purchase of branded products as they get an assurance that the product will not be harmful. On the other hand, we see that a maximum (47.2%) of the males opt for neutral. This perhaps reflects their lack of knowledge about the products and therefore they opt for a safer option to give a neutral opinion. Therefore, we can come to the conclusion that branded products attract females more.

III. PREFERENCE OF CONSUMER WHILE SELECTING PRODUCTS

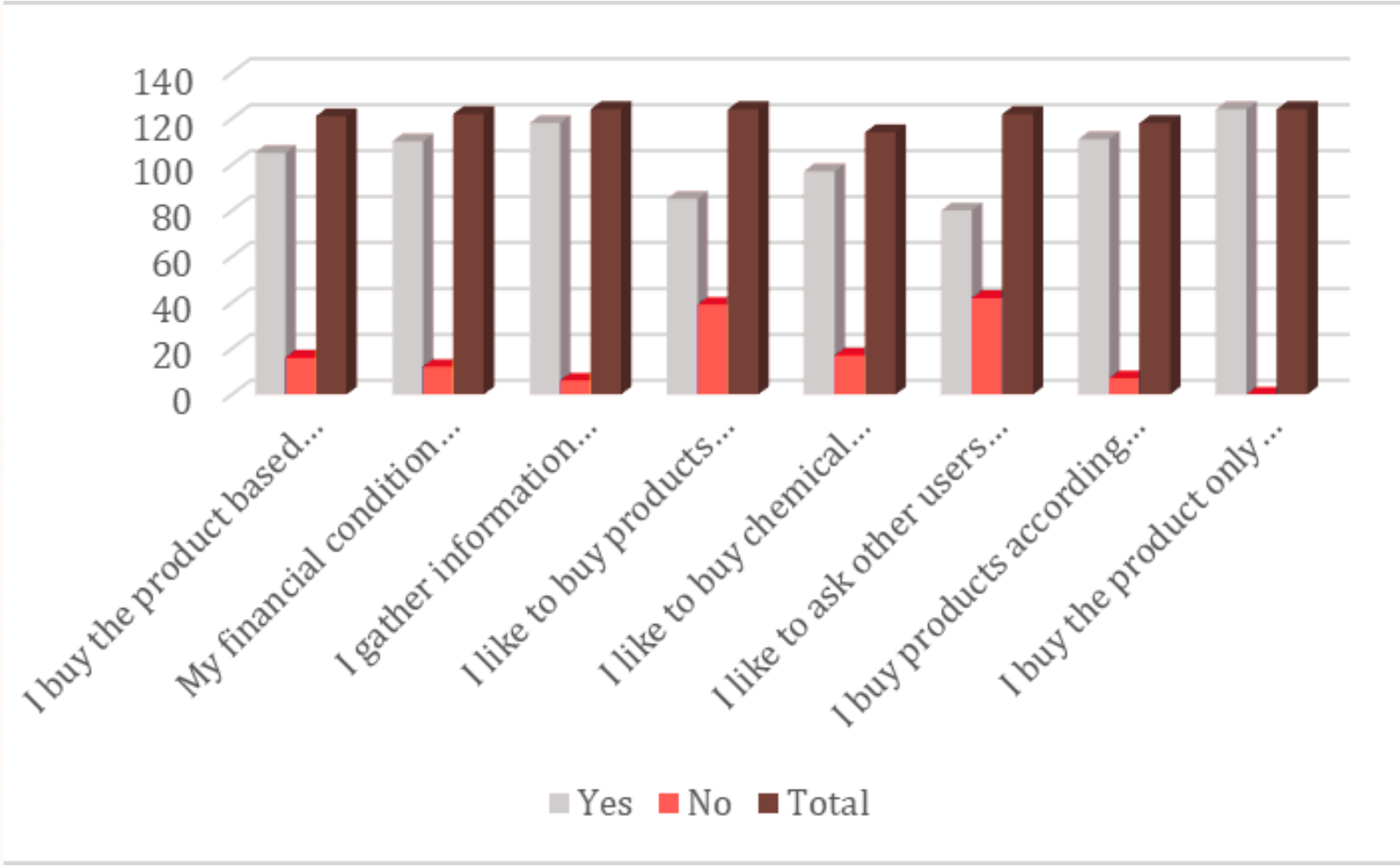
When the purchase decisions are made, the consumers' behaviour is influenced by many factors. In the following table to understand how consumers behave in selection of selfcare products, some of their preferences are recorded.

Table No. : 3
Consumer Behaviour in selection of personal care products

Sl No.	Questions Asked	Yes	No	Total
1	I buy the product based on the advertisement.	105	16	121
2	My financial condition affects my purchasing decisions.	110	12	122
3	I gather information before adopting purchase decisions.	118	6	124
4	I like to buy products available on discounts.	85	39	124
5	I like to buy chemical free products.	97	17	114
6	I like to ask other users before buying a product.	80	42	122
7	I buy products according to my skin type	111	7	118
8	I buy the product only when its price and usefulness match with my expectation.	124	0	124

Source: Primary data

Bar Graph



Here, it can be seen that the positive responses are more. This shows that consumers look upon many aspects before purchasing a product. However, a notable observation is that not all 124 respondents responded to every aspect, which may indicate uncertainty or confusion in purchasing decisions. The last question received 100% positive response which shows that people purchase personal care products with very calculative mind. The third question also receives a large number of positive responses, which shows that people interact with each other and seek to know about the advantages and disadvantages of a product before purchasing it.

The financial position also hampers the purchasing condition of an individual. Here, we can see out of 122 respondents of the second question 110 respondents said that their financial status hampers their purchasing capacity. Although people take keen interest in selfcare, their financial position matters a lot and it also impacts how much they spend on their selfcare products.

Given below is a table which shows the salary of the respondents corresponding to the amount spent by them on selfcare products.

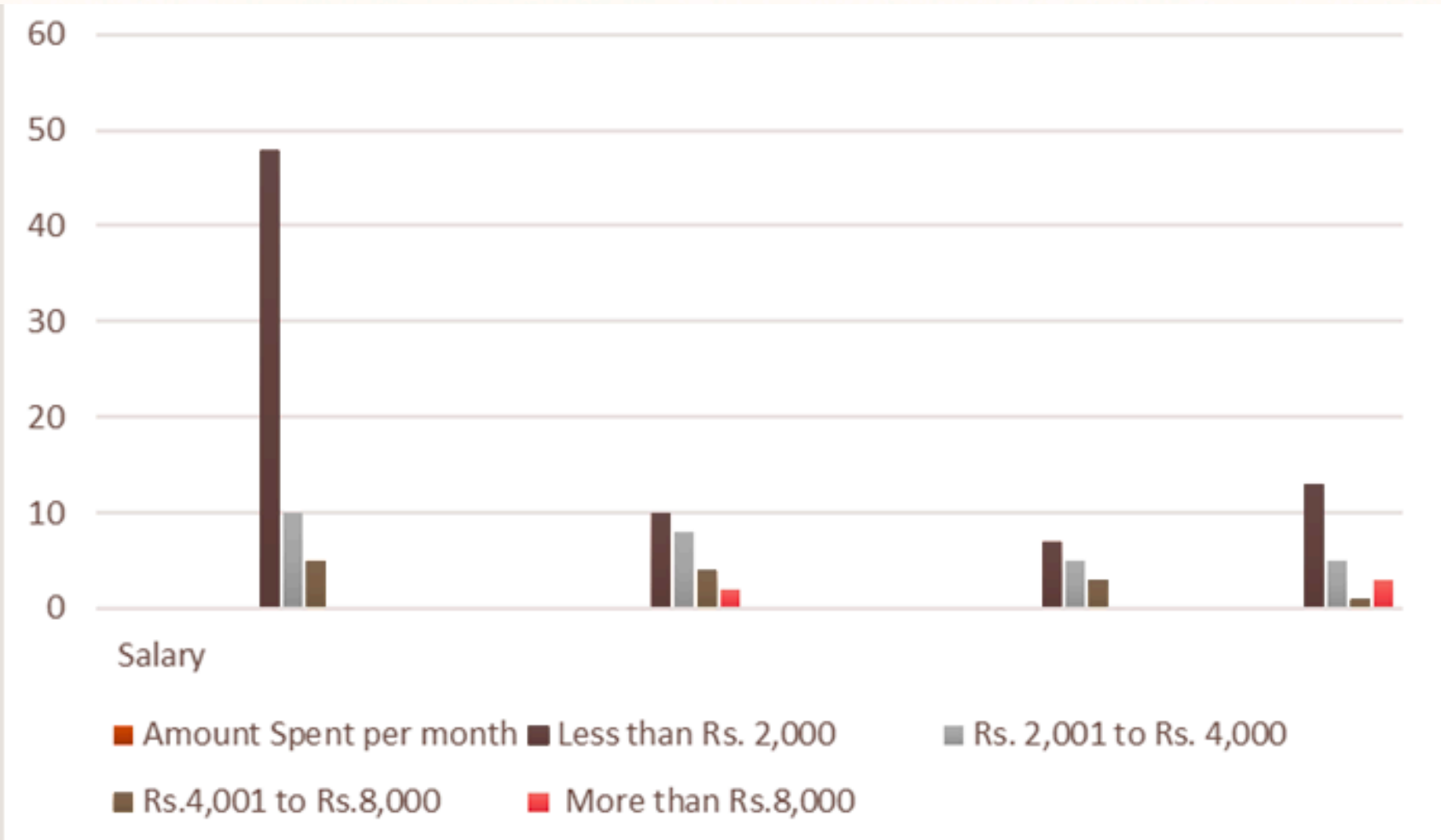
IV. AMOUNT SPENT BY THE RESPONDENTS ON SELFCARE PRODUCTS CORRESPONDING TO THEIR SALARY

Table No.: 4

Amount spent by the respondents on selfcare products corresponding to their salary

Amount Spent	Salary				Total
	Less than Rs.15,000	Rs.15,000 to Rs.35,000	Rs.35,001 to Rs.55,000	More than Rs. 55,000	
Less than Rs.2,000	48	10	7	13	78
Rs.2,001 to Rs.4,000	10	8	5	5	28
Rs.4001 to Rs.8,000	5	4	3	1	13
More than Rs.8,000	0	2	0	3	5
Total	**63**	**24**	**15**	**22**	**124**

Bar Graph



Referring to the above table and graph, it can be understood that, across various salary levels, the maximum number of respondents prefer not to spend more than Rs. 2,000 per month on selfcare products. Respondents with relatively higher salaries are seen to purchase products worth more than Rs. 8,000. The majority of respondents earning less than Rs. 15,000 are seen to spend less than Rs. 2,000 on selfcare products. Only 3 individuals earning more than Rs.55,000 are seen to spend more than Rs. 8,000. Therefore, from this we can conclude that, financial status plays a very big role in the behaviour of a consumer.

FINDINGS OF THE STUDY

The following results have been found after the data analysis:

- It has been seen that maximum of the respondents were females and students.
- The respondents prefer branded and organic products which are chemical free in nature.
- Maximum of the buyers are found acting rationally while purchasing the products without spending much. However, a small group of people also tend to spend a large amount even when they don't earn much.
- It has also been seen that people compare the price and the usefulness of the product, and makes the purchase only if it matches their expectations.

SUGGESTIONS

It is suggested that people of all age group should participate equally in purchase decision making. It has been observed that male respondents are minimal which may indicate that males think selfcare products are only produced focussing females. This notion has to be overcome and males should participate equally in the purchase decision. And the last suggestion that may be given is that, those people performing irrational purchase i.e., spending excessive amount unnecessarily should shift to a rational manner of purchase.

CONCLUSION

This research helped draw the conclusion about how the financial position of an individual influences their behaviour while purchasing a particular product, especially selfcare products. Firstly, it has been seen that females are more inclined towards purchasing selfcare products as compared to males. It has also been observed that the age group most interested in selfcare products comprises young people below 25 years. Finally, when the amount spent and purchasing power are compared, it has been seen that, irrespective of the amount earned, most people tend to spend the minimum on selfcare products. However, there are also some individuals who take selfcare very seriously, and some respondents were found spending a large amount on selfcare. Hence, the conclusion can be drawn that different individuals act differently, as their choices, financial status, and ways of thinking differ from one another.

BIBLIOGRAPHY

- Sharma S. & Singh M. (2018, September 25). Brand Selection Dimensions in Family Buying of Personal Care Products: International Ataturk Alatoo University, Bishkek, Kyrgyzstan.
- Kotteeswari M. (2021, April 4). A Study of Consumer Behaviour in Selection of Personal care products based on their financial status: Sastha Arts & Science College, Chennai, Tamil Nadu.
- Poranki P. R. (2015, December). Consumer Attitudes and Perception on Personal care Products and Cosmetics at Vishakhapatnam, India: Al Baha University, Saudi Arabia.
- Jose A. (2016). Perception and Buying Behaviour of Modern Women towards Personal Care Products: V. R. Krishnan Ezhuthachan Law College, Elavancherry, Kerala.
- Rogers E. (3rd Edition,1983). Diffusion of Innovations: The Free Press, A division of Macmillan, New York city, New York.
- Hossain M. S., & Shila N. S. (2020). Factors influencing consumer decision making for personal care products: University of Dhaka, Dhaka, Bangladesh.

WEBSITES

- https://www.yourarticlelibrary.com/marketing/market-segmentation/consumer-behaviour-meaningdefinition-and-nature-of-consumer-behaviour/32301 - Retrieved as on 13-02-2026.
- https://mpbou.edu.in/uploads/files/PAPER-02_Consumer_Behaviour.pdf - Retrieved as on 02-04-2026.

THE CREDIT CARD DEBT TRAP:

A Behavioral Economics Analysis of Consumer Overspending



UNDERSTAND

Understand the psychological triggers behind credit card overspending.

ANALYZE

Explore behavioral biases and financial habits that lead to debt accumulation.

ACT WISELY

Make informed decisions and break free from the debt trap.

WRITER

Diksha Deka

B. Com 4th Semester

DESIGNER

Anish Dutta

BCA 5th Semester

ABSTRACT:

Credit card use in India has grown rapidly during a time when there is an increase in bad debt and in outstanding balances. According to data from the Reserve Bank of India, total credit card outstandings at the end of 2025 were approximately ₹2.9 lakh crore and non-performing assets have increased by more than 28% year-on-year. The paper uses key behavioral economics concepts such as present bias, mental accounting, overconfidence and minimum-payment framing effect to explain why many Indian consumers overspend on their credit cards and revolve large sums despite interest rates that are extremely high at between 30–48% per annum. International literatures are used as well as recent RBI and survey data on how card design features, reward programs, digital payment ecosystems interact with cognitive biases to create a "debt trap" for some users. Practical policy recommendations for regulators, banks and consumers including clearer disclosure information, nudging toward complete payments, financial education, and design of products responsibly will be provided in order to decrease long-term chronic debt while maintaining access to credit.



1. INTRODUCTION

Credit Cards were developed to enable consumers to purchase goods or services today but would delay the payment until some other time in the future. The difference between what consumers view as the benefit of using credit cards versus the true cost of using credit cards has become increasingly relevant due to the growing use of credit cards.

In standard economic models, consumers are assumed to evaluate alternative financing options by comparing the interest rate charged on each option against their own subjective time preference, and then choose the most favourable financing option. Despite the fact that many consumers charge high-interest rates to their credit cards and roll over their balances each month (thereby subjecting themselves to compounding interest charges), miss payment deadlines when sufficient funds exist to meet those deadlines, and react to changes in reward structures and promotional offers, most mainstream economic theories do not adequately address these observed behaviours.

Therefore, this paper addresses the issue of the credit card debt trap from a behavioral perspective by analyzing the expanding credit card market in India where hundreds of thousands of new first-time borrowers have recently entered the formal credit market.

2. REVIEW OF LITERATURE

A behavioral analysis of the "Credit Card Debt Trap" is needed to understand how consumers end up with both high-interest debt and low-interest liquid assets. The following studies lay the groundwork theoretically and empirically for such a behavioral study:

I. Intertemporal Choice and Self-Control

Laibson (1997) discussed the concept of Hyperbolic Discounting and argued that consumers have dynamically inconsistent preferences, i.e., they prefer short-run over long run. As a result, consumers tend to choose immediate gratification ("doer") over long term financial stability ("planner"). Therefore, it is possible for consumers to accumulate large amounts of debt despite being aware of the long-term costs. In similar fashion, Thaler and Shefrin (1981) developed the Planner-Doer Model. They argue that consumers are able to control their impulses through "mental accounting," as well as using external controls (such as saving money in an account that can only be used at certain times).

II. The Physical Act of Spending

Prelec and Simester (2001) investigated the physical act of spending, finding what they call the decoupling effect. The decoupling effect refers to the idea that the pleasure associated with consuming goods or services is separated from the pain associated with making payments. When this occurs, willingness to spend increases dramatically — double that when using cash. This was also identified by Ariely (2008) in Predictably Irrational. He stated that credit cards eliminate the "pain of paying" thus causing a systematic amount of overspending regardless of whether consumers would otherwise make rational decisions based on economic principles.

III. The Co-Holding Puzzle

Bertaut, Haliassos and Reiter (2009) directly analyzed the co-holding puzzle. They suggested that co-holding debt and savings is a strategic (albeit costly) form of self-control. They hypothesize that consumers create a "cushion" by keeping their liquid savings separate from other accounts and prevent themselves from depleting their funds completely. Even if consumers have enough funds to cover their expenses completely, because they are paying interest on debt, they may continue to borrow.

IV. Data Discrepancies and Behavioral Predictors

Zinman (2007) noted a critical omission in prior research: consumers report almost half less debt than they actually owe in survey responses, likely resulting from a stigma/ denial surrounding their financial situation. Finally, Gathergood (2012) established that self-control has a greater impact on excess debt than does financial knowledge. His results indicate that financially literate individuals may still find themselves trapped within the Co-holding puzzle due to self-control issues rather than a lack of understanding of basic economics.

3. SIGNIFICANCE

The study's significance lies in its connection of increasing use of credit cards in India to the behavioral reasons for consumers' excessive spending on their cards. Because transactions are occurring at an increasingly rapid pace and borrowing limits have been extended as more Indians receive plastic, there is now a need for all stakeholders (households, lenders, regulatory agencies) to understand why so many borrowers are slipping further and further into expensive revolving debt. While this is ultimately about individual budgeting failures, it also relates to household financial well-being, unsecured lending risks, and consumer protection in an electronic payment environment.

4. OBJECTIVES

This research aims:

- to recognize trends in usage of credit cards; amounts due on the accounts of card holders and late payment history in India.
- to find out how different types of cognitive or psychological biases (e.g: present-bias, mental-accounting, poor self-control, over-confidence, and availability bias) affect excessive spending and poor payment behaviour.
- to examine how characteristics of products used in conjunction with the aforementioned biases contribute to creating a debt trap for customers.
- to suggest practical measures for reducing harmful overspending and chronic indebtedness in India.

5. RESEARCH METHODOLOGY

This research study has been adopted as a descriptive-analytical approach based on secondary data and conceptual analysis. The description of trends in recent credit card penetration, outstanding due amount, delinquent accounts in India were made from the RBI, industrial sources and credit bureau's data and reports. An analytical dialogue was formulated through a narrative review of academic literature on behavioral economics, consumer credit and use of credit cards with specific focus on studies about behavioral biases.

