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Government of Maharashtra  
Ismail Yusuf College of Arts, Science and  
Commerce



**One Day National Research Conference**

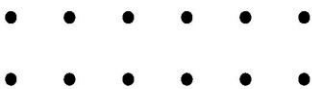
# "Revolutionizing Commerce and Management: Unleashing the Power of AI"

Conference proceedings 2024  
(Peer Reviewed)



In Collaboration with University of Mumbai,  
IQAC, Departments of Commerce and Accountancy

Mode: Online  
Day & Date: Saturday, 24th February  
2024





स्वातंत्र्याचा अमृत महोत्सव



Higher and Technical Education,  
Textile Industry,  
Parliamentary Affairs

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**Date: 13<sup>th</sup> Feb.2024**

## **Greetings**

It is with immense pleasure that I extend my heartfelt congratulations to Ismail Yusuf College and the conference team for their dedicated efforts in organizing the upcoming online National Research Conference, scheduled for February 24, 2024.

The collaborative initiative undertaken by the Faculty of Commerce, in partnership with IQAC and the University of Mumbai, to host a conference on the theme "Revolutionizing Commerce and Management: Unleashing the Power of AI" is both timely and visionary. The choice of this topic reflects the college's commitment to staying at the forefront of academic and technological advancements.

As the Minister of Higher and Technical Education, I am particularly pleased to witness institutions like Ismail Yusuf College taking the lead in promoting research and dialogue on subjects of great importance, such as the transformative role of artificial intelligence in commerce and management. Your dedication to providing a platform for intellectual exchange and innovation is commendable.

I am confident that the National Research Conference will serve as a catalyst for meaningful discussions, fostering collaboration among scholars, researchers, and industry professionals. The impact of such events on the academic community and beyond cannot be overstated, and I applaud Ismail Yusuf College for its role in advancing knowledge and promoting excellence in education.

I encourage the entire conference team to continue their exemplary work, knowing that their efforts contribute significantly to the intellectual growth and development of both the institution and its participants. Your commitment to organizing events of this caliber not only enhances the college's reputation but also elevates the educational landscape of our region.

Please accept my best wishes for the success of the National Research Conference. May this event be a resounding testament to Ismail Yusuf College's dedication to academic excellence and innovation.

Thank you for your continued commitment to higher education, and I look forward to hearing about the positive outcomes of this conference.

*C.B.Patil*  
**Chandrakant(Dada) Patil**

To,

Principal,  
Government of Maharashtra's  
Ismail Yusuf College of Arts, Science & Commerce  
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Inward No. 573  
Date: 6/2/24  
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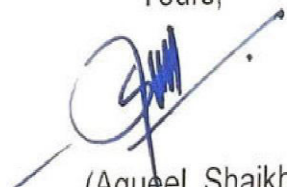
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**The Principal,**  
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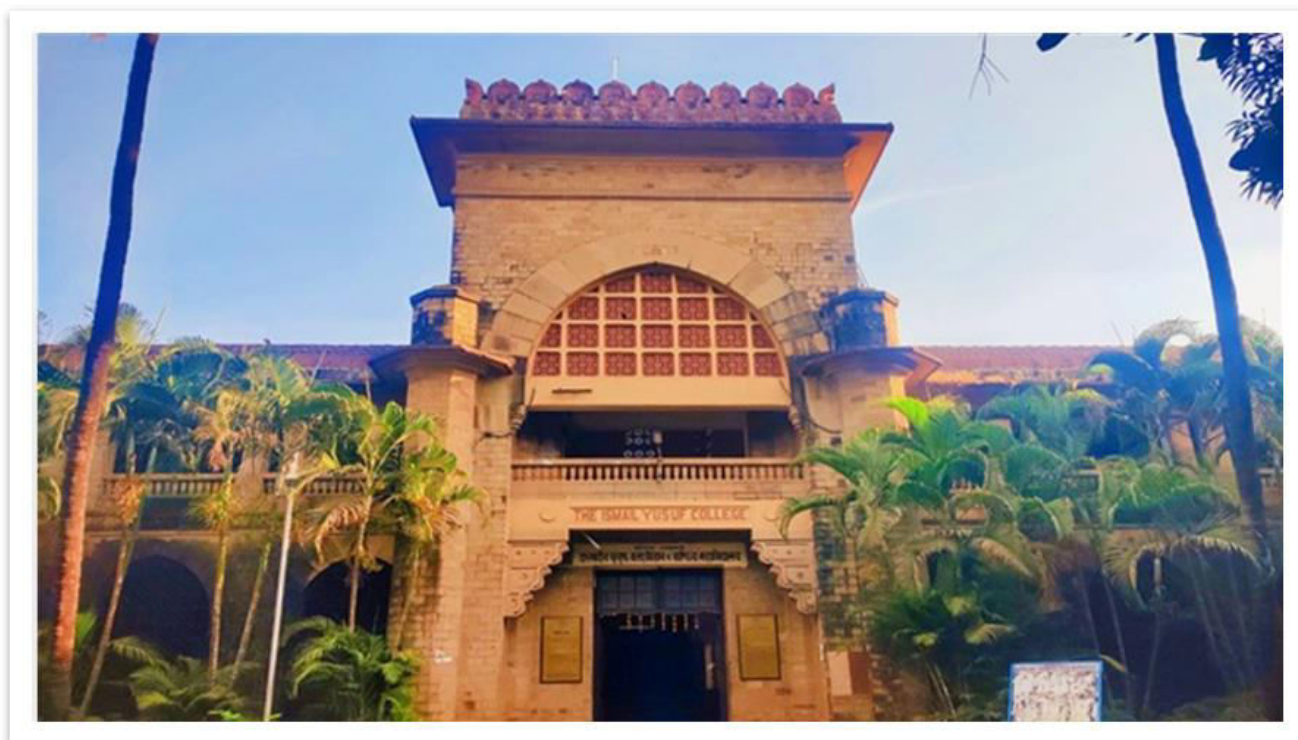
Sir/Madam,

With reference to your mail dated 23<sup>rd</sup> January, 2024, this is to inform you that as per decision taken by the Management Council at its meeting held on 11<sup>th</sup> March, 2016, vide item No. 2 your request for permission to Organize One day Online National research Conference on the Title "Revolutionizing Commerce and Management unleashing the Power of ARTIFICIAL INTELLIGENCE" in Collaboration with the University of Mumbai on 24<sup>th</sup> February, 2024 has been granted subject to the condition that, there shall not be any financial liabilities on the part of University and no misuse of University Logo"

Yours,

  
(Aqueel Shaikh)  
Deputy Registrar  
College Teachers Approval Unit

## About the College



Ismail Yusuf College, is the fourth oldest college of Mumbai, India. It is popularly known as “I Y college”, is managed by the Government of Maharashtra. It was established in 1930 with a large donation from Sir Mohammed Yusuf Ismail, K.T. on Jogeshwari Hill. The foundation stone was laid by Sir Leslie Orme Wilson, Governor of Bombay in 1924.

College Offers Various Courses such as M.Sc. – Chemistry, B.Sc., M.Sc.- Physics, M.Sc.- Zoo B.Sc. - CS, M.Sc. – BT, B.Sc. – BT, MSc- Botany by Research, B. Com, BMS, M. A - History BAF, MA - Urdu M. Com-A/c, M.Sc. – Stats, M. Com-BM, PhD-Hindi, Botany, Physics, Chemistry, Zoology & Urdu. We firmly believe in innovation, passion, and overall Development of the students. College Conducts extracurricular activities, such as NSS and NCC, sports, cultural events, lectures and seminars, workshops, and research projects, reflect these values and enrich the student experience.