Sources for this study included central bank statistics, economic surveys, industry analyses and peer-reviewed journals that were accessed via online database systems and institutional website. Primary survey or field work was not undertaken, rather this paper synthesized the existing information and applied behavioral models to explain the observed patterns in India's credit card market. The analysis utilized simple descriptive metrics (e.g., percentage changes in number of cards issued, average value per transaction, total outstanding loan balances and ratio of overdue accounts)

6. DATA ANALYSIS

6.1 Credit Card Usage and Indebtedness Trend Analysis

Between 2023 and 2024, active cards rose to almost 10.8 crores (from 9.79 crores), an increase of approximately 10.3%. This was followed by an approximate 4.6% rise to 11.3 crores in 2025. The annual spends on the other hand rose even more rapidly with increases of 28.1% in 2024 and 15.5% in 2025. Outstanding card balance rose by 25.9% in 2024 and 12.8% in 2025 over each preceding year.

Table 1. Credit Card Usage and Indebtedness in India (2023-2025)[1]

Year	Active Cards (in crores)	Annual Spend (Rs. in crore)	Outstanding Card Balance (Rs. in crore)
2023	9.79	1,43,000	2,04,000
2024	10.8	1,83,200	2,53,000
2025	11.3	2,11,600	2,92,000

With annual interest rates ranging from 30% to 48%, card holders who consistently only repay the required minimum payment can continue to increase their debt while continuing to meet all of their card obligations. Such trends clearly demonstrate that numerous card users are caught in a cycle of revolving debt versus utilizing cards solely for convenience.

6.2 Rising Outstanding Dues and Delinquencies

The concerning news about unsecured consumer credit is the growing trend of consumers experiencing a form of "repayment stress." As given in Table 2 below, credit card gross non-performing assets (NPAs[2]) grew from Rs 5,250 crores in December, 2023 to Rs 6,742 crores in December 2024. As such, the total amount of outstanding card debt grew as well; increasing from Rs 2,53,000 crores to Rs 2,92,000 crores.

Concurrently with this growth was an increase in the NPA ratio for cards. The NPA ratio at year–end in 2023 stood at 2.06%, while by year end of 2024 it had grown to 2.30%.

Table 2: Credit Card NPAs and Outstanding Loans[3]

Indicator	Dec 2023	Dec 2024
Gross credit card NPAs (₹ crore)	5,250	6,742
Outstanding loans (₹ lakh crore)	2.53	2.92
NPA ratio (%)	2.06	2.30

1 Values are approximate and rounded. Data compiled from RBI and CRIF High Mark reports (2023–2025).

2 NPA: Non-Performing Assets

3 Data compiled from RBI and CRIF High Mark reports (Dec 2023–Dec 2024).

6.3 Mental Accounting, Rewards and Frictionless Payments

Rewards programs target this behaviour. Rewards include "points," "cash backs" and "partner discounts" that allow users to spend money and feel as though they are saving money. The industry believes that rewards programs greatly increase usage of credit cards — particularly in discretionary categories. In addition to the aggressive marketing, online merchants in India have used e-commerce platforms to frame credit card use as a means to earn discounts and receive "no-cost-EMIs." As such, the real costs associated with those products (interest) can be obscured through either pricing or hidden fees.

Table 3. Features of digital credit card offers and behavioral effects

Instrument	How it is framed to consumer	Likely behavioral effect	Potential hidden cost element
Reward points / cashback	"Earn points/save while you spend"	Higher discretionary spending, more frequent card use	Higher effective prices, annual fees, etc.
Partner discounts	"Exclusive offers if you pay by card"	Merchant/brand switching towards card-friendly options	Cross-subsidised pricing, fee to merchant

3 Source: (Credit Card Defaults Rise 28% in 2024, Surpass Rs6,700 Crore: RBI Data, 2025)

Instrument	How it is framed to consumer	Likely behavioral effect	Potential hidden cost element
"No-cost EMI"	"Zero interest monthly instalments"	Larger ticket size, more borrowing on EMIs	Built-in interest in product price/fees
UPI-linked card, 1-click	"Fast, seamless, one-tap checkout"	Lower salience of paying, weaker spending monitoring	Cumulative outlays underestimated

In addition to the ease-of-use enabled by UPI-linked card transactions and one-click checkouts, digital payments studies have found that when transactions become less salient (i.e., are easier to ignore), users tend to monitor their spending habits less closely, and therefore underestimate their cumulative outlays.

6.4 Overconfidence, Multiple Credit Lines and Issuer Practices

Many borrowers often overestimate their capacity to pay back multiple loans due to past successes with other loan repayments, and also based upon what they perceive will happen to them financially. Past successful events (i.e. paying off an EMI or earning reward points), can be remembered vividly and therefore can provide a strong basis of information that a borrower uses when making decisions about whether he/she should take out another loan. However, a debtor's long-term obligation to repay with interest is less likely to be salient. Media articles also report cases of young adults managing multiple credit cards and BNPL[4] accounts with some cases having excessive debt-to-income ratios. When unforeseen events such as a job loss or illness occur, they find it difficult to meet minimum payments and sometimes have to take-out new personal loans to repay previous card debts, thereby deepening the cycle.

[4] BNPL: Buy Now Pay Later

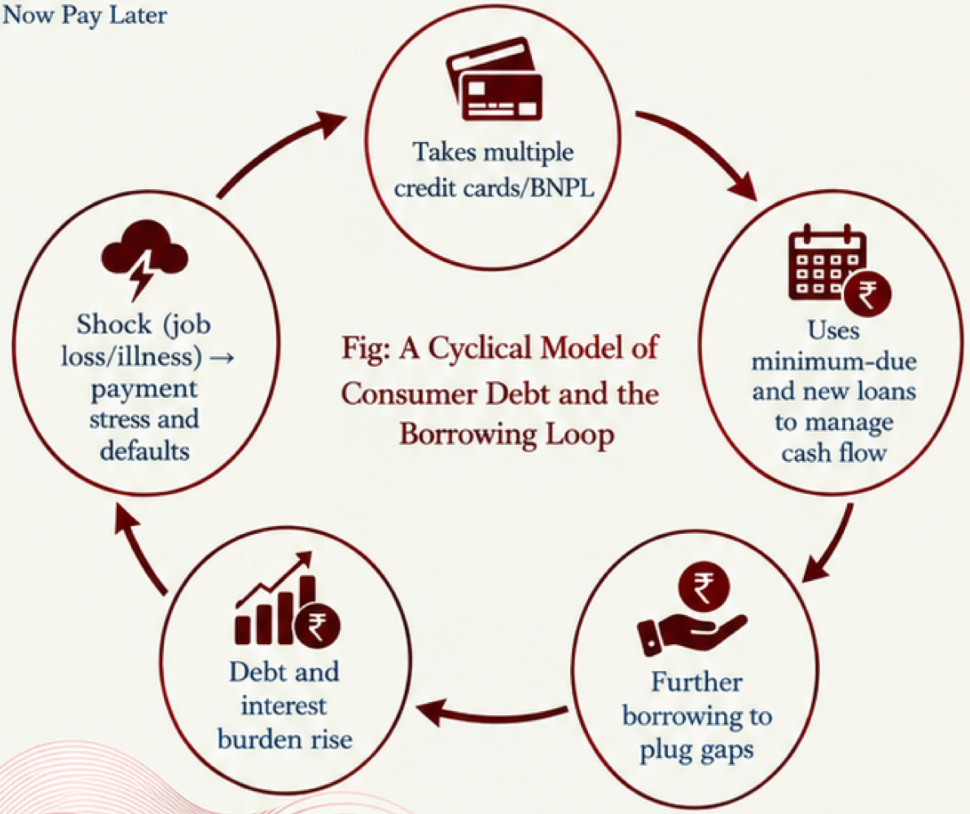


Fig: A Cyclical Model of Consumer Debt and the Borrowing Loop

7. FINDINGS

Based on the examination of consumer behaviour towards the use of credit cards in India, there were a variety of important findings as it relates to the financial behaviour of consumers.

- **Rapid Growth with Concentrated Penetration:** Card usage in India has experienced an unprecedented growth rate for penetration, spend and outstanding balances; likewise, this increased penetration and spend have correlated with an equally significant increase in delinquency or inability to make timely repayments. The largest group of delinquent borrowers is comprised of young people.

- **Rising delinquencies despite strong overall banking health**: An increasing number of customers are being unable to repay their debts, including to their banks. The non-performing assets (NPAs) of the Indian banking system increased to ₹6,742 crore during 2024 from an increase of approximately 28%, and therefore represents almost 2% of all outstanding card loans; whereas, the overall NPA's within the banking system decreased.

- **Digital Ecosystems and Social Pressure Enhances Bias:** Programs that offer rewards to consumers; require only minimum payment amounts; provide large credit limits; transfer accounts into EMI plans; and create easy-to-use digital platforms encourage excessive consumption among consumers by reducing perceived cost and creating a belief that purchasing goods creates value.

- **Over-Confidence, Income Shocks and Reliance on New Credit**: Customer's confidence in their ability to repay multiple lines of credit based on past experiences and their expectation of increased earnings creates an environment where if/when customer's income drops during periods of economic shock, they often finance their debt through other forms of borrowing.

8. SUGGESTIONS

Behavioral science suggests various interventions to help consumers avoid debt traps. Globally, interventions that increase transparency or commitment have reduced overspending. For instance, a field experiment found that goal-setting + weekly feedback on credit card spending (via a mobile app) significantly cut spending. In India, potential nudges include:

8.1 For Consumers

- One must view credit cards as merely payment tools and attempt to pay the full statement amount each month. One should reserve revolving balances only for emergency situations.
- Before one converts a purchase into an EMI (equated monthly instalment), comparison of the total cost with other alternatives must be done (for example: saving money in advance or obtaining a loan at a lower rate); one should utilize calculators to determine how many months it will take to pay off their current balances at varying payment levels.

8.2 For Issuers

- Issuers must align rewards-based upon reasonable borrower behaviour (e.g., offer bonus-points or fee-waivers for consecutive months of timely full-repayment rather than simply greater spending).
- Simple scenarios should be provided like tools illustrating in Rupees how much interest a user would pay if they continued to revolve a specific balance for different time frames.

8.3 For Policy Makers and Educators

- The Government must include behavioral economics into programs about education on financial literacy by using examples or simulation, as well as illustrating how small rollover loans accumulate into large amounts of debt and how making the minimum payment prolongs the length of time it takes to repay.
- Counselling for independent debt problems must be conducted for households who become over-indebted, so they may have access to assistance for structuring their high-cost card debt.

8. CONCLUSION

India's credit card boom occurred simultaneously with increasing levels of household debt and an increased amount of documentation showing the potential for borrowers to experience repayment difficulties. Behavioral economics demonstrates that borrowing too much money and failing to make payments is not simply due to lack of knowledge; but also represents expected behaviour resulting from the interactions of present-bias, mental accounting, confidence, and limited attention, all related to product design and digital technologies. Additionally, secondary data indicates that a substantial portion of card holders are likely to be trapped in a cycle of continuous high-interest debt if action is not taken. In order to reduce the risk of being trapped in a cycle of high-interest debt, there needs to be a multi-faceted effort among all parties. As such, credit cards can transition from a mechanism of concealed indebtedness into a tool for supporting household financial management and economic growth inclusively.

REFERENCES

- Ariely, D. (2008). Predictably Irrational.
- Bertaut, C., Haliassos, M., & Reiter, M. (2009). Credit Card Debt Puzzles and Debt Revolvers for Self Control. *Review of Finance*, 13(4), 657–692.
- Credit Card Defaults Rise 28% in 2024, Surpass Rs6,700 Crore: RBI Data. (2025). Retrieved from NDTV Profit: https://www.ndtvprofit.com/economy/credit-card-defaults-rise-28-in-2024-surpass-rs-6700-crore-rbi-data-9864601
- Credit card defaults rose by 28% in 2024. (2025). Retrieved from Scroll.in: https://scroll.in/latest/1081059/credit-card-defaults-rose-by-28-in-2024-reserve-bank-of-india
- Credit card delinquencies rise by 110 bps, says study. (2024). Retrieved from CRIF High Mark: https://www.crifhighmark.com/news-events/news/2024/dec/credit-card-delinquencies-rise-by-110-bps-says-study
- Desai, A. (2025). India's Growing Debt Trap: How Rising Credit Card Defaults Reflect a Deeper Crisis. *Stanford Economic Review*.
- Gathergood, J. (2012). Self-Control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology*, 33(3), 590–602.
- GoKiwi, (2025, July 8). Retrieved from Kiwi: https://gokiwi.in/blog/credit-card-usage-in-india-2025-trends-and-consumer-behaviour/

REFERENCES

- Hamid, F. S. (2025). Behavioral biases and over-indebtedness in consumer credit: evidence from Malaysia. Taylor & Francis. Retrieved from https://doi.org/10.1080/23322039.2024.2449191
- Lahari, S. (2025). What is the Average Credit Card Interest Rate in India? Retrieved from Olyv.co.in: https://www.olyv.co.in/blog/credit-card-interest-rate/
- Laibson, D. (1997). Golden Eggs and Hyperbolic Discounting. *The Quarterly Journal Of Economics*, 112(2), 443–477.
- Mehta, R. (2026, February 23). Rs 30,000 salary, Rs 40 lakh debt? Why Gen Z is slipping into a dangerous borrowing trap, plus 7 red flags to watch. *The Economic Times*.
- Meier, S., & Sprenger, C. (2010). Present-Biased Preferences and Credit Card Borrowing. *American Economic Journal: Applied Economics*, 193–210.
- Mohan, L. (2025, September 5). Swipe now, pay forever | Credit card debt in India is no longer a silent crisis . *The Hindu*.
- Prelec, & Simester. (2001). Always Leave Home Without It: A Further Investigation of the Credit-Card Effect on Willingness to Pay. *Marketing Letters*, 12(1), 5–12.
- Thaler, R., & Shefrin, H. (1981). An Economic Theory of Self-Control. *Journal of Political Economy*, 89(2), 392–406.
- Varier, A. (2025). Credit card transactions surge, but debit card transactions decline: RBI. *Business Standard*.
- Zinman, J. (2009). Where is the Missing Credit Card Debt? Clues and Implications. *Review of Income and Health*, 55, (2), 249–265.

FINANCIAL LITERACY AND ECONOMIC EMPOWERMENT

Understanding Knowledge,
Building Empowered Futures.

SAVE

INVEST



LEARN

SECURE

WRITER

Sourab Das

BCOM 6th Semester

DESIGNED BY

Himangshu Kalita

BBA 6th Semester

FINANCIAL LITERACY AND ECONOMIC EMPOWERMENT

ABSTRACT

This research paper analyzes the connection between financial literacy and economic empowerment, the distribution of financial literacy levels across different educational groups and age groups, and the impact of financial literacy on decision-making abilities. Based on secondary data collected, the research provides insights into financial literacy in the population by educational status and age groups. According to the results, there is a positive correlation between educational level and financial literacy, and people with more years of education demonstrate lower levels of financial illiteracy and higher levels of advanced financial literacy. At the same time, the data showed that people have elementary and intermediate financial literacy levels which indicates a lack of practical financial understanding. In addition, the younger generation shows higher levels of financial literacy compared to middle-aged and elderly people. These results show that despite positive effects of formal education on the development of financial literacy, continuous financial learning is required to stay aware of the changes happening in financial systems. Therefore, it is necessary to promote financial literacy by using practical education programs and campaigns aimed at increasing awareness among the general population.

INTRODUCTION

In today's economy, financial literacy is an important part of overall well-being and economic development, an understanding of the financial world. Financial literacy is defined as the ability of individuals to understand and adapt their knowledge and skills in budgeting, saving, investing, borrowing and risk management in relation to making smart financial decisions. A person who is financially illiterate typically will not have the ability to make appropriate financial decisions and will suffer from poor personal financial management, without these skills, a person falls into financial instability, falling into a cycle of debt or being excluded from the broader financial market. Due to the rapid development and expansion of financial markets, the increasing number of financial products, and the changing nature of how digital financial services are used, the need for financial literacy has grown significantly in recent years. As a result, individuals are now more responsible for their financial decisions, such as planning for retirement, making investment decisions and managing credit. Because of this, financial literacy is necessary not only to protect individuals from financial risk but also to help them grab economic opportunities. Financial literacy will result in higher savings rate, provide for a more efficient allocation of resources, and increased participation of individuals in the formal financial system, all of which strengthen the overall financial system.

On a personal level, financial literacy leads to more competent income management, enhanced saving habits, and smarter investing, which means increased opportunities for individuals to be empowered economically. On a larger scale, a population with high levels of financial literacy creates a degree of overall capital formation, higher levels of financial inclusion, and general economic stability. Therefore, the financial literacy reduce the level of economic disparity by allowing all individuals not just those from affluent backgrounds to have access to, and utilize, the available financial service offerings in an appropriate manner. In conclusion, improving financial literacy is not only a vital social issue but also an economic issue because of the significant role it plays in creating inclusive growth as well as sustainable development.

LITERATURE REVIEW

Anaike (2025), through her research focused on the women entrepreneurs in Nigeria, she also revealed how women entrepreneurs are empowered to manage their businesses through better access to finance and improved business management skills. Furthermore, providing educational programs designed for specific groups is particularly effective in driving economic empowerment among women entrepreneurs who have been underserved. Additionally, the author indicates that there is a need for policy intervention and establishment of resources to enhance financial literacy initiatives to support female entrepreneurship to create a conducive environment to encourage women's entrepreneurial activity. This review illustrates the significance of financial literacy as a means of empowering female entrepreneurs. It also identifies the necessity for further research and practical avenues to support ongoing growth in Nigerian entrepreneurship.

Lovekesh (2025) conducted a study on financial literacy levels of senior secondary students in Delhi. Results indicated that even though the respondents had basic knowledge about finances, they struggled with the application of that knowledge when makingeveryday decisions. The results from this study indicated that the students' lack of knowledge about financial decisions and economic participation inhibited their ability to use both forms of economic knowledge for the purposes of empowerment. In addition to confirming that the students' knowledge was limited to only the basics, the study found that there were no programs available in the schools or community to provide the students with exposure to practical finance. Moreover, the study highlighted the three key barriers; no financial education program implemented in schools; very limited access to practical finance outside of the classroom; and insufficient training for teachers to instruct their students about financial matters.

Kaur and Sharma's (2024) study involved examining more than 3,000 different studies on financial literacy conducted from 1990 to 2023. Kaur and Sharma identified three broad themes that dominated the research on financial literacy: 1) literacy rates among different populations. 2) gender-based differences in financial literacy: 3) how financial literacy affects one's financial behaviour after receiving financial education. The findings of their review suggest a correlation between the financial literacy level and making saving and investing decisions as well as increased financial well-being. Kaur and Sharma also noted that while obtaining financial literacy can be achieved through financial education, how successful this is will depend upon the program's design and the experimental group being studied. In addition to these findings from the literature review, they also examined the current state of financial literacy considering gender issues, including the definition of financial literacy, challenges to acquiring financial literacy and potential solutions for achieving financial literacy. This systematic review provides valuable insight into financial literacy and its implications for researchers, practitioners, and policy makers alike.