# About the Conference



The One-day National Research Conference held on 24<sup>th</sup> February, 2024 online via the Zoom platform, organized by: Government of Maharashtra Ismail Yusuf College, IQAC Cell, Faculty of Commerce, University of Mumbai, on the theme “Revolutionizing Commerce and Management: Unleashing the power of AI”, proved to be a remarkable event showcasing the latest advancements and discussions in the field of Artificial Intelligence (AI) and its implications on commerce, management, and various other domains. The conference witnessed active participation from students, scholars, researchers, and industry experts from diverse backgrounds.

The One-day National Research Conference served as a platform for meaningful discourse, knowledge exchange, and networking opportunities, furthering understanding and advancements in the field of AI. The event was a testament to the collaborative efforts of the organizing team, speakers, participants, and sponsors, and it is hoped that the insights gained will inspire future research and innovation endeavors.

YouTube Link: <https://youtu.be/T9QK4we1SVU?si=GzXmoC-U2VrHJ1-E>



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It is my distinct honor to put forth this format of conference titled as, "Revolutionizing Commerce and Management: Unleashing the Power of AI.

The integration of AI into our professional spheres is not just an enhancement; it represents a paradigm shift. AI technologies, from machine learning to natural language processing, are driving efficiencies, fostering innovation, and enabling more informed decision-making processes. From optimizing supply chains and automating routine tasks to personalizing customer experiences and forecasting market trends, AI is poised to redefine our approaches and strategies.

Distinguished speakers and experts shared cutting-edge research, practical applications, and real-world case studies, illustrating how AI can streamline operations, enhance productivity, and create competitive advantages. Paper also discusses the ethical considerations of AI deployment, the challenges of implementation, and the future landscape of AI in commerce and management.

I am sure these advancements can be implemented in your own contexts. I am sure we can harness the power of AI to revolutionize commerce and management, paving the way for a future where technology and human ingenuity drive progress. I hope you will appreciate efforts of our Teachers in organizing this conference.

**Date:** 24<sup>th</sup> February 2024

**Place:** Mumbai.

**Prof. (Dr.) Vijay Narkhede**  
**Principal**



I am honored to Present the Volume of this Conference on the transformative power of Artificial Intelligence (AI) in the domains of Commerce and Management, with a particular focus on its implications from the perspectives of Accountancy and Finance.

As we stand on the cusp of a new era defined by rapid technological advancement, it becomes increasingly evident that AI is not merely a buzzword but a revolutionary force reshaping how we conduct business and manage financial affairs. In the domain of Accountancy and Finance, where precision, accuracy, and efficiency are paramount, AI presents unprecedented opportunities to enhance decision-making, optimize processes, and drive innovation.

One of the most significant impacts of AI in Accountancy and Finance lies in its ability to automate routine tasks, thereby freeing up valuable time and resources for professionals to focus on higher-value activities. From automating data entry and reconciliations to generating financial reports and forecasts, AI-powered solutions are streamlining human tasks and enabling accountants and financial analysts to allocate their expertise towards strategic analysis and decision-making.

Furthermore, AI is revolutionizing risk management and compliance within the financial sector. By leveraging advanced algorithms and machine learning techniques, organizations can identify patterns, detect anomalies, and mitigate risks more effectively than ever before. Whether it's fraud detection, regulatory compliance, or risk assessment, AI is empowering financial institutions to proactively address potential threats and safeguard their assets and reputation.

Moreover, AI-driven predictive analytics are providing finance professionals with invaluable insights into market trends, customer behavior, and financial performance. By analyzing vast datasets in real-time, AI algorithms can uncover hidden patterns and correlations that human analysts may overlook, enabling organizations to make data-driven decisions with confidence and agility.

However, it is crucial to recognize that the widespread adoption of AI in Accountancy and Finance also brings forth a set of challenges and ethical considerations. As we entrust machines with increasingly complex tasks, questions surrounding data privacy, algorithmic bias, and accountability come to the forefront. Therefore, it is imperative for organizations to approach AI deployment with careful consideration, ensuring transparency, fairness, and accountability throughout the process.

In conclusion, the integration of AI into Accountancy and Finance signals a new era of opportunity and innovation. By embracing AI-powered solutions, organizations can unlock new efficiencies, mitigate risks, and drive sustainable growth in an increasingly complex and dynamic business environment. However, success in harnessing the full potential of AI requires a holistic approach that balances technological advancement with ethical considerations and human expertise.



Together, let us embark on this journey towards a future where AI empowers us to achieve new heights of excellence and prosperity in Commerce and Management. With this, I congratulate all researchers who participated, presented and also made it through the review process for publication. I encourage all for further research initiatives on such futuristic topics. I hope the papers of this Volume will help you a lot in understanding AI from various analysis and will also help research in understanding review of Literature.

Date: 24<sup>th</sup> February 2024

Place: Mumbai.



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**CEO VIRTUAL ASSISTANT****Dr. Ashwin I Mehta<sup>1</sup> and Roshni Dubey<sup>2</sup>**<sup>1</sup>Faculty of Computer Science Department and <sup>2</sup>TYComputer Science Student, Computer Science Department, Ismail Yusuf College, Jogeshwari east, Mumbai 400060**ABSTRACT**

*A virtual office assistant has been developed similar to Amazon Alexa<sup>®</sup> technology of speech synthesizer . This is for laptops and PCs, which can be easily converted to web based. Our assistant accepts and executes several verbal commands. We start with access to "YouTube" and expanded its capabilities. Therefore agile based framework was used for SDLC model. At this stage, the virtual assistant has capabilities of accessing email, WhatsApp , Amazon product page and many more through verbal commands. All codes and assisting libraries used are open source. The goal of Virtual Assistant is to assist managers in becoming hands-free. We believe it will be helpful to all managers, CEO and many other executives.*

**INTRODUCTION****History**

**Amazon Alexa**, also known simply as **Alexa**,<sup>[1]</sup> is a virtual assistant technology largely based on a Polish speech synthesizer named Ivona, bought by Amazon in 2013.<sup>[2][3]</sup> It was first used in the Amazon Echo smart speaker and the Echo Dot, Echo Studio and Amazon Tap speakers developed by Amazon Lab126. It is capable of Natural Language Processing (NLP) for tasks such as voice interaction, music playback, creating to-do lists, setting alarms, streaming podcasts, playing audiobooks, providing weather, traffic, sports, other real-time information and news.<sup>[4]</sup> Alexa can also control several smart devices as a home automation system. Alexa capabilities may be extended by installing "skills" (additional functionality developed by third-party vendors, in other settings more commonly called apps) such as weather programs and audio features. It performs these tasks using automatic speech recognition, NLP, and other forms of weak AI.<sup>[5]</sup>

Most devices with Alexa allow users to activate the device using a wake-word<sup>[6]</sup> (such as **Alexa** or **Amazon**); other devices (such as the Amazon mobile app on iOS or Android and Amazon Dash Wand) require the user to click a button to activate Alexa's listening mode, although, some phones also allow a user to say a command, such as "Alexa" or "Alexa wake".

As of November 2018, more than 10,000 Amazon employees worked on Alexa and related products. In January 2019, Amazon's devices team announced that they had sold over 100 million Alexa-enabled devices.

**Functional History**

Commercial speech recognised devices can perform a number of preset functions out-of-the-box such as set timers, share the current weather, create lists, access online articles, and many more things. Users say a designated "wake word" (the default is simply "Alexa") to alert an Alexa-enabled device of an ensuing function command. Alexa listens for the command and performs the appropriate function, or skill, to answer a question or command. When questions are asked, Alexa converts sound waves into text which allows it to gather information from various sources. Behind the scenes, the data gathered is processed and submitted to end user. Alexa-supported devices can stream music from the owner's Amazon Music accounts and have built-in support for Pandora and Spotify accounts. Alexa can play music from streaming services such as Apple Music and Google Play Music from a phone or tablet.

In addition to performing pre-set functions, Amazon Alexa can also perform additional functions through third-party skills that users can enable. Some of the most popular Alexa skills in 2018 included "Question of the Day" and "National Geographic Geo Quiz" for trivia; "TuneIn Live" to listen to live sporting events and news stations; "Big Sky" for hyper-local weather updates; "Sleep and Relaxation Sounds" for listening to calming sounds; "Sesame Street" for children's entertainment; and "Fitbit" for Fitbit users who want to check in on their health stats. In 2019, Apple, Google, Amazon, and Zigbee Alliance announced a partnership to make their smart home products work together.

**Alexa in Business-**

Now, in order to realize the utility and true potential of voice technology<sup>[5]</sup> at work, it's important to understand why voice technology is so relevant in the first place.

Alexa for Business can help businesses get more work done, faster, and with increased accuracy. Amazon has been creating an amazing lineup of voice-enabled devices that can help executives and employees improve productivity in the office.

Amazon has now opened up their technology stack to third party developers and companies who want to create their own skills and solutions which can be used to address everyday problems in the office.

In case you might be asking yourself, Alexa Voice Search (AVS) SDK is the platform on which device makers can build these products with Alexa for Business. Interestingly, AVS is widely considered as the next step in digital optimization and will do for voice-related resources, what search engine optimization (SEO) does for text-based content.

Just so you know, BlackBerry and iHome are just two of many brands to integrate Alexa and create voice-enabled devices that can be shared across the organization.

You see, voice is the most natural way in which people communicate. Conversations convey context and provide insight, which enables people to better understand each other. And for the first time, chatbot technologies (hint, Alexa skills are nothing more than chatbots, at its core) allow for real conversations which make Alexa skills compliment the office environment and help employees communicate with each other.

### **Existing use-Cases in Business**

Here are just a few more examples of existing use-cases for Alexa-enabled devices and skills:

- **Video Conferencing.** Alexa is capable of starting a video conference with a simple voice command. After syncing with a workplace calendar, the user can say “Alexa, start the meeting” and Alexa will turn on all the equipment that will be used for the call.
- **Streamlining Daily Tasks.** Alexa can also be used to help employees to improve productivity by automating or organizing routine tasks. For example, Alexa can set reminders for phone-calls and keep track of daily to-do items.
- **Sign-In.** Alexa can use voice recognition to allow staff instant access to organization applications without having to sign-in.
- **Monitoring Device Usage.** Alexa for Business also enables management to control Alexa devices.
- **Email Organization.** Believe it or not, Amazon Echo is now able to manage your Office 365 or Gmail and read, reply and organize emails according to preference. Astrobot is the application which enables this ability.
- **Invoice Assistance.** Voice technology can streamline invoicing and help keep important documents organized. However, Alexa can also use the Accounts Receivable Factoring skill to calculate the amount of an invoice and the rate of factoring which is yet another menial task for executives and accountants.
- **Schedule Management.** Alexa can use certain skills to set reminders, co-ordinate meetings and organize to-do lists. This is like Google Calender.
- **Locating Services.** Whether you need a to re-order stationary or contact a handyman to fix the plumbing, voice assistants can find local services in a matter of seconds.

At the time of writing this article, there are more than 150 products with in-built Alexa and several thousand skills which you can add on top of these devices. There are also many solutions already at work on Alexa for Business including Polycom, Skype, Vonage, Zoom, Webex, HP and Salesforce etc..

### **Proposed CEO Virtual Assistant**

We have built CEO Virtual Assistant using Open Sources. These sources are Python libraries and some other third parties open source tools. Our context of building the assistant was to make some functions of managers hands-free. To start with we built voice access to “YouTube”. We experimented with importing following modules in our implementation , tkinter , from tkinter MessageBox, pymysql, subprocesses, from PIL ImageTk, to name few . For achieving voice to text and executing other functions, we imported speech\_recognition as sr, pyttsx3(Text-to-Speech), pywhatkit, datetime, Wikipedia, pyjokes , webbrowser, from email.message EmailMessage, smtplib, import requests(xml or json), json , sys from mysql2 import retrieve, retrievecount, savetoDB.

As we have stated , we started with access to “YouTube” knowledge repository. Trials were made successfully to access Data Science documentaries. Subsequently a Bollywood song by Mukesh was played successfully. To

further improve accuracy, a Bollywood specific song sung by Mukesh “ Hamne tuzko pyar kiya hai jitna .....” was played on verbal command. The capabilities of the assistant at present is given in Table 1.

Table 1.

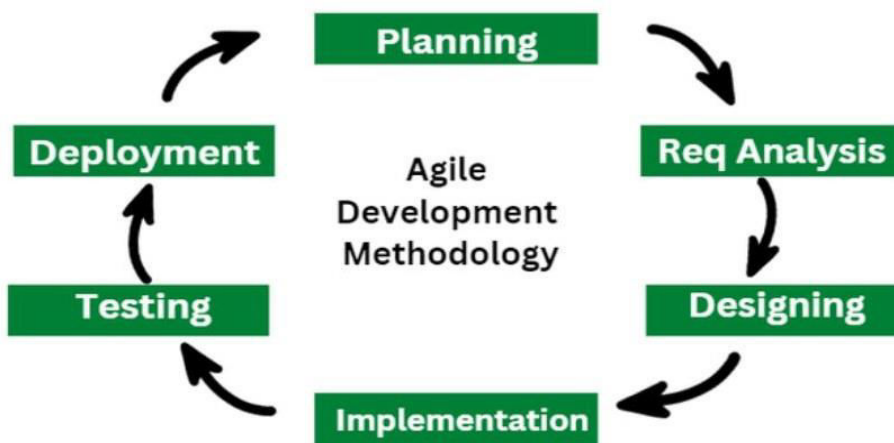
SR.NO	Event	Trigger	Source	Activity	Response	Destination
1	Play Command	User wants to “Play”(Song/Documentary) On You tube.	User's voice input	Play On Extract Song/Documentary name play it on you tube	Start Playing the song	You tube Interface
2	Time Command	User asks for “Current Time”.	User's voice input	Retrieve Current Time	Speak Current Time	Simulator Interface
3	Search Command	User asks for “Search”.	User's voice input	Search Wikipedia and Provide information	Read out information from Wikipedia	Web Browser
4	YouTube Command	User asks to “open you tube”.	User's voice input	Open YouTube interface	Opening you tube	Web Browser
5	WhatsApp Command	User asks to “open WhatsApp”.	User's voice input	Open WhatsApp interface	Opening WhatsApp	WhatsApp interface
6	Send Mail Command	User Commands to “Send an Email”.	User's voice input	Compose and Send an Email	Prompt user for email details and send the email	Simulator Interface
7	Joke Command	User asks for a “Joke”.	User's voice input	Retrieve a joke using PyJokes	Tell a joke	Simulator Interface
8	Open Command	User asks to “Open App”.	User's voice input	Open “( given input )” interface	Opening (given input).	Web Browser/(given input) interface
9	Unknown Command	User says an Unrecognized Command	User's voice input	Unrecognized voice	Please say the command again.	Simulator Interface
10	Stop Command	User say ‘stop’ or ‘bye’	User's voice input	Terminate the Current activity or Alexa interaction	‘Goodbye! See you later ’ message and exit simulator	Simulator Interface

As table shows our Office Assistant is capable of sending e-mail, sending WhatsApp messages, open grocery store pages. If you give a command for which there is no implementation, it catches error and verbally prompts user to say command again. If user wants to stop the assistant, he/she has to say ‘stop’ or ‘bye’ and the assistant responds by saying ‘Goodbye! See you letter!’.