Scheresberg (2013) found that individuals who have greater financial literacy tend to save more in preparation for emergencies and make better financial decisions, which decreases the likelihood of using high-interest loans. These findings support the theory that improved financial literacy results in greater economic stability by lowering the level of financial risk and increasing the likelihood of long-term financial security. Additionally, the study contains evidence that those who are financially vulnerable face additional hardships due to insufficient financial knowledge and demonstrates how an individual's level of financial literacy affects their use of professional financial advice; specifically, whether a professional intervention could replace the need for financial literacy.

SIGNIFICANCE OF THE STUDY

Individual economic empowerment and overall national development continue to be significantly influenced by financial literacy. This study is important because it offers a data-driven understanding of the differences in financial literacy in India across age groups, educational levels, and geographical areas. The results show a systemic gap that cannot be filled by formal education alone, with only 4.23% of the population demonstrating advanced financial literacy. To create focused literacy , interventions, incorporate useful financial education into curricula, and encourage inclusive economic earticipation across a range of demographic groups, the study provides policymakers, educators, and financial institutions with practical insights.

OBJECTIVES OF THE STUDY

1. To examine the distribution of financial literacy across different educational and age groups in India.
2. To investigate the impact of financial literacy on the investment behaviour and financial asset allocation of individuals.
3. To study the regional differences in financial literacy and its impact on economic empowerment in India.

RESEARCH METHODOLOGY

The current study is descriptive in nature and based on secondary data collected across various verified sources. The descriptive nature of the research used to describe the current state of financial literacy levels, role of financial education and how it influences economic empowerment and the financial education programs and the government policies and its impact. It analyses the relationship between financial literacy and impact on the decisions. Data included in the study is collected from reliable institutional sources which include various reports, publications and academic literature.

NATURE AND SOURCE OF DATA:

The study includes secondary data collected from reports and publications. This data has been collected from various institutions and from reliable sources which are relevant to the shows the real picture pattern of the aggregate behaviors of the country's economic empowerment environment and financial literacy and does not include any primary data.

The major sources of the secondary data included in the study are from–

1. Publications and reports from various articles.
2. National Institute of Securities Market (NISM) published reports.
3. Various working paper government schemes published documents.

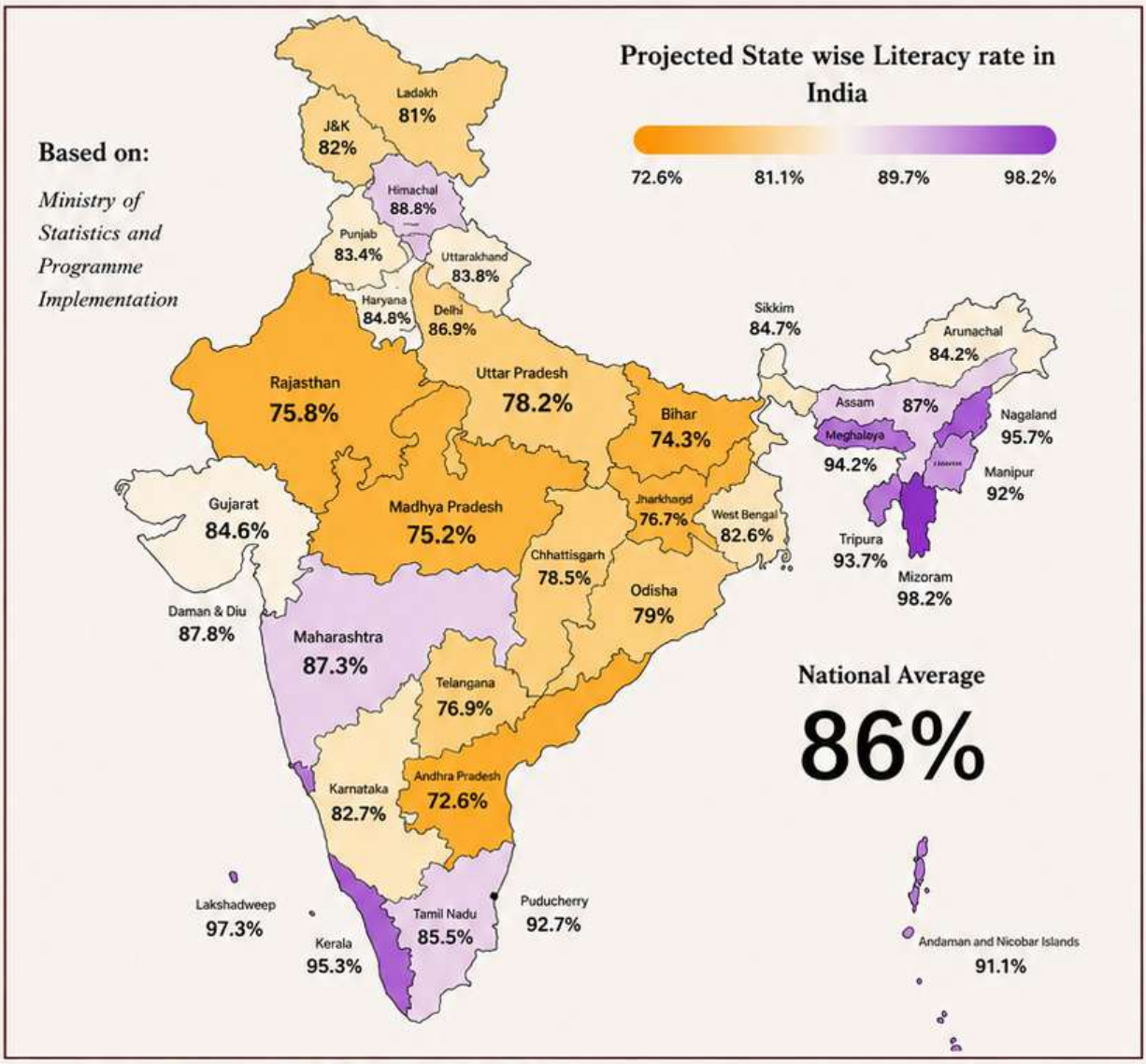
This study includes data from published reports in the past years to track the economic level and the geographical area include India.

DATA ANALYSIS TOOLS:

The data is analyzed through using simple statistical tools which include percentage analysis method and secondary data used are tabulated and graphically represent through bar diagrams and histograms.

DATA ANALYSIS AND INTERPRETAON

Figure 1: Regional display of financial literacy in India



Source: Indian data map (2025)- literacy rate insights.

INTERPRETATION

This map shows the uneven levels of financial literacy in India. The national average is 86%, but there are huge disparities between states—Andhra Pradesh has 72.6% and Mizoram 98.2%. One area is over a quarter of the scale behind.

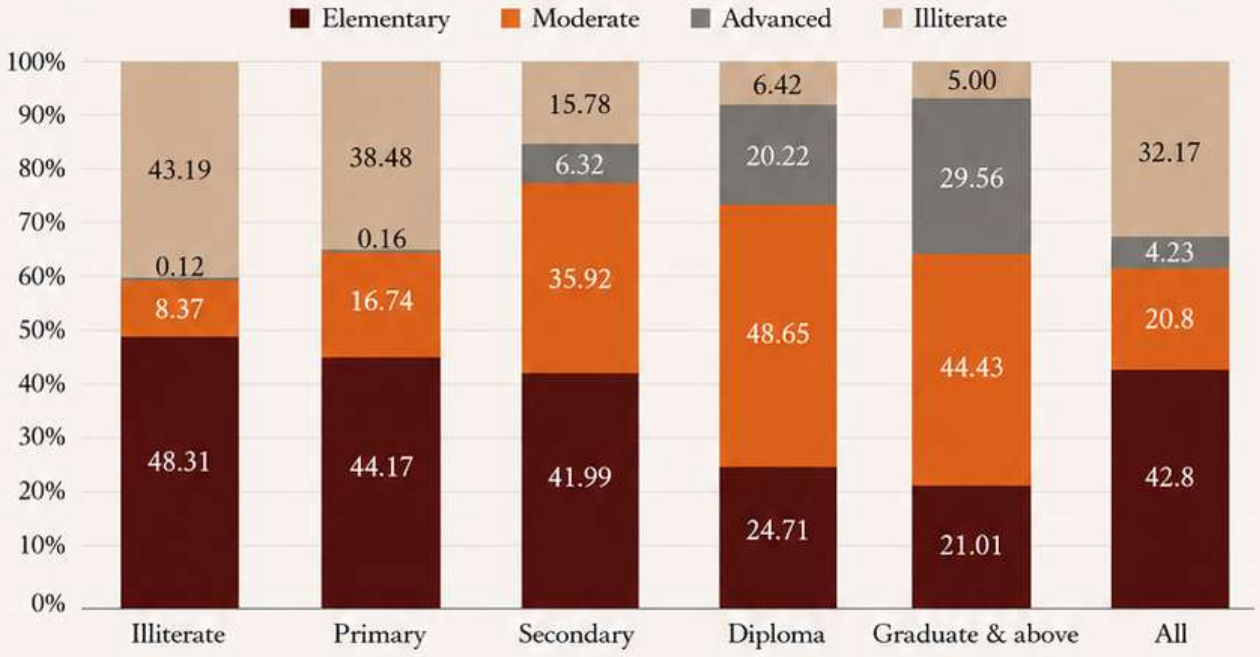
It also points to the ongoing imbalances embedded in education systems from place to place.

Most of the literate people live in the northeast part of India. But in places like Kerala, Goa, and some small island territories, that pattern is broken. States like Mizoram, Nagaland, Tripura, Meghalaya, Manipur, and Assam are above the country's average rate. High levels of learning are evident even where there are no big economies: Kerala led the way, but Lakshadweep, Puducherry, and Goa are also on the rise.

Parts of central and north-central India are showing weakness. States such as Andhra Pradesh, Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh, Jharkhand, and Odisha are under the overall mark of the country, with many clustered between 72% and 79%. It shows how within its own borders one nation can have the top numbers but underneath sharp divides.

Table 1- Financial literacy across education levels (in percentage)

	Elementary	Moderate	Advanced	Illiterate
Illiterate	48.31	8.37	0.12	43.19
Primary	44.17	16.74	0.16	38.48
Secondary	41.99	35.92	6.32	15.78
Diploma	24.71	48.65	20.22	6.42
Graduate & above	21.01	44.43	29.56	5.00
All	42.8	20.8	4.23	32.17



Source: based on data from NSS 77th Round of the All-India Debt and investment survey.

INTERPRETATION

It is clear from the above table and graphical representation that better financial literacy in India is strongly correlated with higher education. Financial illiteracy dramatically decreases as educational levels rise, according to data from the National Sample Survey Office's 77th Round. Financial illiteracy is 43.19% among the illiterate, but it is only 5% among graduates and above. Simultaneously, among highly educated groups, advanced financial literacy rises from 0.12% among illiterate people to 29.56%.

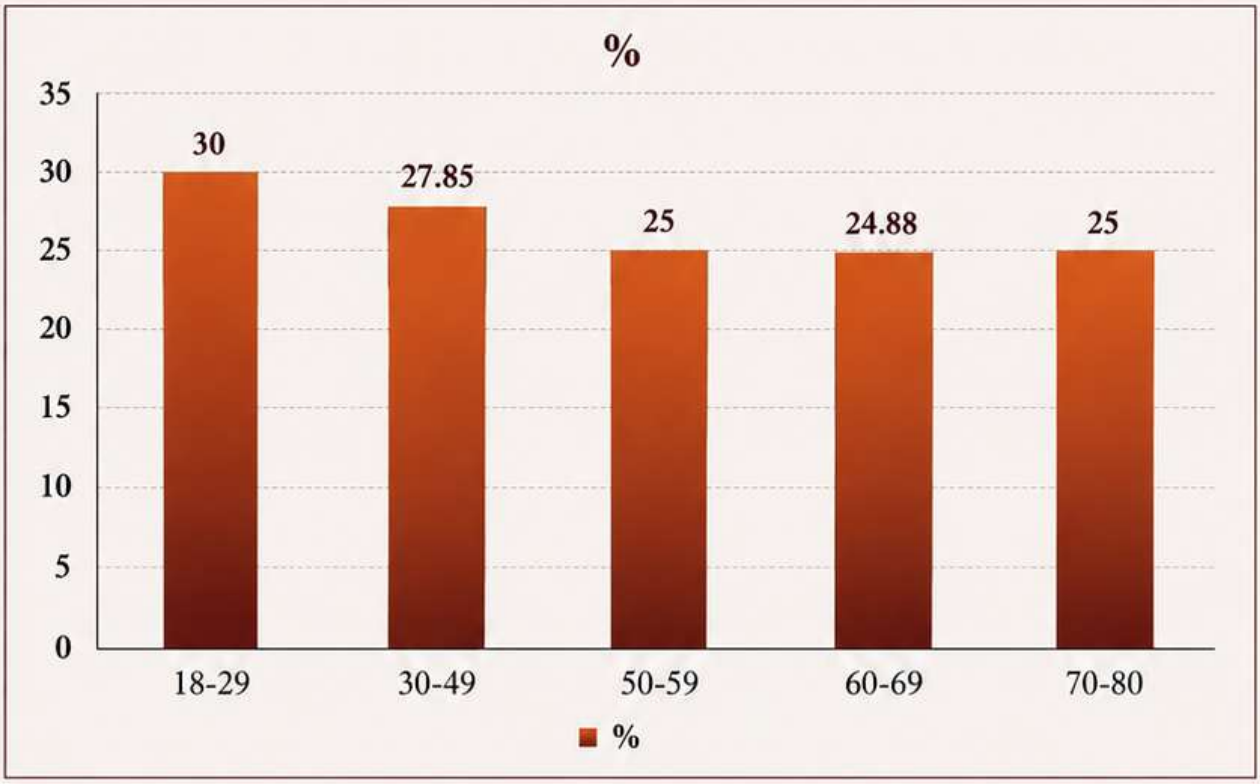
At the secondary education level, where people start to develop a moderate level of financial awareness and understanding, there is a noticeable improvement. Nevertheless, a sizable portion of the population still falls into the elementary and moderate literacy categories despite advancements in education.

This suggests that while formal education primarily imparts fundamental financial knowledge, advanced concepts like risk management and long-term investment planning are frequently not practically exposed. Therefore, practical financial awareness programs are required to strengthen financial decision-making skills, as education alone is insufficient.

Table 2 – Age-wise financial literacy in India

AGE GROUP	PERCENTAGE (%)
18-29	30%
30-49	27.85%
50-59	25%
60-69	24.88%
70-80	25%

Source- Financial literacy and inclusion in India survey report, 2019



INTERPRETATION

Young adults between 18 and 29 stand out with a 30% rate, pointing towards better understanding of financial concepts compared to older groups. Because they often experience school learning more recently, plus widespread use of online banking apps, it makes sense they're slightly ahead.

Moving up in years brings slower progress - those aged 30 to 49 show 27.85%. After that, numbers dip further down to 25% once people hit their fifties. One reason might be comfort with old routines; picking up new finance trends and concepts could feel less natural over time. Though life experience grows, staying current on economic shifts seems harder for some beyond midlife.

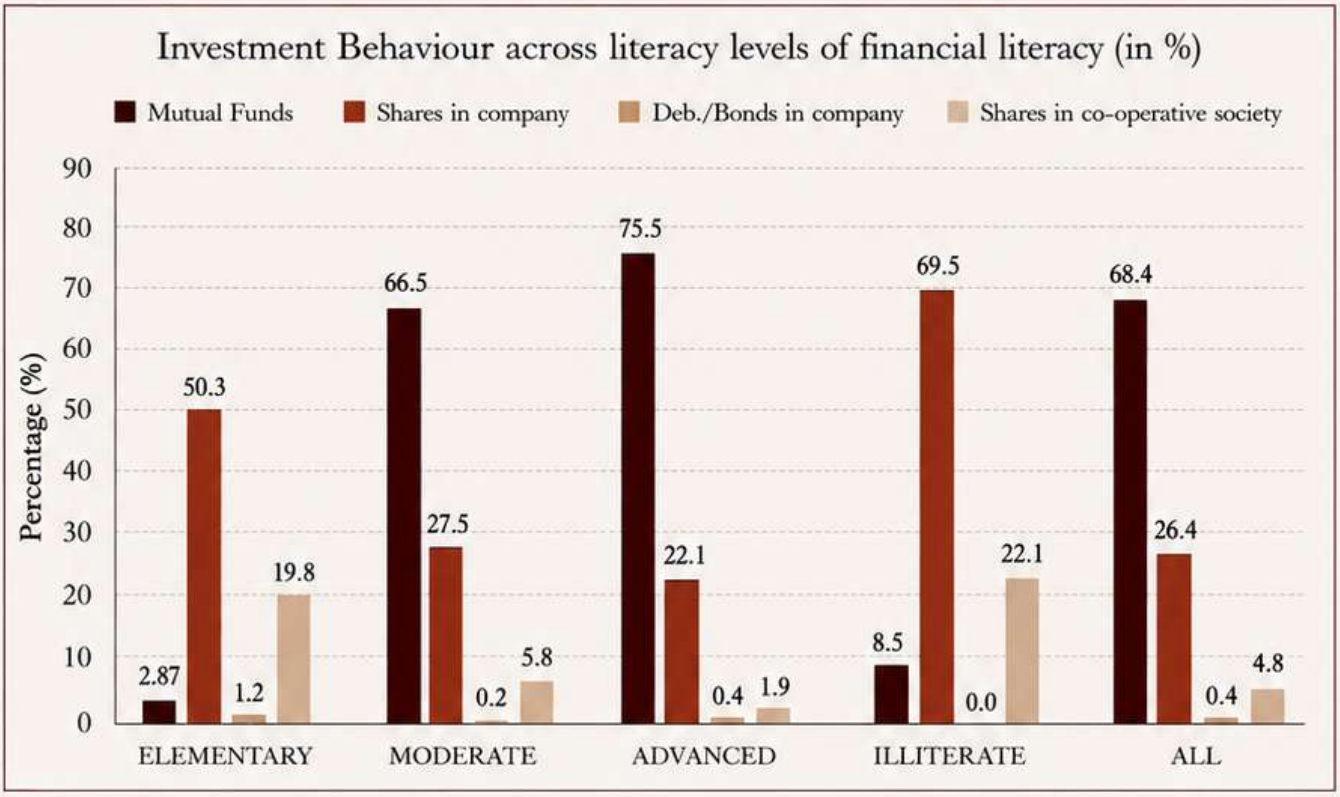
Starting at age sixty, numbers settle around 24.88 percent and 25 percent - showing little change afterward. After reaching a point, money knowledge stays low without dropping much more.

Older adults tend to rely on familiar financial habits instead of exploring newer tools and concepts, which helps to explain why shifts are minimal or balanced.

Table 3- Investment Behaviour across literacy levels of financial literacy (in %)

Level of financial literacy	Mutual funds	Shares in company	Debentures/Bonds in company	Shares in co-operative society
Elementary	2.87	50.3	1.2	19.8
Moderate	66.5	27.5	0.2	5.8
Advanced	75.5	22.1	0.4	1.9
Illiterate	8.5	69.5	0.0	22.1
All	68.4	26.4	0.4	4.8

Source:- Based on data from NSS 77th Round of the All-India Debt and investment survey.