**Methodology for SDLC**

When project started, we were not aware of exact requirements and also all requirements were also not known. So we decided to use agile framework model for SDLC(Software Development Life Cycle). Its outline is shown in Figure 1.

Figure 1 Phases of Agile framework model



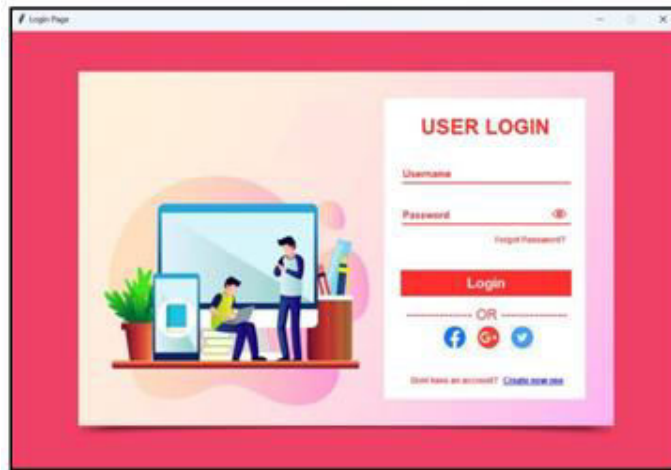
As the model shows, every stage requirements are added , we discussed and explored possibilities of implementing new command. When one more command was added entire application was checked and tested. We also wanted to store commands , so user can look at history. So we looked for open source MySQL and successfully linked.

**Why use Virtual Assistant, when Commercial Devices are Available**

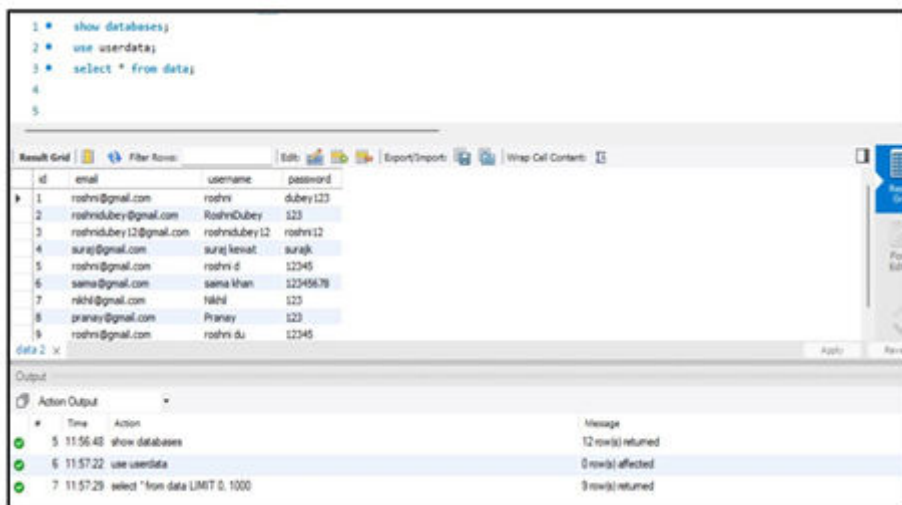
Current available Alexa in market are expensive devices. We plan to make it web based and offer our services to customer at reasonable subscription rate. We also plan to add OTP based access. Further plans are afoot to add timestamped services, location based service etc..

Some screen shot of the system are given here.

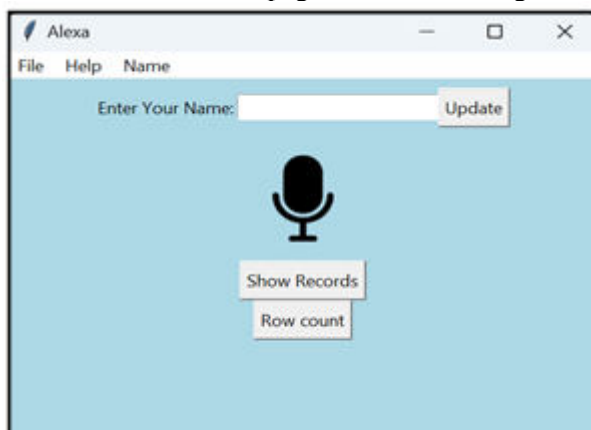
**Figure 2:** LogIn page of the system.



**Figure 3:** User log in record from database.



**Figure 4:** Virtual Assistant function page where user can give verbal command.



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6. ® It is registered trademark of Amazon.

**EXPLORING HOW AI INFLUENCES INVESTMENT DECISION MAKING AMONG YOUTHS****Asst. Prof. Chetan Devashish Bose<sup>1</sup> and Krish Neelesh Zaveri<sup>2</sup>**<sup>1</sup>Faculty in Department of Management Studies, KES's B. K. Shroff College of Arts and M. H. Shroff College of Commerce<sup>2</sup>Student, Bachelor of Management Studies, KES's B. K. Shroff College of Arts and M. H. Shroff College of Commerce**ABSTRACT**

*Artificial Intelligent (AI) systems have the ability to acquire knowledge from data and enhance their performance as time progresses. AI has the capability to make informed judgements by relying on data and analysis, eliminating the need for human involvement. The integration of artificial intelligence (AI) in virtual assistants and chat apps has a profound impact on the manner in which young people interact with technology and with one another.*

*The study is based on the data collected from 376 respondents. According to the gathered data, Gen-Z engages in financial instruments to a modest extent. AI is used to a modest extent as a tool for making financial investment decisions.*

*Keywords: Artificial Intelligent (AI), Financial Instruments & Decision Making.*

**INTRODUCTION**

Artificial Intelligence, or AI, is an intriguing and rapidly advancing domain that seeks to develop robots capable of doing activities that traditionally need human intellect. Artificial Intelligence (AI) has captivated the human mind for ages. However, it is only in the last several decades that significant progress has been achieved, resulting in the integration of AI into our daily lives, after previously being confined to the domain of speculative fiction. AI aims to create robots and systems that can imitate, reproduce, or even exceed human cognitive capabilities. The capabilities include acquiring knowledge via past encounters, comprehending human speech, identifying regularities, resolving issues, and reaching conclusions. The overarching objective is to develop intelligent agents capable of adjusting to various situations, managing intricate tasks, and consistently improving performance without explicit human programming.

Artificial Intelligence (AI) is a field within computer science that focuses on developing intelligent agents, which are autonomous computers capable of reasoning, learning, and taking action. The field of AI research has achieved remarkable success in devising efficient methodologies to address a diverse array of challenges, spanning from game strategy to medical analysis. The potential of AI in the future is vast. AI researchers are now engaged in the development of novel algorithms and methodologies that have the potential to enhance the capabilities and adaptability of intelligent machines. Forecasting the precise trajectory of AI remains challenging, however its profound influence on our lives will undoubtedly persist.

**Acquisition of knowledge:** AI systems have the ability to acquire knowledge from data and enhance their performance as time progresses. Machine learning techniques are often used for this purpose, enabling the system to recognise patterns and generate predictions without explicit programming. **Problem-solving:** AI may be used to tackle intricate issues that would provide challenges or be unattainable for people to resolve manually. These jobs include activities such as medical diagnosis, financial forecasting, and fraud detection.

**Decision-making:** AI has the capability to make informed judgements by relying on data and analysis, eliminating the need for human involvement. These are used in domains such as autonomous vehicles and tailored suggestions. **Creativity:** AI has the capability to produce innovative material, including music, painting, and literature. Although still in its nascent phase, this innovation has the potential to profoundly transform several sectors.

Artificial Intelligence (AI) has become an essential component of contemporary civilization, exerting significant influence across all domains, with a particularly notable effect on the younger generation. Today's young generation, as digital natives, is being raised in a world where AI technologies are widespread, influencing their experiences, views, and possibilities in distinct manners.

The educational environment is being significantly impacted by the rise of AI, particularly in relation to the education of young people. Intelligent tutoring systems and adaptive learning platforms use artificial intelligence to provide customised learning experiences that are specifically designed to meet the unique requirements and preferences of each individual learner. These technologies have the capability to discern and

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evaluate individual strengths and shortcomings, enabling students to advance at their own speed and get specific assistance.

Young individuals are entering a labour market where Artificial Intelligence (AI) is exerting a substantial influence across many sectors. With the continuous advancement of AI technology, there is a growing emergence of new employment categories. This provides young people with opportunity to specialise in AI-related topics such as machine learning, data science, and AI ethics. Introducing AI ideas and abilities at an early stage of school may enhance the readiness of young people for future employment opportunities and enable them to actively contribute to the advancement of AI applications. AI tools and platforms provide avenues for young individuals to build their technological expertise. Gaining proficiency in AI programming languages, comprehending machine learning principles, and actively participating in AI-related projects may provide individuals with the necessary skills for prospective jobs in the field of technology.

The use of artificial intelligence in social media platforms and chatbots has a significant impact on the communication and online interactions of young people. The integration of artificial intelligence (AI) in virtual assistants and chat apps has a profound impact on the manner in which young people interact with technology and with one another. As young people interact with AI technology, there is an increasing need for digital literacy and a comprehension of ethical implications. In an AI-influenced society, it is crucial to educate young persons on how to critically assess information, recognise algorithmic biases, and properly navigate the digital environment.

### **SECONDARY DATA- AI FOR FINANCIAL DECISION MAKING**

Artificial Intelligence (AI) has becoming more influential in determining financial decisions and strategies. The financial sector, renowned for its intricate and data-intensive characteristics, has discovered that AI is especially advantageous in handling extensive quantities of data, recognising patterns, and rendering more knowledgeable investment choices.

AI has the capability to do **data analysis and pattern recognition** by scrutinising extensive volumes of financial data, including news articles, social media sentiment, and historical market movements. This enables the identification of intricate patterns and correlations that may prove challenging for human perception. AI-powered solutions use this capability to **forecast future market trends**, propose prospective investment prospects, and highlight possible hazards. AI can assist investors in **constructing and overseeing diverse portfolios** that are in line with their risk tolerance and investing objectives, therefore optimising portfolio performance and managing risk. Algorithms may evaluate various types of assets and their interconnections to optimise the portfolio for the highest possible returns within the selected timeframe, while also minimising the level of risk involved. AI-driven trading bots may carry out deals using predetermined rules or **intricate algorithms**, promptly responding to market fluctuations with superior speed and reliability compared to human traders.

Artificial intelligence can evaluate investor preferences, risk tolerance, and financial circumstances to provide **tailored investment recommendations**. This may be advantageous for inexperienced individuals who may lack the self-assurance or expertise to make autonomous financial choices. Investment platforms use AI-powered **robo-advisors** to autonomously manage investment portfolios using algorithms and minimum human input. For investors that prioritise automation and minimum supervision, this may be a financially efficient and comfortable choice.

AI plays a substantial role in managing risks inside financial portfolios. **Machine learning models** have the capability to evaluate several risk indicators, detect possible dangers, and provide recommendations for minimising risks. This involves examining the past volatility of assets, evaluating the relationships between various investments, and modifying portfolio allocations to get the appropriate risk-return profiles. These automated systems use **artificial intelligence algorithms** to examine the financial circumstances, objectives, and risk tolerance of individual individuals, offering personalised investment guidance and portfolio suggestions. Robo-advisors provide affordable and easily accessible investment management solutions, enabling a wider range of people to get professional-level advice.

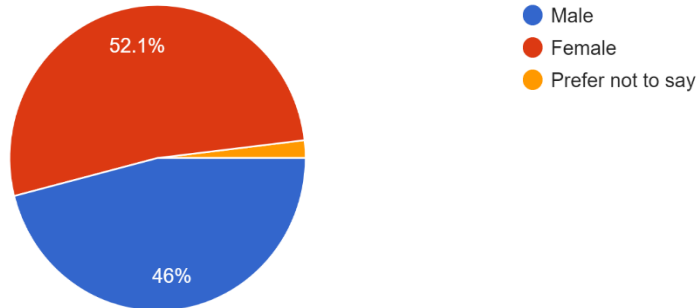
Artificial Intelligence demonstrates exceptional performance in **predictive analytics** by using past data to detect patterns and trends that may serve as indicators of future market shifts. Machine learning algorithms may use previous price movements, economic data, and other market aspects to provide forecasts on possible investment prospects. These **predictive models** may aid investors in forecasting market movements, pinpointing the most advantageous moments to enter and leave the market, and enhancing risk management.



PRIMARY DATA- AI FOR FINANCIAL DECISION MAKING

Gender

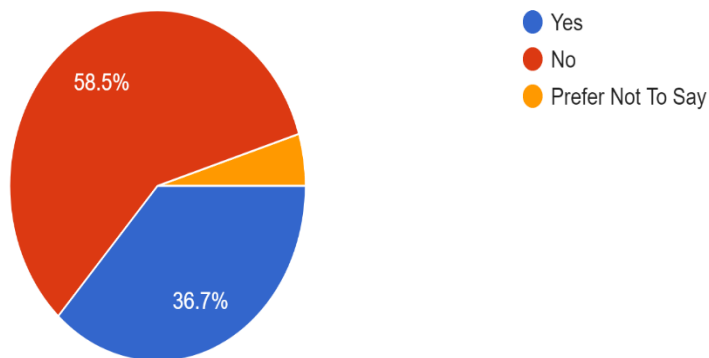
376 responses



We have collected 376 responses from the age group between 18 years to 27 years in order to now the perception about AI influencing their financial decision making for the investment that they undertake.

Do you Invest in financial instruments?

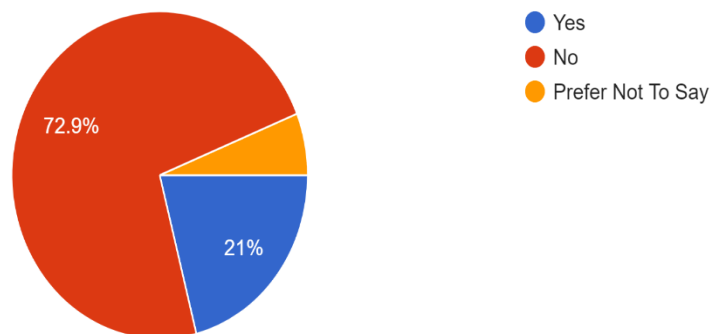
376 responses



220 respondents from Gen- Z don't invest in any financial instruments and only 138 respondents do participate in the investment. 36.7% of the respondents are the target sample for the research as they can help us to understand the influential power of the AI tools for Investment Decision Making.