INTERPRETATION

This data shows that higher financial literacy influences investment choices, linking closely to their sense of control over finances. While some dive into mutual funds - about three-quarters do so - it's usually those who understand budgeting, saving, and planning. On the other side, investing in single company stocks happens a lot when financial understanding is comparatively low. Cooperative groups also attract the attention among the less informed, making up roughly two in ten choices, even though risks pile up without variety. Without broader insight, options shrink, chances narrow, outcomes tighten.

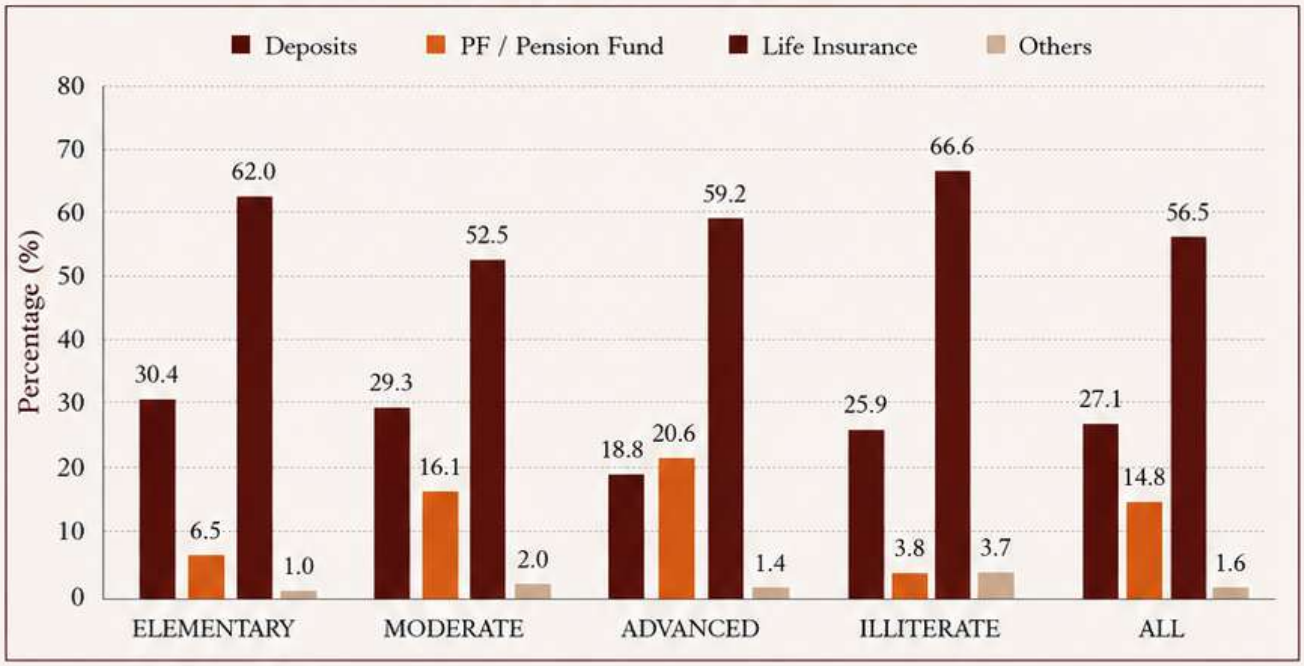
Most individuals at the middle stage leans towards mutual funds - around two thirds - with more confidence showing their choices. Half still pick individual stocks, shows that investment happens but concentrated in limited assets.

Apart from that there are few exceptions, hardly anyone touches debentures or bonds - this gap clearly points to low awareness of fixed-income instruments. While some may know stocks, these tools stay out of view, almost unnoticed.

Table 4- Financial Assets across levels of financial literacy (in %).

Levels of financial literacy	Deposits	PF /Pension Fund	Life Insurance	Others
Elementary	30.4	6.5	62.0	1.0
Moderate	29.3	16.1	52.5	2.0
Advanced	18.8	20.6	59.2	1.4
Illiterate	25.9	3.8	66.6	3.7
All	27.1	14.8	56.5	1.6

Source- Based on data from NSS 77th Round of the All-India Debt and investment survey.



INTERPRETATION

Figures point to a strong link between financial knowledge and what kind of assets individual holds - one that ties closely to their control over finances. When literacy levels drop, life insurance grabs the attention: 62.0% are with basic skills and 66.6% are without reading ability. Safety seems key here, yet it highlights the lacking opportunities to grow. Deposits also play some role, though not dominant – still enough to suggest caution rules the day.

When people learn more about finance, decisions making start to change. Instead of confined to savings accounts – down 18.8% - they're turning towards pension plans, up by 20.6%. Thinking ahead becomes clearer when choices lean on future stability. Security isn't only about shielding cash anymore; it's about shaping how wealth grows over time.

Starting off, better money knowledge helps to spread investments across different assets. Because of this shift, people find it easier to plan for distant goals without sudden setbacks. A person who understands finance tends to feel more control when handling their future, simply by balancing gains against possible losses. This kind of awareness builds confidence, mainly through smarter choices that reflect both stability and growth.

From the data we can conclude that figures point to a strong link between money knowledge and what kinds of assets people hold - one that ties closely to their control over finances. When literacy drops, life insurance grabs most attention: 62.0% among those with basic skills, even 66.6% among those without reading ability. Safety seems key here, yet it hints at missed chances to grow wealth. Deposits play some role too, though not dominant - still enough to suggest caution rules the day.

When people learn more about money, things start to change. Instead of sticking just to savings accounts - down 18.8% – they're turning toward pension plans, up by 20.6%. Thinking ahead becomes clearer when choices lean on future stability. Security isn't only about shielding cash anymore; it's shaping how wealth grows over time.

Nowhere near extreme, these folks spread things out just enough to show they are shifting how money choices get made. Their pattern hints at movement – neither stuck nor rushing forward – but stepping through one stage into another.

FINDINGS OF THE STUDY

100

The following are the findings of the study:

1. From the study, it was found that financial literacy varies across educational levels. This study shows that there is a positive relationship between financial literacy and economic empowerment with increase in financial literacy levels across the various education classes of individuals impact positively in economic empowerment of the country as it is seen that as the distribution of investment in different asset classes in mutual funds, shares and other financial assets which tell that increase in financial literacy levels or financial awareness among individual leads to increase in investment behaviours as well as savings.

2. There is a significant gap exists in financial literacy across different educational teams. The study tells that the 4.23% total population of India comes under the head of advanced financial literacy. Large population of India continues with basic financial knowledge i.e. 42.8% of the total population which shows lack of financial awareness.

3. 

Further, we can also see the regional differences between among the states of India which leads to the difference in the approach of individuals towards the investment and asset allocation and savings. It was seen that on an average of 27.1% of financial assets are kept in savings which is a traditional way to invest, and it consists of 25.9% of people which is highest in the level.

4. 

The age group of 18-29 years shows financial literacy level as 30% which is the highest in the among the population which shows that this age group have better access to the resources.

5. The study also reveals that the financial literacy gets stabilized or gets down with the age group, it shows that financial literacy does not move out from the individual after certain age but also does not improve it just ranges below average level.

SUGGESTIONS

1. **Financial education should be included in the curriculum.** Financial education must be included in the school curriculum because this will shape the future financial habits and contribute towards the financial growth and economic empowerment.

2. **Major emphasis should be put on Practical financial training.** There should be practical exposure on learning financial education which will help them to learn about investment, asset allocation, savings behaviours and risk assessment.

3. **Financial education should be promoted through digital platforms-** It is seen that the 18-29 age group individuals have higher literacy levels which shows they have better access to resources so promoting financial education will lead to increase in literacy levels.

4. **Financial literacy awareness campaigns for target groups-** It is seen that there are many education classes which recorded low financial literacy levels so there must be campaigns for those classes.

5. **Government programmes and institutional support-** Government should bring more financial literacy programmes to bring awareness among people with the collaboration with various institutions.

CONCLUSION

In summary, we can conclude that the financial literacy levels play a crucial role in economic empowerment by influencing the capacity to make informed financial decisions, manage their assets properly, and ensure future financial security. The empirical evidence presented in the paper suggests a high correlation between education and financial literacy, where the increase in education contributes significantly to a lower level of financial illiteracy and gradual rise in advanced financial literacy. Besides, it was observed that with age, financial literacy gradually decreases, which shows poor adaptability and constant learning capacity among elderly individuals.

From the above results, it may be concluded that education increases financial awareness; however, it does not guarantee economic empowerment. As the number of people who have advanced financial literacy is low, it becomes impossible for them to make wise investment decisions and accumulate wealth. Hence, to address this problem, it requires practical financial education support and financial awareness programs.



Empowered individuals build empowered communities, leading to a stronger and more inclusive economy.

BIBLIOGRAPHY

1. Kumar S. and Aithal P.S. (2024, August 09). *Financial Literacy for Economic Empowerment: Micro Finance Initiatives in Indian SHGs:* Poorna Prajna Institute of Management, Udupi, India

2. Dash P. and Ranjan R. (2023 November). *Financial Literacy across different states of India: An empirical analysis:* Research and Information System for developing countries-Discussion paper 286, New Delhi, India.

3. NISM Report, (2019). *Financial Literacy and Inclusion in India.* National Centre for Financial Education (NCFE): National Institute of Securities Market (NISM), Navi Mumbai, India.

4. Kaur A. and Sharma M. (2024, May 17). *The Evolution of Financial Literacy Research: A Bibliometric Analysis of Trends and Patterns:* Punjab University, Punjab.

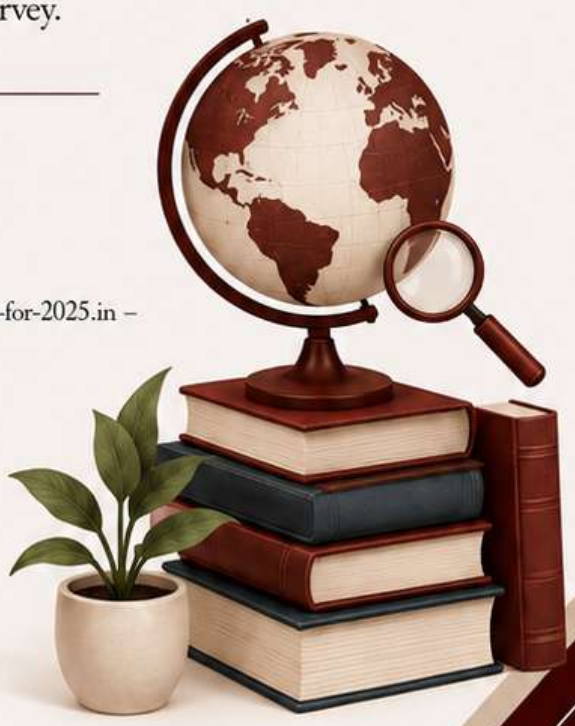
5. Anaike L.C. (2025, July 7). *Financial Literacy and Performance of Female Entrepreneurs in Nigeria:* Nnamdi Awikiwe University, Awaka, Anambra State, Nigeria.

6. Scheresberg B. (2013, April). *Financial Literacy and High-Cost Borrowing in United States.* SSRN Electronic Journal: George Washington University, USA.

7. Lovekesh (2025, May). *Understanding the Impact of Financial Literacy on Economic Awareness Among Senior Secondary Students in Delhi: A Quantitative Exploration.* (Vol.13): Journal of Neonatal Survey.

WEBSITE:

1. www.nism.ac.in – Retrieved as on 03.04.2026
2. www.ncfe.org.in – Retrieved as on 07.04.2026
3. www.indiadatamap.com/2025/08/26/indias-literacy-rate-insights-for-2025.in – Retrieved as on 08.04.2026
4. www.scholar.google.com – Retrieved as on 08.04.2026
5. www.mospi.gov.in - Retrieved as on 05.04.2026
6. www.oecd.in – Retrieved as on 05.04.2026





FROM DATA TO DECISIONS:
THE TRANSFORMATIVE POWER OF AI IN CONTEMPORARY BUSINESS STRATEGY

(Digital Transformation & AI in Business)



LEVERAGE AI

Turn data into actionable insights and drive smarter business decisions.

TRANSFORM

Embrace digital transformation to create value and stay ahead in a competitive world.

INNOVATE & GROW

AI empowers businesses to innovate, optimize, and unlock sustainable growth.

WRITER

Priyanka Das
BBA 4th Semester

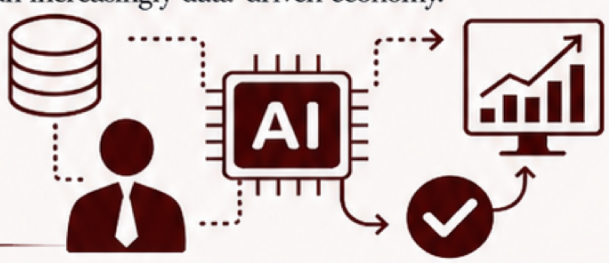
Anshruta Upamanyu
B.COM 2nd Semester

DESIGNER

Anish Dutta
BCA 5th Semester

ABSTRACT

This particular study explores the expanding significance of digital transformation and artificial intelligence (AI) in the modern business environments, focusing on how organizations are adopting and utilizing these technologies to enhance their performance and competitiveness. Based on an analysis of recent quantitative trends, including rising adoption rates, increasing levels of investment, and measurable improvements in operational efficiency, the study finds that AI has moved from being a supplementary tool to a core component of business strategy, However, the evidence also indicates that while many firms have initiated the use of AI, a considerable proportion remain in early or experimental stages, suggesting that full-scale integration is still evolving. The relationship between AI adoption and business outcomes appears to be gradual and layered, with immediate gains observed primarily in productivity, process optimization, and cost efficiency, whereas more substantial financial benefits, such as revenue growth and profitability, tend to emerge over a longer period. The study further highlights variations in adoption across industries, organizational size, and geographical regions, pointing to an uneven distribution of digital capabilities and resources. In addition to operational impacts, the findings draw attention to significant workforce implications, particularly the growing demand for new skills, continuous learning, and the reconfiguration of job roles. The analysis emphasizes that successful digital transformation depends not only on technological investment but also on the strategic leadership, organizational readiness, and the effective alignment of business objectives with digital initiatives. Overall, the study concludes that digital transformation and AI represent long-term structural shifts in the way businesses operate and compete, with their true value lying in their ability to reshape the decision-making processes, drive innovation, and create sustainable competitive advantage in an increasingly data-driven economy.



INTRODUCTION

In recent years, the rapid advancement of digital technologies has fundamentally altered the way businesses operate, compete, and create value among others. At the centre of this transformation lies artificial intelligence (AI), which has moved beyond experimental applications to become an integral component of organizational strategy, Digital transformation, when driven by AI, enables firms to process large volumes of data, automate complex tasks, and generate insights that support faster and more informed decision-making. As a result, businesses across sectors are increasingly relying on intelligent systems to enhance their operational efficiency, improve customer experiences, and to maintain a competitive edge in a dynamic market environment.

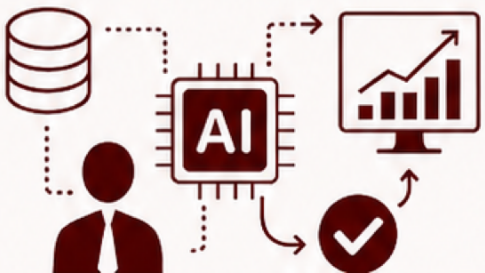
The growing integration of AI into business functions has also led to significant structural changes within organizations. Traditional processes are being redesigned to accommodate data-driven approaches, while new business models are emerging that prioritize agility, personalization, and predictive capabilities. At the same time, this transformation is not without its complexities. Concerns related to data privacy, cybersecurity, and algorithmic bias have gained prominence, raising important questions about the ethical and responsible use of AI in the business contexts. These challenges highlight the need for a balanced approach that combines both technological innovation with a robust governance and risk management practices.

Moreover, while early evidence suggests that AI adoption contributes to improvements in productivity and efficiency, the extent of its impact on overall business performance remains an area of ongoing examination. Differences in adoption levels across industries, firm sizes, and regions indicate that the benefits of digital transformation are not uniformly

Against this backdrop, the present study seeks to explore the multifaceted role of digital transformation that is powered by artificial intelligence in the modern business environment. Specifically, the study aims to examine how AI-driven transformation is shaping business decision-making, operational efficiency, and competitive advantage; to address the technical and ethical risks associated with data privacy, security, and algorithmic bias in automated business models; and to measure the performance impact of AI transformation tn terms of its influence on operational efficiency and profitability.

Furthermore, the increasing dependence on digital ecosystems has intensified the need for organizations to adopt a more integrated and strategic perspective towards technology adoption. Businesses are no longer implementing AI in isolation; rather, they are embedding it within broader digital infrastructures that connect processes, people, and platforms. This shift reflects a transition from technology as a support function to technology as a core driver of business value.

In this context, the ability of firms to successfully navigate digital transformation depends not only on technological readiness but also on organizational adaptability, cultural openness to various changes, and continuous learning. Consequently, understanding the combined impact of AI and digital transformation requires a holistic approach that considers both quantitative performance outcomes and qualitative shifts in how businesses function and evolve over time.



LITERATURE REVIEWS

1. **Guler (2024),** in her research paper titled **'A literature review of artificial intelligence research in business, management, and information systems.'** investigated the application of AI models and topic modeling techniques to enhance computational literature reviews in business research, highlighting interdisciplinary needs and research gaps in AI ethics and regulation. This study aims to systematically review how artificial intelligence has been studied and applied within the fields of business, management, and information systems. The author focuses on understanding methodological trends and thematic evolution in AI-related business research.

   The review finds that AI research in business is rapidly expanding, particularly in areas such as decision support, automation, and analytics. It also highlights significant gaps in ethical governance, regulatory frameworks as well as interdisciplinary integration. This source is highly relevant as it establishes a foundational understanding of AI's role in business and identifies gaps that justify further study on AI-driven digital transformation.

2. **Kraus (2022),** in his research paper titled **'Digital transformation in business and management research: An overview of the current status quo.'** provided a comprehensive mapping of digital transformation research in business and management, reviewing over two hundred articles and proposing a synergistic framework for future research. This paper seeks to map and synthesize existing research on digital transformation in business and management, identifying dominant themes and future research opportunities. The authors find that digital transformation impacts organizational strategy, innovation, leadership, and business models. The study emphasizes that digital transformation is not merely technological but also organizational and strategic providing a theoretical backbone for understanding digital transformation and supports the positioning of AI as a strategic enabler in business transformation.

3. **Zaoui (2020),** in her research paper titled **'Roadmap for digital transformation: A literature review.'** conducted a literature review to identify strategic processes and phases of digital transformation in businesses, emphasizing its multidimensional and strategic nature. The objective of the study was to develop a structured roadmap for implementing digital transformation in organizations based on existing literature. The study identifies key phases of digital transformation, including vision formulation, technology adoption, process redesign, and cultural change. It emphasizes leadership and management as critical success factors. This source is valuable for framing digital transformation as a strategic process, within which AI can be positioned as a critical technological driver.

LITERATURE REVIEWS

4. **The editorial team (2023),** organized a research topic titled **'Business transformation through AI enabled technologies'** at the Frontiers in Business and Economics, which is an article, that discusses how AI technologies such as predictive analytics and intelligent automation reframe business operations and resilience, with examples from supply chain and operational contexts.This editorial aims to highlight recent developments in AI-enabled technologies and their role in transforming business operations and organizational resilience. The editorial team notes that the AI technologies such as predictive analytics, intelligent automation, and machine learning significantly enhance the efficiency, risk management, and the supply chain resilience. This source supports the argument that AI is a core driver of business transformation, reinforcing the central theme of the research paper.

5. **Oyekunle & Boohene (2024),** in their research paper titled **'Digital transformation potential: The role of artificial intelligence in business.'** explores the landscape of AI implementation in business, identifying organizational, cultural, and workforce factors shaping successful AI-driven digital transformation. This study explores how AI enables digital transformation in organizations, with particular emphasis on managerial, cultural, and workforce-related factors. It finds that organizational culture, employee skills, leadership support, and ethical awareness play a major role in determining AI driven transformation success. This source is especially useful for discussing challenges and enablers of AI adoption, a critical component of digital transformation studies.

6. **Ma (2025),** in his research paper titled **'Digital transformation, artificial intelligence and enterprise innovation performance.'** examines the linkage between digital transformation and enterprise innovation, showing how AI acts as a mediator to enhance innovation performance in different organizational contexts. The study investigates whether artificial intelligence mediates the relationship between digital transformation and enterprise innovation performance. Results show that digital transformation improves innovation performance, and this effect is significantly strengthened when AI capabilities are present. This research supports the argument that AI is not only transformative but also value-creating, making it central to business performance discussions .

LITERATURE REVIEWS

7. **Thokal (2024),** in his research paper titled **'Review and analysis of AI-driven digital transformation in automated customer onboarding.'** synthesizes how AI influences business processes such as customer onboarding in service industries, highlighting improvements in efficiency and compliance. This study reviews how AI-driven digital transformation improves customer onboarding processes in service-oriented businesses. AI-enabled onboarding enhances efficiency, reduces compliance risks, and improves customer experience through automation and analytics. This study provides concrete examples of AI-driven digital transformation in practice in turn strengthening the applied dimension of this research.

8. **Hanelt (2021),** in his research paper titled **'A systematic review of the literature on digital transformation.'** analyzes diverse and fragmented digital transformation research, offering an overarching model to guide future studies in business contexts. The study aims to integrate fragmented digital transformation research across disciplines and develop a unified conceptual understanding: The authors identify three core dimensions of digital transformation: digital technologies, organizational change, and strategic outcomes. This source serves as a theoretical anchor, helping position AI within broader digital transformation frameworks.

Significance of the study

The present study holds importance in understanding how the ongoing shift towards digital transformation, supported by Artificial Intelligence, is influencing the functioning of the modern businesses. As organizations increasingly depend on data-driven systems and automated processes, there is a growing need to examine not only the benefits but also the broader implications of this transition. This research contributes by bringing together key aspects such as decision-making, operational efficiency, and competitive positioning within a single analytical framework, thereby offering a more connected view of how technological change is reshaping business practices.

OBJECTIVES OF THE RESEARCH PAPER

1. To critically examine how digital transformation powered by artificial intelligence is reshaping business decision-making, operational efficiency, and competitive advantage in the modern business environment.

2. To address any ethical risks concerning the examination of challenges to data privacy, security and algorithmic bias in automated business model.

3. To measure its performance impact in order to assess how AI transformation affects operational efficiency and probability.

RESEARCH METHODOLOGY

The present study, on 'DIGITAL TRANSFORMATION & AI IN BUSINESS', is descriptive in nature and is based entirely on secondary data. Secondary data have been collected from various published and reliable sources, including research journals, books, government reports, industry publications, company websites, and reputed online databases. The study covers India as the geographical area, providing a broad perspective on the subject under investigation. The collected data have been systematically compiled, classified, and tabulated and analysed using simple and appropriate statistical tools such as percentages, averages, growth rates, and trend analysis, wherever applicable. For better clarity and interpretation of results, graphical representations in the form of bar diagrams and line graphs have been used.

DATA ANALYSIS

Executive Summary

AI adoption in business has surged in recent years, driven by record investment and generative-AI breakthroughs. By 2024, 78% of firms reported using AI, up from 55% in 2023[1], and 88% in 2025[2]. Investment reached unprecedented levels (e.g. $252B corporate AI spend in 2024[3]), with the US dominating global funding. Productivity and revenue impacts are emerging: companies using AI report double-digit productivity gains (~11.5% on average[4]), but most report only modest cost reductions or <5% revenue lifts[5]. Workforce effects are mixed: surveys find slight net job losses (~4% reduction in AI-intensive firms[6]) alongside new roles and reskilling needs. Key success factors include strong leadership (e.g. CEO-driven strategy[7]), agile workflows and talent investment, while barriers remain (skill gaps, data challenges, regulatory concerns). In the short term (1–3 yrs), most organizations stay in experimentation or pilot phases[8]; long-term (3–10 yrs)** forecasts predict AI becoming ubiquitous (e.g. global AI market growing ~25× by 2035[9]) with profound productivity shifts. The following analysis uses recent industry and academic data (2019–2025) to detail adoption trends, sector investment and ROI,economic impacts, workforce implications, and projections (see Data Sources and Limitations).

Adoption Trends Over Time and Regions

Surveys show a steep rise from ~55% (2023) to ~78% (2024) to ~88% (2025) of firms using AI[1][2]. The chart below illustrates this trend. McKinsey data (2024–25) indicate most firms now at least pilot AI, although only ~1/3 have scaled programs[8].

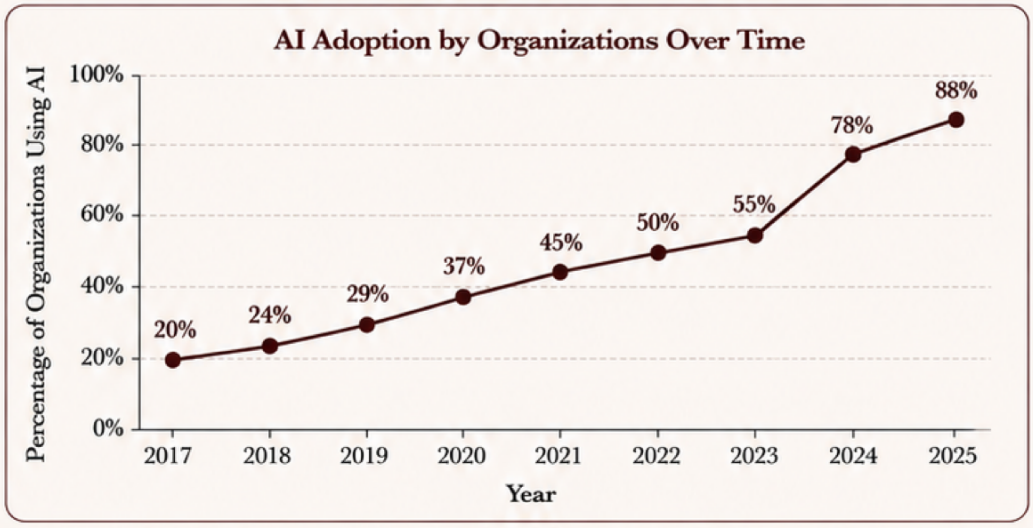


Figure: Rising AI adoption in businesses (2017–2025). By 2024–25, roughly 8–9 out of 10 organizations report using AI[1][2].

Recent analyses find APAC (esp. China, Singapore, South Korea) leading enterprise adoption and generative-AI spending, outpacing North America and Europe[10]. For example, 63% of APAC firms reported using generative AI vs. far lower rates in Western markets[10]. Stanford's AI Index similarly notes North America still leads usage overall, but China (Greater China) and Europe saw the fastest growth (+27 and +23 percentage points)[11]. OECD data (2025) confirm uneven adoption: large firms (52% adoption) far exceed small firms (17%)[12], and sectors vary. In the OECD, ICT and tech companies lead AI use (~57% of firms) while non-tech industries lag (see Table). These patterns suggest a widening "digital divide" that may persist in the near term.

Sector or Category	% of firms using AI (2025)[12][13]
Large enterprises (≥250 emp)	52.0%
Small firms (<50 emp)	17.4%
ICT and tech companies	57.3%
Professional & scientific services	36.8%

Table: AI adoption by firm size and sector. Large firms and tech/IT sectors show far higher AI use than small businesses or other industries[12][13].

From early deployments in marketing and IT, AI is spreading into supply chains, customer service, and R&D. For example, healthcare deployment is exploding: the FDA approved 223 AI-enabled medical devices in 2023 vs only 6 in 2015[14]. Retail, finance, and manufacturing are also investing heavily in AI-driven analytics, robotics, and automation, though quantified industry shares are still emerging.

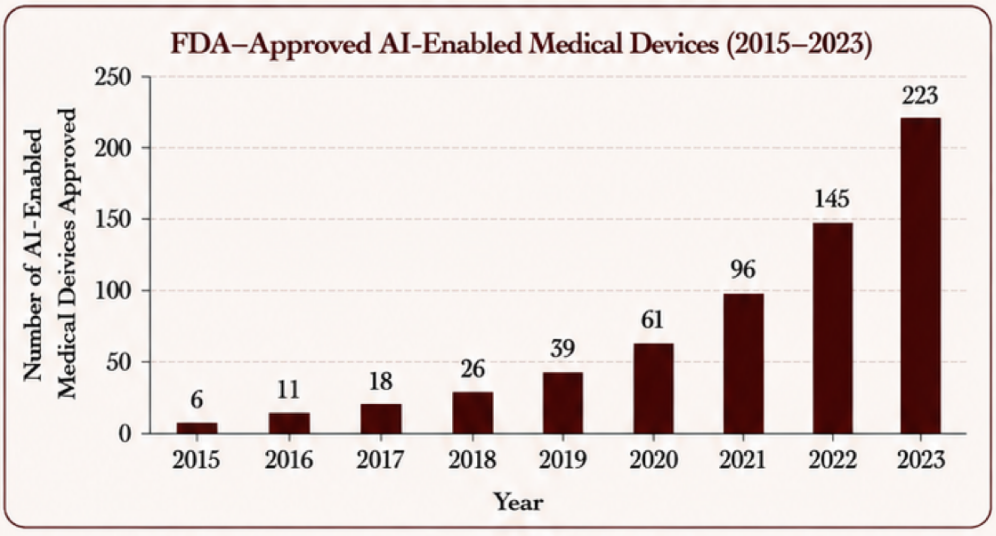


Figure: AI in healthcare surges. FDA-approved AI medical devices grew from ~6 in 2015 to 223 in 2023[14], reflecting rapidly expanding adoption in healthcare.

Sector Investments and ROI

Corporate AI investment hit ~$252.3B in 2024[3], a >13× jump since 2014, with private funding (venture, GenAI startups) $33.9B in 2024[15]. The U.S. dominates funding (~$109.1B in 2024)[16], far above China ($9.3B) and other regions[16]. Generative AI accounts for >20% of AI venture dollars[15]. Industry-wise, vast sums target AI infrastructure and cloud (leading category) as well as high-growth verticals. For example, recent analyses report multi-billion $ investments each year in data centers, AI chips and software: "in just early 2025, AI startups raised >$70B VC"[17]. Other major sectors attracting AI investment include finance/fintech, healthcare, manufacturing, and autonomous systems. (While exact sectoral breakdowns vary by report, healthcare and fintech each often represent high-single-digit percentages of total AI spend.)

Early studies show mixed ROI: many firms see AI-boosted productivity, but financial gains are often modest initially. A Stanford analysis finds that among AI-using businesses, cost savings in service operations (49% report any savings) and supply chain (43%) are common, but typically <10% each, while revenue gains in functions like marketing (71% of firms saw higher sales) are usually <5%[5]. Similarly, McKinsey notes that 64% of adopters have said that AI enables innovation, yet only ~39% report any enterprise-level profit (EBIT) impact so far[18]. In practical terms, Morgan Stanley found that companies with ≥1 year of AI use averaged an 11.5% increase in productivity[4] – a significant uplift – but revenue or profit impacts are still materializing (Morgan also noted a small net 4% job reduction, see below). In short, AI investments are yielding measurable efficiency gains (helping narrow skill gaps[19]) but wide variability remains. High performers tend to pair AI with process re-design and targeted business goals[20].

Impact on Productivity, Revenue and Workforce

Productivity gains: Emerging evidence points to meaningful efficiency improvements. The Morgan Stanley survey found "double-digit productivity gains" (avg +11.5%) in AI-enabled firms[4]. Other studies report that automation and AI tools are speeding tasks (especially knowledge work like coding or analytics) and allowing companies to do more with the same headcount. For example, advanced NLP or vision systems can dramatically shorten R&D or service workflows. However, macroeconomic data on GDP gains remain mixed, as AI-driven growth can take time to appear in official stats.

Revenue effects: AI's revenue impact tends to lag. In our cited surveys, most firms reporting revenue uplifts saw only single-digit bumps: Stanford found the "most common level" of revenue increase was <5%[5]. This is partly because AI is often first used to cut costs (customer service bots, predictive maintenance) before fully enabling new revenue streams. High-growth companies do report larger sales gains (e.g. personalized marketing yielding better conversion), but systematic analysis shows median profit lifts in initial pilots still under 5–10%. Over the next 3–5 years, experts expect these gains to compound as AI-driven innovation broadens (e.g. new AI-powered products and business models).

Workforce effects: AI is reshaping jobs, with both displacement and creation. According to McKinsey's 2025 survey, 32% of respondents expect workforce reductions next year, while 13% expect increases[21]; the rest foresee little net change. Morgan Stanley's analysis of AI-leading sectors found a modest 4% net decline in employment[6]. These cuts skew toward entry-level and routine roles (e.g. automation of basic data work), whereas higher-skilled positions often grow due to expanded business. Importantly, AI is also generating new jobs (data scientists, AI trainers, etc.) and demands extensive reskilling. For instance, global polls show ~60% of workers believe AI will change how they do their jobs (and many intend to upskill)[22]. In sum, AI tends to shift labor from routine tasks toward more creative or strategic functions, with workforce size effects varying by industry and time horizon.

Barriers and Success Factors

Major barriers to AI-driven transformation include lack of talent/training, data quality/governance gaps, and regulatory uncertainty. For example, Deloitte and OECD reports highlight how skill shortages and inadequate data infrastructure slow AI projects. Cultural factors also matter: many firms remain in pilot mode due to fragmented leadership. Forrester notes that leadership structure is key: in Asia, 33% of CEOs personally own AI strategy (vs ~18% in North America) – correlating with faster deployment[7]. Best-practice "AI winners" report strong C-suite alignment and a clear vision for integration. Other success factors include agile workflows (e.g. redesigning processes around AI)[23], robust data platforms, and incremental target-setting (focusing first on high-ROI use cases).

Security and ethics are also growing concerns. As AI use expands, firms must manage risks (bias, privacy, etc.), often cited as barriers. However, regulatory and ethical frameworks are evolving (e.g. OECD and EU guidelines), which should help mitigate these challenges over time. In summary, overcoming hurdles often means investing in digital skills, aligning business and IT, and embedding AI into organizational change – not just tech purchasing.

Short–Term vs Long–Term Projections

Next 1–3 years: Adoption will broaden but mostly remain uneven. Many organizations will move from pilots to scaling in core functions, but only a minority will fully transform (McKinsey finds ~1/3 scaling by 2025[24]). Expect continued gains in productivity (both automating tasks and augmenting workers) and ongoing investment in generative AI. IDC and Gartner forecast trillions in AI spend: e.g., Gartner projects AI spending ~$2–3T by 2026 (growing ~40% year-over-year). However, short-term ROI will vary; consensus is that basic automation yields ROI <3 yrs for most, while deeper "multi-agent" AI initiatives pay off over 4–7 years[25]. Firms will focus on upskilling workforces and refining governance in this period.

Next 3–10 years: AI is viewed as a general-purpose technology set to transform the economy. Long-run projections are dramatic: UNCTAD projects that the global AI market could grow from $189B (2023) to $4.8T by 2033[9], making AI very dominant among digital technologies. Economists suggest up to ~0.1–0.2 percentage point annual GDP uplift could come from AI by the early 2030s[26]. By 2030, experts expect virtually all advanced economies to have integrated AI across industries. Workforce-wise, OECD research forecasts, up to ~40% of jobs worldwide may be affected by AI (with ~27% enhanced)[27]. Over the long term, success will depend on complementary investments in education and regulation. In essence, the 3–10 year outlook is that AI will drive new business models and major productivity shifts across all sectors, provided organizations and societies invest wisely in parallel systems (skills, data, ethics).

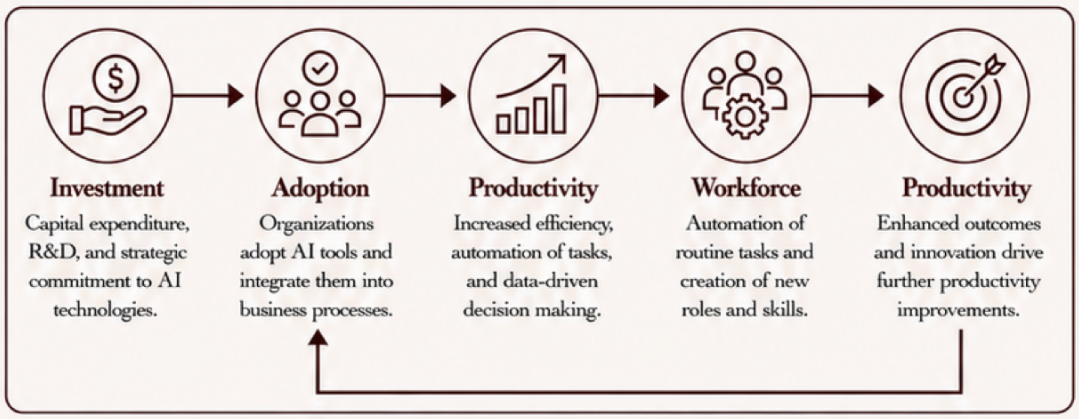


Figure: *Causal flow of AI transformation: Investment in AI (capex, R&D) drives higher adoption. Greater adoption yields productivity and efficiency gains, which reshape the workforce (automation of tasks and creation of new roles), feeding back into further productivity improvements.*

Data Sources, Methodology, and Limitations

This report synthesizes recent data (2019–2025) from leading industry surveys (McKinsey State of AI, Forrester, Gartner/IDC), academic and policy research (Stanford HAI AI Index, OECD, UNCTAD), and financial analyses (Morgan Stanley, Deloitte). Quantitative metrics (e.g. adoption rates, investment volumes) are drawn from cited reports[1][28][29]. Charts and tables are based on this published data (see sources). We also reference forward-looking forecasts (e.g. UNCTAD, Gartner) but note such projections carry uncertainty. Methodologically, differences in definitions (what counts as "AI use") and sampling bias (surveys often over-represent large firms) may skew some figures. Short-term impact estimates are primarily based on firm surveys and case studies, not hard macroeconomic data. Finally, actual ROI and workforce effects will vary by firm and context; our analysis reports averages or medians where possible, and acknowledges that many outcomes remain emerging. Despite these limitations, the cited sources are recent and reputable, giving confidence that the broad trends identified (rapid adoption, significant investment, modest initial ROI, evolving workforce impacts) are well-supported.