Do you use AI tools for Investment Decision-Making (Prediction)?

376 responses



21% of the total respondents have admitted that they use AI tools for Investment Decision Making. It means 79 respondents out of 376 admit that they are dependent on AI for taking investment decisions. 57.25% of investors use AI tools for Investment Predictions.

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**LIMITATIONS**

The study has the following limitations

1. The study has a geographical limitation as it covers only the region covered under Mumbai
2. The study is specifically based on the Gen- Z respondents

**CONCLUSION**

The research concludes following points based on the data collected,

1. Gen-Z participates moderately in financial instruments.
2. AI is moderately used as financial investment decision making tool.
3. Respondents prefer to depend on traditional methods as well at present frame of time.

**AI BASED CUSTOMER SERVICE PORTAL****Dr. Ashwin I Mehta<sup>1</sup> and Sidraa Shaikh<sup>2</sup>**

<sup>1</sup>Faculty of Computer Science Department and <sup>2</sup>TY Computer Science Student, Computer Science Department, Ismail Yusuf College, Jogeshwari east, Mumbai 400060

**ABSTRACT**

*Repairing and maintenance of home appliance service sector is highly unorganized, non-standard and without any industry benchmark. Many times it is exploitative for both, customer as well as service provider, companies and individual. These may result in substandard service and/or high cost. We propose and created an online home appliance service/maintenance by creating portal using XAMP(Linux,Apache,MySQL,and PHP) [1] server. By providing AI(Artificial Intelligence) based service, we aim to bring service sector transparency, trustworthy and cost-effective service and win-win situation for customer as well as service provider.*

**INTRODUCTION**

Most house holds purchase varieties of home appliances on regular interval. These appliances have become part of life for all Bharatiy and without them life is very difficult if not impossible. For example today's house can not go for one day without refrigerator. Therefore purchasing of home appliances has become contiguous process for all house holds. Most new appliances are under warranty/guarantee and do not need services. As appliances become old they break down and or start malfunctioning. At that juncture, if consumer approaches OEM, services are prohibitively expensive with very little guarantee (time interval). Many times OEM provides services through channel partner in place of themselves. This scenario leaves customer helpless. At that stage customer approaches unorganized individual service provider and is at their mercy, in terms of timeliness, accuracy and cost.

We have built AI web based service portal [2] which will provide customer service in transparent manner. It will strive to (through admin /owner/channel partner) provide customer timely and accurate service at minimal price. All state-of art technologies and parts of good quality will be utilized. Consider one typical scenario, for example customer car needs to replace air filter. Our markets are full of bad quality air filters, Toyota original air filter and many 'good quality' filters are available. Bad quality air filters consist of poor quality material which are not only go bad in short interval of time but also may damage other parts of the car. Toyota original air filters will be very costly. Hence consumer desires good quality part at reasonable cost at different location at different time. These is what our portal is designed to provide, for example consumer will know parts are manufactured by which company and its cost. In our opinion, this will achieve highest user experience(UX) [4] and create user satisfaction. In today's competitive world, customer satisfaction.

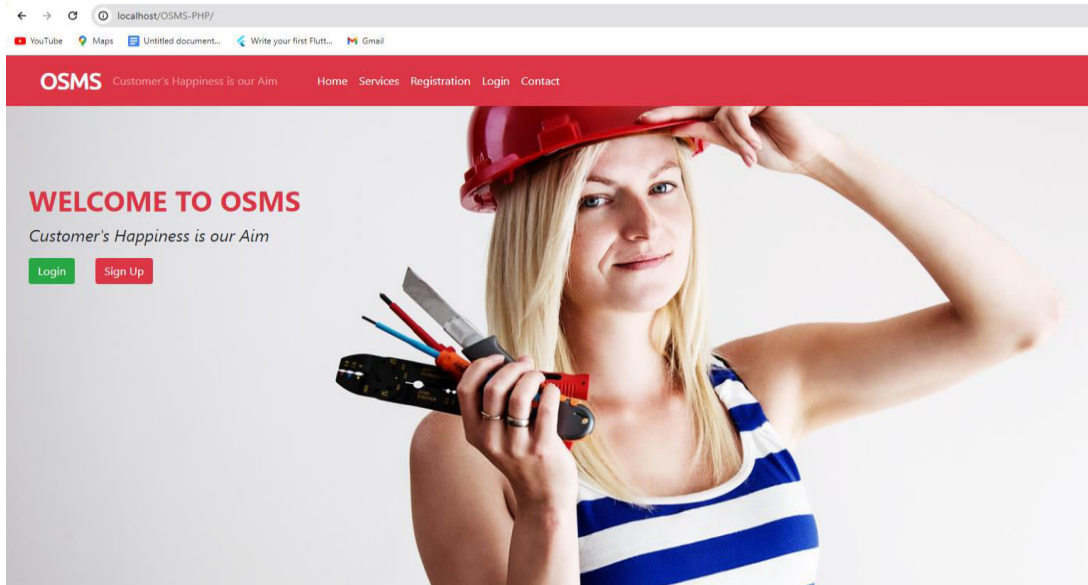
Consider an hypothetical use case. For example our customer has identified that their washing machine PC board has problems. A genuine PC board cost of washing machine is Rs1500 as shown here.



Our customer on invoice will get an image of component/s along with total cost of servicing. These service charges will be shown with proper break up that will include transportation cost. We believe this will provide customer unique experience and built long term trust. This could lead to lower churn rate of customer and high retention.

**Screenshots:-**

Using HTML5, CSS, JavaScript, MySql and PHP Languages [3] Used to create following projects pages. These pages have generated satisfactory user experience (UX) [4].



### OSMS Services

OSMS Services is India's leading chain of multi-brand Electronics and Electrical service workshops offering wide array of services. We focus on enhancing your uses experience by offering world-class Electronic Appliances maintenance services. Our sole mission is "To provide Electronic Appliances care services to keep the devices fit and healthy and customers happy and smiling". With well-equipped Electronic Appliances service centres and fully trained mechanics, we provide quality services with excellent packages that are designed to offer you great savings. Our state-of-art workshops are conveniently located in many cities across the country. Now you can book your service online by doing Registration.

### Our Services



Electronic Appliances



Preventive Maintenance



Fault Repair

### Create an Account

**Name**


**Email**  
  
We'll never share your email with anyone else.

**New Password**

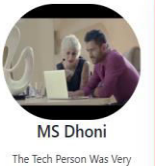
**Sign Up**

Note - By clicking Sign Up, you agree to our Terms, Data Policy and Cookie Policy


### Happy Customers




**Alina Raise**  
Quick And Very Fast Service.



**MS Dhoni**  
The Tech Person Was Very Polite and technically effective. Excellent!



**Samanthana**  
Amazing Service.



**Vijya Devarkonda**  
Liked Service And Quality Work. Excellent! Love it.

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Designed by Shaikh Sidra © 2023 Admin Login

## Online Service Management System

### Requester Login Area

**Email**

We'll never share your email with anyone else.

**Password**

[Login](#)

[Back to Home](#)

## OSMS

- [Profile](#)
- [Submit Request](#)
- [Service Status](#)
- [Change Password](#)
- [Logout](#)

**Request Info**

**Description**

**Name**

**Address Line 1**  **Address Line 2**

**City**  **State**  **Zip**

**Email**  **Mobile**  **Date**

[Submit](#) [Reset](#)

Online Service Management System

Admin Login Area

**Email**

We'll never share your email with anyone else.

**Password**

**Login**

[Back to Home](#)

**OSMS**

- Dashboard
- Work Order
- Requests
- Assets
- Technician
- Requester
- Sells Report
- Work Report
- Change Password
- Logout

Requests Received

13

[View](#)

Assigned Work

14

[View](#)

No. of Technician

2

[View](#)

List of Requesters

Requester ID	Name	Email
61	kalpana	kalpana@gmail.com
62	customer	customer@gmail.com

**OSMS**

- Dashboard
- Work Order
- Requests
- Assets
- Technician
- Requester
- Sells Report
- Work Report
- Change Password
- Logout

Request ID: 13

**Request Info: phone is blink**

phone should be failed

Request Date: 2023-12-06

[View](#) [Close](#)

**Assign Work Order Request**

Request ID:

Request Info:

Description:

Name:

Address Line 1:  Address Line 2:

City:  State:  Zip:

Email:  Mobile:  Service Charge:

Assign to Technician:  Date:

[Assign](#) [Reset](#)

**Code:**

Index.php

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<meta http-equiv="X-UA-Compatible" content="ie=edge">

<!-- Bootstrap CSS -->

---

```
<link rel="stylesheet" href="css/bootstrap.min.css">
<!-- Font Awesome CSS -->
<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.2/css/all.min.css">
<!-- Google Font -->
<link href="https://fonts.googleapis.com/css?family=Ubuntu&display=swap" rel="stylesheet">
<!-- Custom CSS -->
<link rel="stylesheet" href="css/custom.css">
<title>OSMS</title>
</head>
<body>
<!-- Start Navigation -->
<nav class="navbar navbar-expand-sm navbar-dark bg-danger pl-5 fixed-top">
<a href="index.php" class="navbar-brand">OSMS</a>
<span class="navbar-text">Customer's Happiness is our Aim</span>
<button type="button" class="navbar-toggler" data-toggle="collapse" data-target="#myMenu">
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="myMenu">
<ul class="navbar-nav pl-5 custom-nav">
<li class="nav-item"><a href="index.php" class="nav-link">Home</a></li>
<li class="nav-item"><a href="#Services" class="nav-link">Services</a></li>
<li class="nav-item"><a href="#registration" class="nav-link">Registration</a></li>
<li class="nav-item"><a href="Requester/RequesterLogin.php" class="nav-link">Login</a></li>
<li class="nav-item"><a href="#Contact" class="nav-link">Contact</a></li>
</ul>
</div>
</nav> <!-- End Navigation -->
<!-- Start Header Jumbotron-->
<header class="jumbotron back-image" style="background-image:url(images/Banner.jpeg);">
<div class="myclass mainHeading">
<h1 class="text-uppercase text-danger font-weight-bold">Welcome to OSMS</h1>
<p class="font-italic">Customer's Happiness is our Aim</p>
<a href="Requester/RequesterLogin.php" class="btn btn-success mr-4">Login</a>
<a href="#registration" class="btn btn-danger mr-4">Sign Up</a>
</div>
</header> <!-- End Header Jumbotron-->
<!-- Start Introduction Section -->
<div class="container">
<div class="jumbotron">
```

---

<h3 class="text-center">OSMS Services</h3>

<p> OSMS Services is India’s leading chain of multi-brand Electronics and Electrical service workshops offering wide array of services. We focus on enhancing your uses experience by offering world-class Electronic Appliances maintenance services. Our sole mission is “To provide Electronic Appliances care services to keep the devices fit and healthy and customers happy and smiling”.

With well-equipped Electronic Appliances service centres and fully trained mechanics, we provide quality services with excellent packages that are designed to offer you great savings.

Our state-of-art workshops are conveniently located in many cities across the country. Now you can book your service online by doing Registration.

</p>

</div>

</div> <!-- End Introduction Section -->

<!-- Start Services Section -->

<div class="container text-center border-bottom" id="Services">

<h2>Our Services</h2>

<div class="row mt-4">

<div class="col-sm-4 mb-4">

<a href="#"><i class="fas fa-tv fa-8x text-success"></i></a>

<h4 class="mt-4">Electronic Appliances</h4>

</div>

<div class="col-sm-4 mb-4">

<a href="#"><i class="fas fa-sliders-h fa-8x text-primary"></i></a>

<h4 class="mt-4">Preventive Maintenance</h4>

</div>

<div class="col-sm-4 mb-4">

<a href="#"><i class="fas fa-cogs fa-8x text-info"></i></a>

<h4 class="mt-4">Fault Repair</h4>

</div>

</div>

</div> <!-- End Services Section Container -->

<!-- Start Registration Form -->

<?php

include("UserRegistration.php");

?>

<!-- End Registration Form -->

<!-- Start Happy Customer -->

<div class="jumbotron bg-danger">

<div class="container">

<h2 class="text-center text-white">Happy Customers</h2>

<div class="row mt-5">



---

```
<div class="col-lg-3 col-sm-6"> <!-- Start 1st Column -->
<div class="card shadow-lg mb-2">
<div class="card-body text-center">

<h4 class="card-title">Alina Raise</h4>
<p class="card-text">Quick And Very Fast Service.</p>
</div>
</div>
</div> <!-- End 1st Column -->
<div class="col-lg-3 col-sm-6"> <!-- Start 2nd Column -->
<div class="card shadow-lg mb-2">
<div class="card-body text-center">

<h4 class="card-title">MS Dhoni</h4>
<p class="card-text">The Tech Person Was Very Polite and technically effective. Excellent!</p>
</div>
</div>
</div> <!-- End 2nd Column -->
<div class="col-lg-3 col-sm-6"> <!-- Start 3rd Column -->
<div class="card shadow-lg mb-2">
<div class="card-body text-center">

<h4 class="card-title">Samanthana</h4>
<p class="card-text">Amazing Service.</p>
</div>
</div>
</div> <!-- End 3rd Column -->
<div class="col-lg-3 col-sm-6"> <!-- Start 4th Column -->
<div class="card shadow-lg mb-2">
<div class="card-body text-center">

<h4 class="card-title">Vijya Devarkonda</h4>
<p class="card-text">Liked Service And Quality Work.Excellent! Love it.</p>
</div>
</div>
</div> <!-- End 4th Column -->
</div>
</div> <!-- End Happy Customer -->
```