Findings of the study

- **By 2024,** roughly 8 in 10 organizations worldwide are reported of using AI in at least one function, climbing to nearly 9 in 10 by 2025 as generative-AI tools drove a surge in adoption.
- **Larger companies embrace AI far more** than small firms: ~52% of big firms use AI versus about 17% of small businesses. Tech/IT sectors show the highest uptake (~57% of firms), with professional services (~37%) also ahead; laggards like hospitality or construction have low base rates but fast growth.
- **Investment in AI is enormous and concentrated.** Global corporate AI spending reached about $250–260B in 2024 (over tenfold growth in a decade), much of it on cloud/AI infrastructure and algorithms. Venture capital poured tens of billions into AI startups (e.g. >$70B in early 2025). U.S. companies received the bulk of funding (~$109B in 2024) far more than China or others

Findings of the study (Contd.)

- **Measurable productivity gains** are already seen, companies report double-digit efficiency improvements on average (surveys suggest ~11–12% productivity rise). Many firms cite significant time and cost savings, though often most gains are single-digit percentages in practice.

- **Revenue and profit impacts** have been more modest. Most AI projects so far boost revenue or cut costs by only a few percent. For example, a majority of adopters see at best a 0–5% increase in sales from AI in marketing/sales, and under 10% cost reductions in operations.

- **Workforce effects** include both displacement and creation. Early-adopting companies have seen a small net reduction in jobs (on the order of a few percent, mostly at entry levels) while creating new specialized roles. Reskilling and upskilling of employees is widely noted as a key priority.

- **Barriers to progress remain** as shortages of trained AI talent, data quality and privacy issues, and regulatory uncertainties slow many projects. Success tends to hinge on strong leadership and strategy – for example, firms with CEO-driven AI initiatives and clear business use cases move faster.

- **Upcoming guidelines** of OECD and EU are evolving in order to mitigate the risks of privacy, bias etc.

- **Outlook** – Short term (1–3 years): many firms are still piloting AI or scaling within select functions, focusing on efficiency and low-hanging gains. Longer term (5–10 years): AI is expected to be pervasive across industries, with the global AI market potentially 20–25× larger by 2033, and much bigger productivity and innovation impact as technologies mature.

Assumption: These points assume current survey results and projections remain valid and no major disruptions alter the trends.

Suggestions

- **Secure executive sponsorship.** Ensure AI and digital initiatives have strong leadership support (ideally at the CEO level) and clear business objectives. Allocate resources and budget accordingly to avoid underinvestment.
- **Prioritize high-impact use cases.** Begin with AI pilots in areas known to yield efficiency (e.g. customer service, supply chain, R&D) where data is available.
- **Invest in talent and training.** Close skills gaps by upskilling current employees and hiring digital specialists. Foster AI literacy across teams so staff can effectively use new tools.
- **Strengthen data and IT foundation.** Improve data quality, infrastructure, and governance. Adopt scalable cloud and analytics platforms to ensure AI solutions have reliable data and computing resources.
- **Measure and iterate.** Track clear metrics (productivity gains, cost savings, revenue lift) to evaluate ROI. Use results to refine or expand projects; reallocate efforts away from low-return pilots.
- **Plan for workforce impact.** Identify roles likely to change and provide retraining. Communicate early about AI's role to reduce uncertainty, aiming to augment jobs rather than simply cut staff.
- **Tailor strategy by context.** Adapt AI plans to local conditions (e.g. regulatory and market differences across regions). Learn from sector leaders while customizing applications for your industry.
- **Balance short- and long-term.** Secure some immediate efficiency gains while also investing in longer-term capabilities (platforms, innovation projects) to stay competitive as the AI market expands.

Main assumption: These recommendations assume the current AI adoption trends and projections will continue as expected.

Conclusion

The overall analysis makes it clear that digital transformation, supported by artificial intelligence, is no longer a peripheral strategy but a central driving force of business evolution. The data indicates a sharp rise in adoption across industries, accompanied by substantial investment and measurable improvements in operational efficiency. At the same time, the findings reveal a noticeable gap between early adoption and full-scale integration, with many firms still operating at the pilot stage rather than achieving enterprise-wide transformation.

A closer interpretation suggests that while productivity gains are already visible, financial outcomes such as revenue growth tend to emerge more gradually. This reflects the fact that organizations often begin by using AI to streamline existing processes before leveraging it for innovation or new value creation. Additionally, the uneven distribution of adoption—across firm sizes, sectors, and regions—highlights that the benefits of digital transformation are not yet equally realized.

The recommendations derived from the study emphasize a balanced and structured approach: combining leadership commitment, skill development, and strategic implementation. These elements appear crucial in translating technological adoption into tangible business outcomes. Without them, investment alone does not guarantee meaningful impact.

In a broader sense, digital transformation and AI can be understood as long-term enablers rather than short-term solutions. Their true value lies not just in automation, but in reshaping how organizations think, operate, and compete. The final observation that emerges from this study is that firms which treat AI as an integrated strategic capability—rather than a standalone tool—are more likely to sustain competitive advantage in an increasingly data-driven business environment.

Bibliography

- https://hai.stanford.edu/ai-index/2025-ai-index-report - Retrieved as on 15.03.2026
- https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai - Retrieved as on 15.03.2026
- https://hai.stanford.edu/ai-index/2025-ai-index-report/economy - Retrieved as on 15.03.2026
- https://www.morganstanley.com/insights/articles/ai-adoption-accelerates-survey-find - Retrieved as on 18.03.2026
- https://www.forrester.com/blogs/apac-leads-global-ai-adoption-but-regional-strategies-diverge/ - Retrieved as on 18.03.2026
- https://unctad.org/news/ai-market-projected-hit-48-trillion-2033-emerging-dominant-frontier-technology - Retrieved as on 21.03.2026
- https://www.oecd.org/en/about/news/announcements/2026/01/ai-use-by-individuals-surges-across-the-oecd-as-adoption-by-firms-continues-to-expand.html - Retrieved as on 24.03.2026
- https://jpt.spe.org/twa/stanford-ai-index-2025-rapid-ai-growth-investment-surge-and-global-challenges - Retrieved as on 02.04.2026
- https://www.reuters.com/graphics/USA-ECONOMY/AI-INVESTMENT/gkvlqbgxkpb/ - Retrieved as on 04.04.2026
- https://www.deloitte.com/us/en/insights/topics/digital-transformation/ai-tech-investment-roi.html - Retrieved as on 04.04.2026
- https://budgetmodel.wharton.upenn.edu/p/2025-09-08-the-projected-impact-of-generative-ai-on-future-productivity-growth/ - Retrieved as on 04.04.2026
- Guler (2024), in her research paper titled 'A literature review of artificial intelligence research in business, management, and information systems.' https://www.sciencedirect.com/science/article/pii/S2543925124000123 - Retrieved as on 11.05.2026.

Bibliography (Contd.)

- Zaoui (2020), in her research paper titled 'Roadmap for digital transformation: A literature review.' https://share.google/OvFzvOMzgjz5AgkkN - Retrieved as on 11.05.2026

- The editorial team (2023), organized a research topic titled 'Business transformation through AI enabled technologies' https://www.frontiersin.org/journals/artificial-intelligence/articles/10.3389/frai.2025.1577540/full - Retrieved as on 11.05.2026

- Oyekunle & Boohene (2024), in their research paper titled 'Digital transformation potential: The role of artificial intelligence in business.' https://www.researchgate.net/publication/379332291_DIGITAL_TRANSFORMATION_POTENTIAL_THE_ROLE_OF_ARTIFICIAL_INTELLIGENCE_IN_BUSINESS - Retrieved as on 11.05.2026

- Ma (2025), in his research paper titled 'Digital transformation, artificial intelligence and enterprise innovation performance.' https://www.sciencedirect.com/science/article/abs/pii/S1544612325004532 - Retrieved as on 11.05.2026

- Thokal (2024), in his research paper titled 'Review and analysis of AI-driven digital transformation in automated customer onboarding.' https://www.mdpi.com/2673-4591/59/1/234 - Retrieved as on 11.05.2026

- Hanelt (2021), in his research paper titled 'A systematic review of the literature on digital transformation.' https://onlinelibrary.wiley.com/doi/10.1111/joms.12639 - Retrieved as on 11.05.2026

TOPIC:

CYBERSECURITY AND ETHICAL HACKING





WRITER :

- NANDINI SARMA, BCOM 4TH SEM
- RAJ PAUL, BCOM 2ND SEM

Designed by

Himangshu Kalita

BBA 6TH SEM

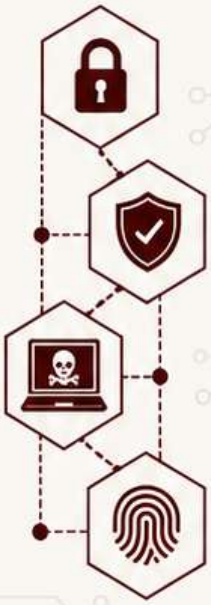
ABSTRACT

The study looks at how cybersecurity and ethical hacking are growing increasingly vital in our hyper-connected world, where every click opens a door to risk. Phishing, ransomware, stolen credentials, and manipulation remain common, mostly when people act without care. These attacks don't just destroy data; they erode trust. Particularly in the banking sector, data breaches frequently result in diminished customer confidence, loss of credibility and long-term economic consequences. This emphasises that cybersecurity is no longer just about firewalls; it represents a business and social responsibility. Ethical hackers can identify system vulnerabilities before malicious actors can exploit them. Organisations neglecting proactive security remains in a reactive, high-risk state, significantly expanding their cyber exposure.

Despite advancements in cybersecurity tools and technologies, threats continue to outpace defensive mechanisms. At the same time, human errors are still a major cause of security breaches. The study highlights an urgent need for better training programs, stronger government support and adoption of advanced measures like two-step login and live threat alerts.



INTRODUCTION



Cybersecurity and ethical hacking are two sides of the same coin, where defence and proactive testing complement each other in securing digital systems. Ethical hacking is a highly effective approach in strengthening security frameworks. In fact, on-demand "pen testing services" can deliver over double the return on investment of traditional pen testing methods, while reducing incident triage time by 78%.

Cybersecurity is a human challenge at its core, despite technological innovations. Social engineering, such as phishing and impersonation of trusted users, often leads to credential compromise. Most breaches occur because of human errors rather than the use of very advanced malware emphasising the importance of governance and employee training.

The financial consequences are huge, as on average worldwide, a data breach costs $4.44 million, and exceeding $10.22 million in the United States. Besides the direct monetary losses, data breaches cause long-term reputational damage and loss of customers' trust, especially in sensitive areas such as the banking and healthcare industries.

BRIEF REVIEW OF LITERATURE

Internet Safety Statistics (2024), through multiple case studies, assessed the organisational impact of ethical hacking on cybersecurity resilience. The study revealed that organisations implementing ethical hacking practices experienced enhanced security postures, reduced financial losses, and improved incident response capabilities. The findings indicated that proactive vulnerability identification helped mitigate risks associated with ransomware attacks, credential leaks, and system downtime, particularly among small and medium-sized enterprises.

Bleeping Computer and Cybersecurity Ventures (2025), in their respective reports, examined the legal, ethical, and educational dimensions of ethical hacking in response to rising global cyberthreats. The studies emphasised the importance of legal authorisation, responsible disclosure, and adherence to cybersecurity regulations to protect ethical hackers and organisations. Additionally, the findings highlighted the growing need for cybersecurity education and professional training to develop skilled ethical hackers capable of addressing evolving threats while maintaining ethical standards and data privacy.

Computer Weekly (2025), in its analysis of emerging cybercrime trends, evaluated the rapid evolution of cybersecurity threats in the digital era. The review revealed a shift from traditional threats such as viruses and worms to more sophisticated attacks, including advanced persistent threats, AI-driven cyberattacks, phishing campaigns, and zero-day exploits. The study emphasised that modern cyber threats are more persistent and complex, thereby increasing the importance of ethical hacking as a proactive security measure to identify vulnerabilities before they are exploited, transforming cybersecurity strategies from reactive defence to comprehensive risk management.

PKWARE (2026), in its study on recent data breaches, analysed ethical hacking techniques and standardised security frameworks such as OWASP and MITRE ATT&CK. The research explored the application of penetration testing and vulnerability assessments in identifying organisational security gaps. The findings revealed that the integration of automated security tools with human expertise significantly enhances threat detection and prevention, particularly against social engineering attacks and large-scale data breaches. The study highlighted the importance of standardised frameworks in ensuring consistency and effectiveness in cybersecurity evaluations.

SIGNIFICANCE OF THE STUDY

1. **Understanding Cyber Threats:** Helps identify common cyber threats and security challenges based on existing secondary research.
2. **Role of Ethical Hacking:** Highlights how ethical hacking helps organizations identify vulnerabilities and strengthen their cybersecurity systems.
3. **Creating Awareness:** Increases awareness about the importance of cybersecurity, data protection, and safe digital practices.
4. **Supporting Future Research:** Provides useful information for students, researchers, and organizations interested in cybersecurity and ethical hacking.

OBJECTIVE OF THE STUDY

1. To examine the importance of cybersecurity in protecting businesses, digital transactions and consumer data from cyber threats.
2. To study the major cybersecurity challenges faced by Small and Medium Enterprises (SMEs).
3. To evaluate the impact of cybersecurity awareness and security measures on consumer trust and digital economic growth.

RESEARCH METHODOLOGY

Research Design

The present study adopts a descriptive research design to analyze the role of cybersecurity and ethical hacking in protecting businesses and supporting economic development. Descriptive research is appropriate for this study because it focuses on presenting and interpreting existing facts, statistics, and trends related to cyberattacks, financial losses, consumer trust, and the effectiveness of ethical hacking practices.

Nature and Sources of Data

This study is based entirely on secondary data.
Secondary data were collected from authentic and reliable sources, including: IBM, HAL, World Bank Research articles available on Google Scholar, Government reports and published industry surveys. These sources provided statistical information on:

- Global cybercrime costs
- Frequency and types of cyberattacks
- Impact of data breaches on businesses and consumer trust
- Financial losses due to cyber incidents
- Role and effectiveness of ethical hacking and penetration testing
- Cybersecurity awareness and investment trends

Population of the Study

The conceptual population for this study includes businesses, organizations, and internet users worldwide who are affected by cybersecurity threats and who benefit from ethical hacking practices. Since the study relies on secondary data, no direct respondents were surveyed.

Sample Size

As the study is based solely on secondary data, there is no primary sample size. Instead, the analysis draws upon published datasets, reports, and statistics from reputable organizations and institutions.

Data Collection Method

Data were collected through systematic review and compilation of published reports, articles, and official statistics from trusted online sources. Relevant data were selected, organized, and interpreted to identify patterns and trends related to cybersecurity threats and the contribution of ethical hacking.

Data Analysis Technique

Secondary data was collected from published reports and relevant literature, tabulated and analysed using descriptive percentage analysis.

DATA ANALYSIS AND INTERPRETATION

1. Cybersecurity Awareness and Capacities of SMEs

This study investigates the cyber security awareness and preparedness of Small and Medium Enterprises (SMEs). Based on the secondary statistical analysis and survey data already collected, the paper highlights the increasing risk of cyberattacks due to increasing digitalization. According to research, the cybersecurity awareness of many SMEs is moderate, and they generally do not have advanced protection systems and employee training. Financial constraints and lack of technical know-how were the biggest barriers to implementing effective cyber security measures. The paper points out that cybersecurity is a technical and economic problem due to the fact that cyberattacks can disrupt business operations, affect customer confidence, and lead to financial losses. The research suggests regular employee training, security policies and investment in cyber security infrastructure.

Awareness Level	Percentage
Moderate Awareness	54%
High Awareness	26%
Low Awareness	16%
Don't Know	4%

Table 1: *Cybersecurity Awareness Level in SMEs*

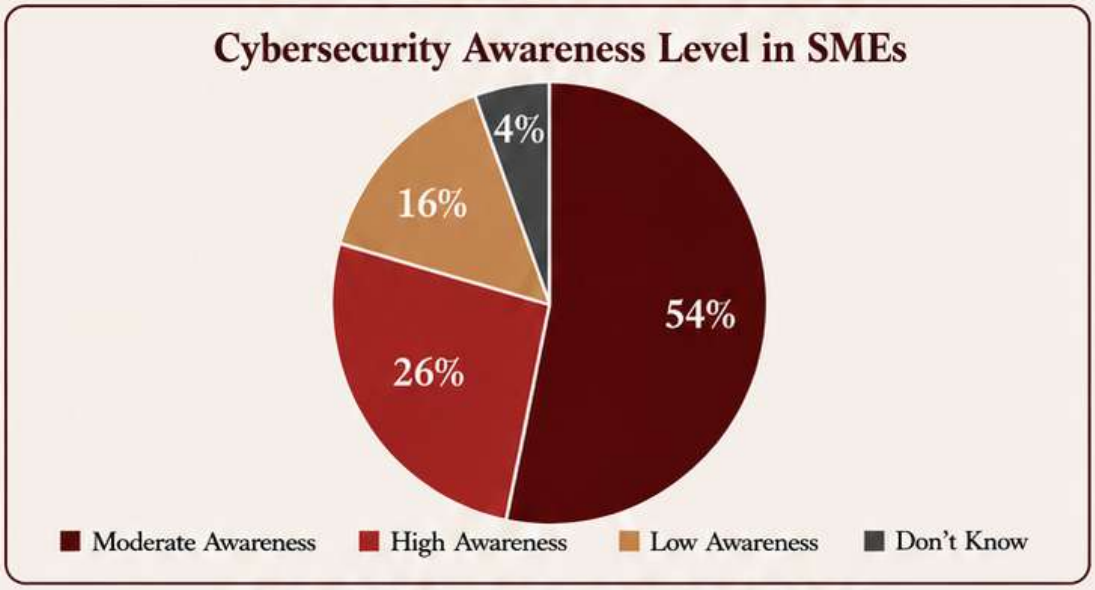


Diagram 1: Cybersecurity Awareness Level in SMEs

Source: Cybersecurity Awareness and Capacities of SMEs
(*https://www.researchgate.net/publication/367253444_Cybersecurity_Awareness_and_Capacities_of_SMEs*)

Interpretation: The pie diagram shows that more than half of SMEs possess only moderate cybersecurity awareness. Only 26% demonstrate high awareness, indicating that many businesses remain vulnerable to cyber threats. The low percentage of highly aware organizations highlights the need for improved cybersecurity education and training programs.

2. Impact of Cybersecurity on Digital Payment

Cybersecurity is essential for the success and growth of digital payment systems. With India's move to UPI, mobile banking, and online transactions, it is important to protect user data and financial information. Effective cybersecurity measures help to prevent cases of fraud, phishing, hacking, and unauthorized transactions, thus increasing consumer confidence in digital payments. Secure payment systems encourage more people and businesses to switch to cashless payment which can foster economic growth and financial inclusion. But digital payment platforms still have the challenge of cyber threats and online scams. Hence, it is imperative to build up digital infrastructure, digital awareness and anti-fraud systems to ensure safe and sustainable growth of digital economy.

Cybersecurity Threats	Percentage
Phishing Attacks	35%
Data Theft	30%
Payment Fraud	20%
Malware Attack	15%

Table 2: *Major Cybersecurity Threats in Digital Payments*

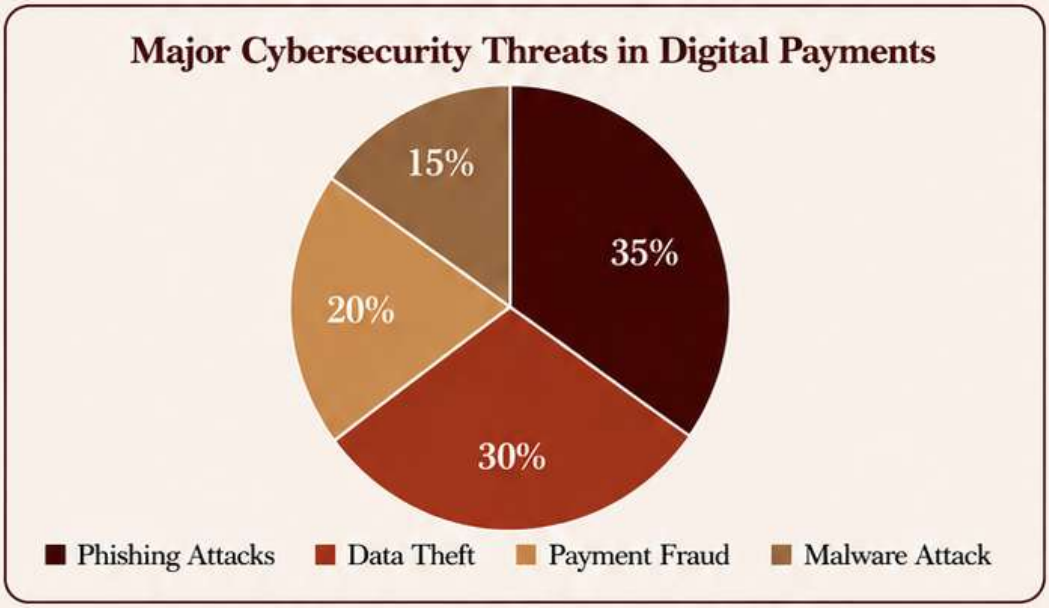


Diagram 2: *Major Cybersecurity Threats in Digital Payments*

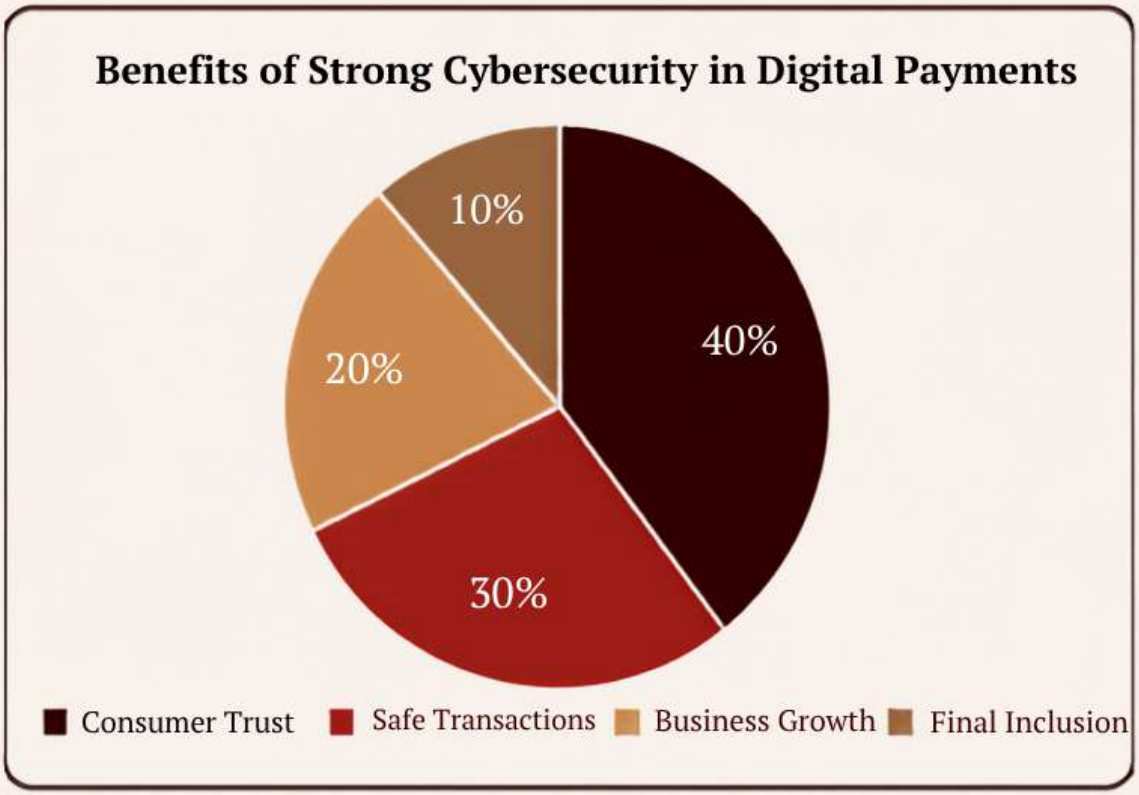
Source: *https://www.researchgate.net/publication/359370523_A_Cybersecurity_Agenda_for_India%27s_Digital_Payment_Systems*

Interpretation: The pie diagram shows that phishing attacks are the most common cybersecurity threat in digital payments. Fraudsters often use fake messages and links to steal banking details. Data theft and payment fraud also significantly affect users and businesses, reducing trust in online transactions. Malware attacks damage devices and compromise financial data. The diagram highlights the importance of secure digital payment systems and user awareness.

Table 3: *Benefits of Strong Cybersecurity in Digital Payments*

Benefits	Percentage
Consumer Trust	40%
Safe Transactions	30%
Business Growth	20%
Final Inclusion	10%

Diagram 3: *Benefits of Strong Cybersecurity in Digital Payments*



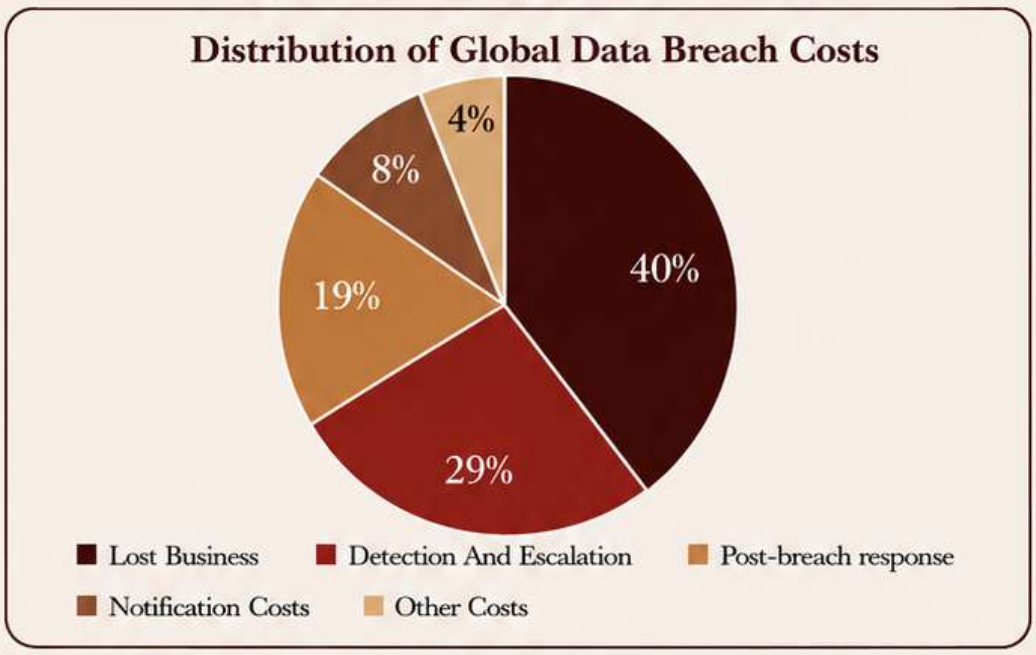
Source: *https://www.researchgate.net/publication/380396998_Digital_Payments_and_Their_Impact_on_The_Indian_Economy*

Interpretation: The diagram illustrates that consumer trust is the biggest benefit of strong cybersecurity because users are more likely to use digital payments when they feel their money and personal data are secure. Safe transactions reduce fraud risks, while businesses benefit through increased online transactions and customer confidence. Cybersecurity also supports financial inclusion by enabling safer access to banking services for more people.

Table 4: *Distribution of Global Data Breach Costs*

Cost Component	Percentage
Lost Business	40%
Detection And Escalation	29%
Post-breach response	19%
Notification Costs	8%
Other Costs	4%

Diagram 4: *Distribution of Global Data Breach Costs*



Interpretation : The diagram reveals that lost business forms the largest share of global data breach costs at 40%, indicating that the loss of customers and revenue following a breach outweighs other financial consequences. Detection and escalation costs account for 29%, showing those identifying and containing a breach demand substantial resources. Post-breach response contributes 19%, while notification costs and other miscellaneous expenses make up the remaining share. This distribution highlights that the long-term economic impact of a data breach, particularly the erosion of business and customer trust, is far more damaging than the immediate technical costs of managing the incident.

4. The Value of Ethical Hacking to a Small Business:

The Value of Ethical Hacking to a Small Business looked at how small companies could benefit from increased security through ethical hacking in a cost-effective manner. The study aimed to ascertain whether a penetration test and vulnerability assessment deliver tangible benefits to the business.

The study found that through the use of ethical hacking, companies can identify security vulnerabilities before they can be used against them by cyber criminals. This increases the probability that a company will not have a data breach, become victims of fraud or suffer operational losses. The study also observed that a test carried out in advance is almost always cheaper than having to deal with the fallout of an attack.

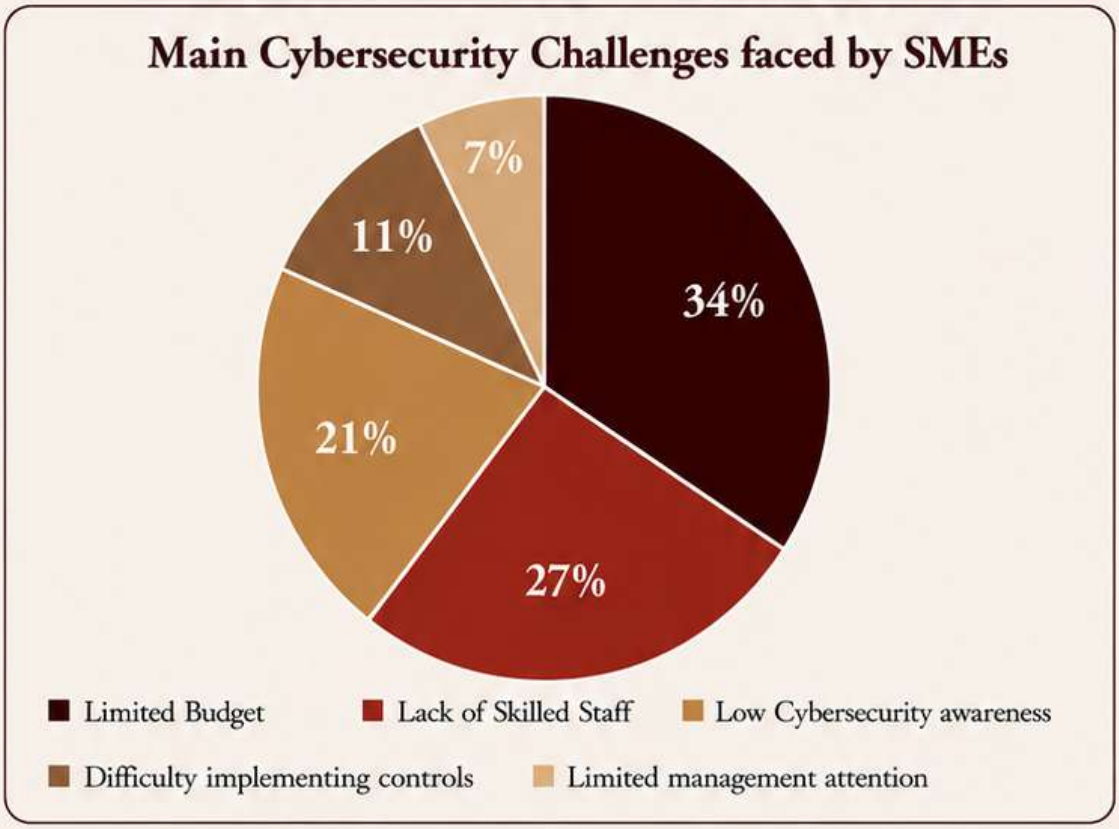
It recommended that the use of ethical hacking represents a sound investment for small businesses, allowing them to protect cash flow and reputation, as well as minimizing operational risks going forward.

Source: N.Tribbey (2022). The Impact of Ethical Hacking within Small Businesses. Old Dominion University Undergraduate Research Journal.
https://digitalcommons.odu.edu/cgi/viewcontent.cgi?article=1016&context=covacci-undergraduateresearch

Table 5: *Main Cybersecurity Challenges faced by SMEs*

Challenge	Percentage
Limited Budget	34%
Lack of Skilled Staff	27%
Low Cybersecurity awareness	21%
Difficulty implementing controls	11%
Limited management attention	7%

Diagram 5: *Main Cybersecurity Challenges faced by SMEs*



Source : *Unaware, Unfunded and Uneducated: A Systematic Review of SME Cybersecurity (2025). Cornell University. https://arxiv.org/abs/2309.17186*

Interpretation : The diagram indicates that limited budget is the foremost challenge faced by SMEs in implementing cybersecurity measures, cited by 34% of respondents. Lack of skilled staff follows at 27%, showing that financial and human resource constraints together form the biggest barrier to strong security practices. Low cybersecurity awareness (21%) and difficulty implementing controls (11%) further compound the problem, while limited management attention accounts for a smaller share at 7%. The diagram underscores those financial and skill-related limitations, rather than a lack of intent, are the primary reasons SMEs struggle to adopt effective cybersecurity frameworks.

FINDINGS:

1. Moderate Cybersecurity Awareness Among SMEs

The study found that 54% of Small and Medium Enterprises (SMEs) have only moderate cybersecurity awareness, while only 26% demonstrate high awareness. This indicates that a large proportion of SMEs remain vulnerable to cyber threats due to limited understanding and preparedness.



2. Phishing is the Most Common Cyber Threat

Among digital payment-related cyber threats, phishing attacks account for 35%, making them the most significant threat. This highlights that cybercriminals primarily exploit human behaviour rather than technical vulnerabilities.



3. Consumer Trust is the Biggest Benefit of Strong Cybersecurity

The analysis reveals that 40% of the benefits of robust cybersecurity in digital payments are linked to increased consumer trust. Secure systems encourage more users to adopt online transactions and digital payment platforms.



4. Limited Budget is the Primary Cybersecurity Challenge for SMEs

The study shows that 34% of SMEs identify financial constraints as the biggest obstacle to implementing cybersecurity measures, followed by lack of skilled staff (27%). This demonstrates the need for affordable and accessible security solutions.



SUGGESTIONS:

1. Conduct Regular Cybersecurity Awareness Training

Organizations should provide continuous training programs to educate employees about phishing, password security, and safe internet practices, as human error remains a leading cause of cyber incidents.



2. Promote Ethical Hacking and Penetration Testing

Businesses, especially SMEs, should adopt ethical hacking and regular vulnerability assessments to identify and fix security weaknesses before they can be exploited by attackers.



3. Implement Strong Security Controls

Companies should use multi-factor authentication (MFA), encryption, firewalls, and real-time threat monitoring systems to protect sensitive data and prevent unauthorized access.



4. Increase Government and Institutional Support

Governments and industry bodies should offer subsidies, tax benefits, and training initiatives to help small businesses invest in cybersecurity infrastructure and skilled professionals.



5. Strengthen Consumer Protection in Digital Commerce

E-commerce and digital payment platforms should improve fraud detection systems, simplify refund procedures, and enforce strict data privacy policies to enhance customer confidence and support sustainable economic growth.



BIBLIOGRAPHY

JOURNALS AND ARTICLES



1. Internet safety statistics (2024). Cybersecurity and ethical hacking case studies.
2. Bleeping Computer (2025). Cybersecurity reports and analysis.
3. Cybersecurity Ventures (2025). Global cybersecurity trends and predictions.
4. Computer Weekly (2025). Emerging cybercrime trends.
5. PKWARE (2026). Data breach and encryption reports.
6. Verizon (2025). Data breach investigations report (DBIR).
7. IBM Security (2025). The ROI of penetration testing.
8. Secure World (2025). Analysis of Verizon DBIR findings.
9. Cybersecurity Awareness and Capacities of SMEs.
10. Impact of Cybersecurity on Digital Payment.
11. The Value of Ethical Hacking to a Small Business. N.Tribbey (2022). The Impact of Ethical Hacking within Small Businesses. Old Dominion University Undergraduate Research Journal.
12. Role of cybersecurity in safeguarding cross border E-commerce. Kami Setty, A. (2024). *The Role of Cybersecurity in Safeguarding Cross-Border E-Commerce and Economic Growth.*

WEBSITES



1. https://www.internetsafetystatistics.com *Retrieved as on October 3rd 2025*
2. http://www.bleepingcomputer.com *Retrieved as on October 3rd 2025*
3. https://cybersecurityventures.com *Retrieved as on October 3rd 2025*
4. https://www.computerweekly.com *Retrieved as on October 3rd 2025*
5. https://www.pkware.com *Retrieved as on October 3rd 2025*
6. https://www.verizon.com/business/resources/reports/dbir/ *Retrieved as on October 10th 2025*
7. https://www.cobalt.io/resources *Retrieved as on October 10th 2025*
8. https://www.secureworld.io *Retrieved as on October 26th 2025*
9. https://www.researchgate.net/publication/367253444_Cybersecurity_Awareness_and_Capacities_of_SMEs.com *Retrieved as on October 26th 2025*
10. https://www.researchgate.net/publication/359370523_A_Cybersecurity_Agenda_for_India's_Digital_Payment_Systems.com *Retrieved as on November 1st 2025*
11. https://digitalcommons.odu.edu/cgi/viewcontent.cgi?article=1016&context=covacci-undergraduateresearch.com *Retrieved as on November 3rd 2025*
12. https://hal.science/hal-04909581v1/file/38.1.pdf.com *Retrieved as on November 3rd 2025*

BOARD-LEVEL RISK OVERSIGHT AND CORPORATE GOVERNANCE:

AN ANALYTICAL STUDY



GOOD GOVERNANCE.
Strengthening oversight, managing risk, creating value.

WRITER
Sanchari das
B.COM 4Th semester

DESIGNER
Anish Dutta
BCA 5th semester

I. ABSTRACT:

Corporate risk management is a significant element as it impacts the growth and success of the same. The role of Board members is crucial in this regard to ensure the effective management of corporate risks. This study will, thus, begin with introducing the objectives intended to be discussed and then will proceed to a brief overview of the risk management and corporate governance. It will also aim to cover the key roles of the board members in risk management and successively cover a brief analysis of two of the company reports on corporate risk management. Additionally it will also cover the various legal frameworks associated with the subject matter and will end with providing recommendations for improving the efforts of management in risk management procedure.

II. INTRODUCTION:

Risk management and corporate governance – two crucial factors that ensure the success of organizational goals and objectives. With the growing decades in business scenarios around the globe, there is a need to regularly assess the performance and quality of corporate governance. At the forefront of this lies the role of the board of directors in facilitating the firm's strategy, framing corporate norms, monitoring management and providing the pathway for corporate success.

Many researchers, in this light, have already analyzed the complex relationship between the various components of board structure and risk oversight, with special reference being given to board size, composition, tenure, etc. The literature provided has discussed the multifaceted aspects of complex relationships, which includes the board's roles and responsibilities, risk evaluation techniques, board democracy, expertise and other related factors. The existing literature aims to shed light on how effective leadership and direction can help support an organization thrive in the face of challenges.

Thus, this study makes a subtle attempt to bring the role of board of directors in risk oversight to attention by establishing the objectives intended to be discussed through the same.

III. A BRIEF REVIEW OF LITERATURE:

- **McNulty, Florackis, and Ormrod (2012)** in their study highlighted the role of board structure in determining organisational risk. This study revealed that effective risk governance depends significantly on the various aspects of board structure: board size, composition, tenures, cognitive discrepancy, etc. However, the evidence related to board features in effective risk management is limited. Thus, this study summarised the board-level risk management as a social and subjective process rather than a purely technical function.
- **Rahman, Rawy, Shabeed and Abu-Musa (2019)** in their study provided a positive relationship between board characteristics and risk management. A large board is more likely to be effective in its operation having more independent members with varied expertise. This review also summarised that there exists a direct positive relationship between CEO duality role and risk management.
- **Singh and Srivastava (2023)** suggested that the board is responsible for a number of things including identification, evaluation and the risk management mechanism. It is dependent on company culture, participation of members in addition to assistance by the risk committee which can boost the risk management efficiency by the use of technology and data analytics.
- **Negi and Monga (2024)** in the study proposed that board of directors play a crucial role in corporate governance by overseeing risk management strategy, financial performance and compliance. A well balanced board and diverse board strengthens corporate reputation and ensures transparency.
- **Pandey (2024)** focused on the understanding of the role of board of directors in corporate governance. He highlighted certain key functions such as strategic decision making, overseeing management, board evaluation, etc. A strong and diverse board, however, brings a range of knowledge and perspective, leading to quality of decision-making and supports its long-term sustainability.
- **Horst Insurance (2025)** in its study explored that board deliberations are required to be recorded through meeting minutes which enhances accountability, provides basis for strong decision-making, thereby enforcing and ensuring sound corporate governance. Continuous evaluation allows the board to predict the emerging risk, test the quality of existing risk control measures and adapt governance structure accordingly.
- **Byrne (2026)** in his study reflected that the primary responsibility for overseeing risk lies with the board and supervising the identification, monitoring and management of the same. It is a continuous process requiring the constant review of the risk governance structure as new risks continue to emerge. The board must have clearly defined delegation structure and must take responsibility for the strategy-related risk.

IV. SIGNIFICANCE OF THE STUDY:

The study proves to be significant for the readers both academically and professionally, providing a clear perspective for the students to understand the relationship between risk management structure and its governance. For professionals and managers, it aims to emphasize the importance of the decisions and policies of the board members in the governance framework. It will also benefit laymen to understand the complex framework of the corporate body.

V. OBJECTIVE OF THE STUDY:

The following are the main objectives of the study:

1. To examine the role of the board of directors in supervising the corporate risk management.
2. To examine the probable challenges faced by the board in adopting and implementing efficient risk management mechanisms.
3. To study the relationship between the board composition (size, members, etc.) and risk oversight enactment.

VI. RESEARCH METHODOLOGY:

The present study is based entirely on secondary data, which adopts a descriptive and analytical layout and aims to analyze the existing frameworks and findings on risk and corporate governance with special mention to the role of board members. The data relating to the study have been collected from various published sources such as e-journals, websites, etc. and evaluated using qualitative methods such as content analysis, descriptive research, etc.

VII. DATA ANALYSIS:

i) Role of Directors in overseeing risk management:

The Board of Directors play a crucial role in risk management by performing various duties such as identification and evaluation of risk, framing strategy and managing necessary resources for the same.

Role of Independent Directors in Monitoring Compliance and Risk Management



TABLE I: Role Of Independent Directors In Risk Oversight

Role Performed	Percentage Contribution
Monitoring Compliance	30%
Reviewing Financial Reports	25%
Strategic Risk Assessment	20%
Ethical Governance	15%
Crisis Management Guidance	10%

Source: *Compiled from RBI Governance Guidelines, SEBI Corporate Governance Framework, OECD Principles of Corporate Governance, and KPMG Board Leadership Reports.*

INTERPRETATION:

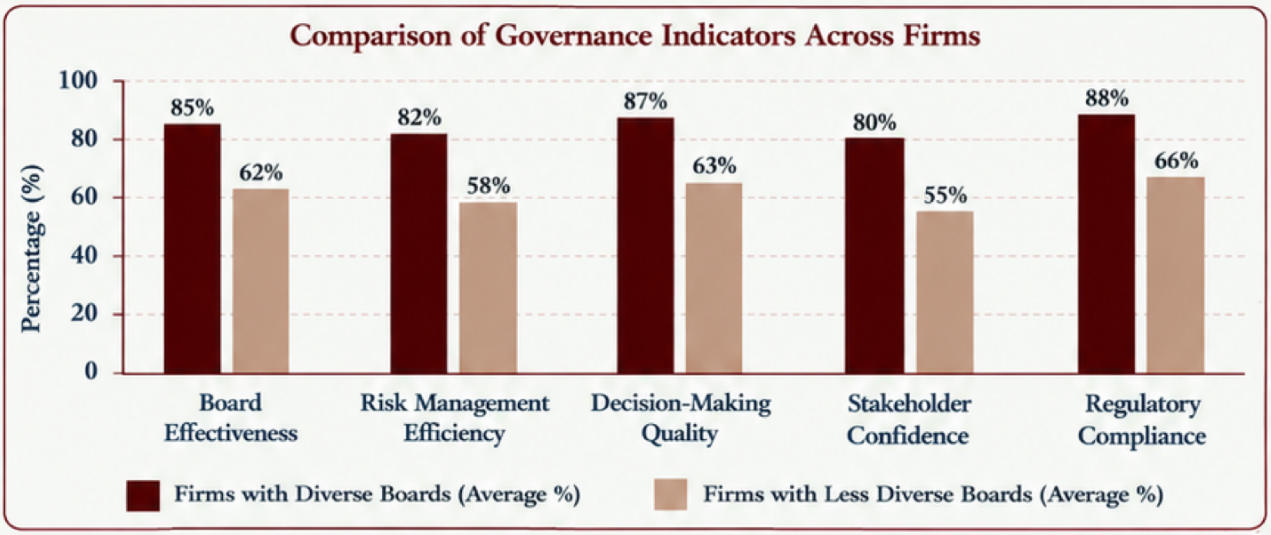
As illustrated in Table 1, Independent Directors contribute most significantly towards monitoring compliance accounting to 30%, ensuring that the organization abides by the applicable laws and regulations. The responsibility then follows by reviewing financial reports at 25%, while strategic risk assessment constitutes 20% of their contribution wherein the directors identify and evaluate the probable risk affecting the organization's short-term and long-term goals. Ethical governance accounts for 15%, highlighting the board's responsibility in maintaining integrity and fairness in the corporate framework. Lastly, as shown in the table, crisis management is represented with 10%, wherein they provide critical directions and insights during situations of stress or unexpected events.

The board's management strategy may succeed or suffer depending upon the members framing it. The diversity of the members in respect to culture, age, ethnicity, experience, etc., all counts in this regard. By having a diverse board, the organization gets encountered with varied perspectives, helping the organization get best of the advice. Also, the varied expertise of the members proves to be of much significance in framing management strategy. The relevant expertise of the members in different fields help management with valuable insights in strategy formation and implementation.

In light of this, the following table and graph can be presented to get a better understanding of the above discussion -

FIGURE 1: Board Composition and Governance Quality - Comparison of Governance Indicators Across Firms

Governance Indicators	Firms with Diverse Boards (Average %)	Firms with Less Diverse Boards (Average %)	Difference (%)
Board Effectiveness	85%	62%	23%
Risk Management Efficiency	82%	58%	24%
Decision-Making Quality	87%	63%	24%
Stakeholder Confidence	80%	55%	25%
Regulatory Compliance	88%	66%	22%



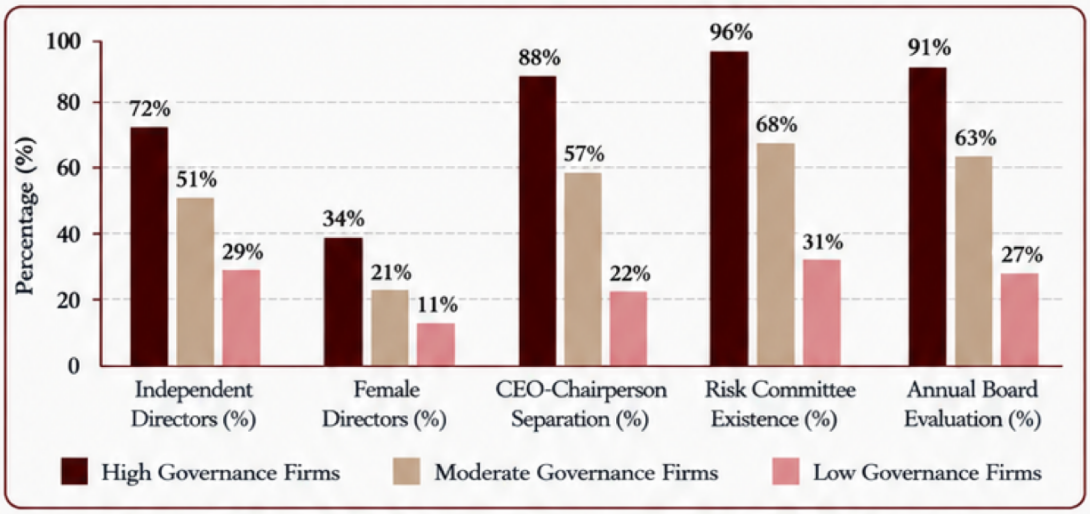
Source: *Compiled from OECD Corporate Governance Principles, SEBI Corporate Governance Reports, KPMG Board Surveys, and Deloitte Risk Management Reports.*

Reports.

INTERPRETATION:

As evident from Figure 1, the high governance firms always tend to outperform moderate and low governance firms across all the measured indicators used in the figure. Independent directors represent 72%, 51%, and 29% in high, moderate, and low governance firms respectively, while female directors follow a similar declining trend at 34%, 21%, and 11%. CEO-Chairperson separation (88% vs 57% vs 22%), Risk Committee existence (96% vs 68% vs 31%), and Annual Board Evaluation (91% vs 63% vs 27%) all decline consistently as governance quality weakens. These data, thus, confirms that formalized oversight mechanisms are slightly lower where governance standards are lower. These findings thus support Rahman(2019) and Negi and Monga(2024), who established that board diversity and strong composition positively strengthens the overall governance quality and risk management effectiveness.

FIGURE I: Board Composition and Governance Quality - Comparison of Governance Indicators Across Firms



Source: *Compiled from OECD Corporate Governance Principles, SEBI Corporate Governance Reports, KPMG Board Surveys, and Deloitte Risk Management Reports.*

TABLE II: Composition of Board Committees in Selected Companies

Company Type	Total Directors	Independent Directors(%)	Risk Management Committee	Audit Committee	Female Directors(%)
Public Sector Company	12	58%	Yes	Yes	25%
Private Sector Company	10	50%	Yes	Yes	20%
Multinational Company	14	71%	Yes	Yes	38%
Family-Owned Business	8	25%	No	Yes	12%

Source: *Compiled from OECD Corporate Governance Factbook (2025), OECD Working Papers on Board-Level Committees, SEBI Corporate Governance Framework, and Deloitte Governance Reports.*

INTERPRETATION:

As evident from Table II, multinational companies tend to have a higher proportion of independent directors (71%) and female directors (38%). Family-owned businesses, by contrast, show lower independence ratios (25%) and are less likely to have dedicated risk management committees. This finding likely aligns with the literature of Negi & Monga(2024), suggesting that Board diversity and independence positively correlates with governance and risk management effectiveness.

TABLE II: Composition of Board Committees in Selected Companies

Company Type	Total Directors-s	Independent Directors(%)	Risk Management Committee	Audit Committee	Female Directors(%)
Public Sector Company	12	58%	Yes	Yes	25%
Private Sector Company	10	50%	Yes	Yes	20%
Multinational Company	14	71%	Yes	Yes	38%
Family-Owned Business	8	25%	No	Yes	12%

Source: *Compiled from OECD Corporate Governance Factbook (2025), OECD Working Papers on Board-Level Committees, SEBI Corporate Governance Framework, and Deloitte Governance Reports.*

ii) Problems faced by board members in strategy formation:

Board members get encountered with numerous problems considering the complexity of the business environment. The complexity of modern risk such as cyber threats, global uncertainty makes it difficult for the members to understand and evaluate the situation. Also increasing laws and regulation increases compliance cost and increases the risk of penalties in case of non-compliance. The unavailability of timely information and communication gaps are, however, of another concern.

iv) Legal and regulatory framework in India that governs the board's role:

- In India, the primary legislation governing companies is the Companies Act, 2013. Section 134 of the Act provides that a Board must include a Director's Responsibility Statement, confirming compliance of laws, risk management systems, etc.
- The Securities and Exchange Board of India (SEBI) provides regulations mainly for listed companies. The Regulation 17 of the SEBI(LODR) Regulations,2015 provides for a mandatory Risk Management Committee for top listed companies.
- The Institute of Chartered Accountants of India (ICAI) issues Accounting and Auditing Standards on which the Boards rely for financial transparency, risk disclosure, etc.

VIII. ANALYSIS OF COMPANY REPORTS:

Here, an analysis of the articles published by two of the renowned companies will be discussed in short with special importance being given to risk management and the role of directors in corporate governance.

1. Governance, risk and compliance: A new lens on best practices (McKinsey & Company)

Mc Kinsey in their above mentioned article has published a survey with 193 participants. A part of the survey threw lights on the proportion of board and management team in authority approval for key decisions. It has been found from their survey that at most of the organization, the board and management have the ultimate authority. The board often delegates the risk and compliance to the subordinates which sometimes lowers the overall GRC maturity level.

Also most companies, despite having an established governance framework, face gap in major aspects such as documentation, formal procedures, and board assessment, indicating lower effectiveness.

2. Thirty-First Annual Report Of ICICI Bank Limited

The report states that the Bank's risk management framework is based on clear understanding of various types of risk, regular monitoring and disciplined risk assessment procedures. The Board of Directors, however, has the oversight on all risk assumed by the Bank. Specific committees have been constituted (Risk Committee, Credit Committee, Audit Committee, etc.) in this regard to facilitate focused oversight of various risks. The committees, thus, established provide a summarised report on a regular basis which helps in facilitating the smoothness of the risk oversight framework.

IX. FINDINGS OF THE STUDY:

Based on the study, the following key findings can be *interpreted*:

1. This study concludes that the board holds the primary responsibility in the overall supervision of management of risk by ensuring risk identification and aligning it with the risk management strategy.
2. The Board composition significantly influences risk management. A larger and more diverse board tends to provide deep insight into the prevailing risk.
3. The risk management framework is however not purely technical but is highly influenced by the organizational culture and participation of board members.
4. The study also concludes that the increasing complexity of risk in different sectors makes identification and mitigation more challenging.
5. The regulatory frameworks prove to strengthen the role of board in risk oversight by ensuring compliance and accountability.

X. SUGGESTIONS:

The following suggestions can be proposed based on the above study:

1. The Board should provide for the inclusion of members with specialized knowledge in risk management.
2. It should establish dedicated Risk Management Committees at board level to regularly assess emerging risk.
3. It should ensure a smooth and timely flow of information between management and Board members.
4. The Board should strictly adhere to the regulations provided to fulfill the compliance of legal requirements.
5. The Board should try to categorize the diverse risks depending upon its area of impact.

XI. CONCLUSION:

The present study aims to highlight the critical role of Board members in ensuring effective risk management. It can be concluded from the above study that board members are responsible to plan and ensure the effectiveness of risk management strategy by proper evaluation and regular monitoring which in turn paves the way for success and longevity of the business.

The study reveals that a well structured and diverse board is well equipped to handle the risks more efficiently. However, the study also addresses certain challenges faced in policy formation. Despite the existence of robust regulatory frameworks, gaps and loopholes still prevail in certain areas. Furthermore, it also stresses the fact that risk management is not merely a technical function but a dynamic process involving company culture and board participation.

In conclusion, the regulatory base of an organization can certainly be strengthened with a proactive and comprehensive approach by ensuring diligence by the Board members in meeting their obligations.

XII. BIBLIOGRAPHY:

- **Journal Articles:**

1. Byrne, J. (2026). Board-level risk oversight and governance responsibilities in modern corporations. *Corporate Governance Review, 18*(1), 25–40.

2. Negi, A., & Monga, S. (2024). Board diversity and corporate governance: Implications for risk management and transparency. *Journal of Business Ethics and Governance, 12*(1), 67–82.

3. Singh, N., & Srivastava, S. (2023, April 8). The role of the board of directors in managing corporate risk. *International Journal of Law Management & Humanities, 6*(2), 1552–1564. https://ijlhm.com/paper/the-role-of-the-board-of-directors-in-managing-corporate-risk/

4. Pandey, V. (2024). Role of board of directors in corporate governance and strategic decision-making. *Journal of Management and Public Policy, 15*(2), 89–104.

5. Rahman, M., Rawy, K., Shabeed, A., & Abu-Musa, A. (2019). Board characteristics and their impact on corporate risk management. *International Journal of Accounting and Finance, 8*(3), 210–228.

- **Reports:**

1. ICICI Bank Limited. (2025). *Annual report 2024–25 (integrated report)*. https://www.icici.bank.in/ns/aboutus/annual-reports/2024-25/html/index.html

2. McNulty, T., Florackis, C., & Ormrod, P. (2013). *Corporate governance and risk: A study of board structure and process* (Research Report No. 129). Association of Chartered Certified Accountants. https://www.accaglobal.com/content/dam/acca/global/PDF-technical/corporate-governance/rr-129-001.pdf

- **Websites and Online sources:**

1. Horst Insurance. (2025). *Board governance and risk oversight: The importance of documentation and evaluation.* Retrieved from https://www.horstinsurance.com

2. Natale, A., Raufluss, A., Nilsson, B., Peschel, I., Bevan, O., & Raggl, A. (2025, May 9). *Governance, risk, and compliance: A new lens on best practices.* McKinsey & Company. https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/governance-risk-and-compliance-a-new-lens-on-best-practices

Appreciation

And that's a wrap on *EconPulse 2026*, a magazine shaped by student research, curiosity, and creativity.

To every student who ***researched, wrote, edited, designed, and believed in this project, thank you.*** You turned an idea into pages filled with questions worth asking, insights worth sharing, and voices worth hearing.

EconPulse is proof that when students are given a platform, they don't just study the economy, they question it, challenge it, and reimagine it.

We're incredibly proud of what we've created together.

Thank you for being a part of EconPulse.

Editorial Team
EconPulse, 2026