---

```
<!-- Start Contact US -->
<div class="container" id="Contact">
<h2 class="text-center mb-4">Contact Us</h2>
<div class="row">
<!-- Start 1st Column -->
<?php
include('contactform.php');
?>
contactform.php
<?php
// Import PHPMailer classes into the global namespace
// These must be at the top of your script, not inside a function
use PHPMailer\PHPMailer\PHPMailer;
use PHPMailer\PHPMailer\SMTP;
use PHPMailer\PHPMailer\Exception;
// Load Composer's autoloader
require 'PHPMailer/Exception.php';
require 'PHPMailer/PHPMailer.php';
require 'PHPMailer/SMTP.php';
function isValidEmail($email) {
$emailParts = explode('@', $email);
return count($emailParts) === 2 && $emailParts[1] === 'gmail.com';
}
if (isset($_POST['send'])) {
// Checking for Empty Fields
if (empty($_POST['name']) || empty($_POST['subject']) || empty($_POST['email']) ||
empty($_POST['message'])) {
// Display an error message if required fields are missing
$msg = '<div class="alert alert-warning col-sm-6 ml-5 mt-2" role="alert">Fill All Fields</div>';
} else {
$name = $_POST['name'];
$subject = $_POST['subject'];
$email = $_POST['email'];
$message = $_POST['message'];
// Check if the email is valid
if (!isValidEmail($email)) {
$msg = '<div class="alert alert-danger mt-2" role="alert">Invalid email address. Only Gmail addresses are
allowed.</div>';
} else {
// Create a PHPMailer instance
```

```
$mail = new PHPMailer(true);

try {
//Server settings
$mail->isSMTP(); // Send using SMTP
$mail->Host      = 'smtp.gmail.com'; // Set the SMTP server to send through
$mail->SMTPAuth  = true; // Enable SMTP authentication
$mail->Username  = 'iyc82865@gmail.com'; // SMTP username
$mail->Password  = 'tggg tars tfnq zkrb'; // SMTP password
$mail->SMTPSecure = PHPMailer::ENCRYPTION_SMTPS; // Enable implicit TLS encryption
$mail->Port      = 465; // TCP port to connect to; use 587 if you have set `SMTPSecure =
PHPMailer::ENCRYPTION_STARTTLS`

//Recipients
$mail->setFrom('iyc82865@gmail.com', 'Contact Us');
$mail->addAddress('iyc82865@gmail.com', 'Admin'); // Add a recipient

//Content
$mail->isHTML(true); // Set email format to HTML
$mail->Subject = 'Test Contact Form';
$mail->Body    = "Sender Name - $name <br> Sender subject - $subject <br> Sender email - $email <br>
Sender message - $message";

// Send the email
$mail->send();

$msg = '<div class="alert alert-success mt-2" role="alert">Message has been sent</div>';
} catch (Exception $e) {
$msg = '<div class="alert alert-danger mt-2" role="alert">Message could not be sent</div>';
}
}
}
}
?>

<!-- Start 1st Column -->
<div class="col-md-8">
<form action="" method="POST">
<input type="text" class="form-control" name="name" placeholder="Enter Your Name"><br>
<input type="text" class="form-control" name="subject" placeholder="Enter Subject"><br>
<input type="email" class="form-control" name="email" placeholder="Enter Your Email"><br>
<textarea class="form-control" name="message" placeholder="How Can We Help You?" style="height:
150px;"></textarea><br>
<?php
if (isset($msg)) {
echo $msg;
```

```
}  
?>  
<input type="submit" class="btn btn-primary" value="Send" name="send"><br><br>  
</form>  
</div>  
<!-- End 1st Column -->
```

**ACKNOWLEDGEMENT**

We are extremely grateful to Professor(Dr.) Arvind Luhar, Professor(Dr.) Anjali Alekar, Professor Nithin Shelke Sir to encourage us for doing this work. We are also extremely grateful to our principal sir Professor (Dr.) Vijay P.Narkhade for giving us an opportunity and encouragement to undertake this research project.

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- 4) <https://www.forbes.com/sites/forbesbusinesscouncil/2021/09/28/12-best-practices-for-great-ux-features-on-a-website/?sh=fed84e616725>

## A STUDY OF FINANCIAL LITERACY AMONG MUSLIM MINORITY

Dr. Ashfaq Ahmad Khan<sup>1</sup> and Prof. Mois A. Patel<sup>2</sup><sup>1</sup>Principal and <sup>2</sup>Assistant Professor, Rizvi College of Arts, Science & Commerce**ABSTRACT**

RBI appointed the Anand Sinha committee to analyze Islamic financial products in 2005. Then in the subsequent year, i.e., in 2008, the Raghuram Rajan committee suggested interest-free banking for financial inclusion. Further in the year 2009, SEBI permitted India's 1<sup>st</sup> Shariah Compliant Mutual Fund scheme, followed by India's 1<sup>st</sup> Shariah Compliant Venture capital fund in the year 2009. BSE and TASIS launched the BSE-TASIS Shariah 50 Index in the year 2010.

Keywords: shariah finance, Islamic finance, ethical finance

**1: INTRODUCTION**

In *Shariah*-compliant ethical companies everyone invests their money irrespective of their religion cast creed or any discriminatory opinion Muslims or even non-Muslims. It is interesting in stating that the numerous numbers of people parking in *Shariah*-compliant shares are non-Muslims; for instance, in TATA ethical funds and Taurus ethical funds, people belonging to the Jain community and others have a 60% share in the investment. Another global example is Al Rayan bank in the UK; almost 80% of fixed-term deposit customers are non-Muslims. Al Rayan Bank in the UK has 85000 customers providing *Shariah*-based financial products.

From the Indian perspective the RBI appointed the Anand Sinha committee to analyze Islamic financial products in 2005. Then in the subsequent year, i.e., in 2008, the Raghuram Rajan committee suggested interest-free banking for financial inclusion. Further in the year 2009, SEBI permitted India's 1<sup>st</sup> *Shariah* Compliant Mutual Fund scheme, followed by India's 1<sup>st</sup> *Shariah* Compliant Venture capital fund in the year 2009. BSE and TASIS launched the BSE-TASIS *Shariah* 50 Index in the year 2010.



There is a vast potential in the Indian stock market for *Shariah*-compliant stock or instruments. In 2015 out of 6834 companies listed on the Indian stock market, 982 companies were *Shariah*-compliant. In 2016 out of 7030 companies, 1035 companies were *Shariah*-compliant.

Fund	Indian Shariah Fund										
	1 Month	2 Months	3 Months	6 Months	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years	Since Inception
	Return %	Return %	Return %	Return %	Return %	Return %	Return %	Return %	Return %	Return %	Return %
Tata Ethical Fund - Regular Plan	3.45	6.3	14.09	30.61	37.67	20.24	11.45	12.87	14.18	13.51	16.26
Taurus Ethical Fund - Regular Plan	2.35	4.29	10.45	24.09	32.46	19.68	12.59	14.51	14.42	12.21	17.87

An interesting case study undertaken by M.H. Khatkhatay and Dr Shariq Nisar concluded that 61% of Indian companies are *Shariah*-compliant in India. In contrast, in Malaysia, it is 57%, in Pakistan 51% and Bahrain only 6%. It shows that in Islamic countries, there are fewer *Shariah* Compliant companies as compared to India. Further, he states that out of 1000 companies listed in the National Stock Exchange of India and 500 companies listed in the Bombay stock exchange, 335 companies and 237 companies are *Sharia* compliant respectively.

Investing in the financial market at present, an investor postpones his current consumption for future uncertain or untoward incidents or future consumption. Islam not only inspires (encourages) one to invest but also to trade and to bear a moderate risk

## 2: OBJECTIVES OF THE STUDY:

1. To understand or examine the comparative performance of *Shariah*-compliant stocks with non-*Shariah* compliant stocks.
2. To evaluate the yield of *Shariah* compliant stocks on various criteria
3. To critically analyze and assess Global *Shariah* screening norms.

## 3. IMPORTANCE OF THE STUDY

*Shariah* is all about Islamic laws, which a Muslim need to follow in his/her different walks of life, be it social, economic or financial. There are many misconceptions among the community that a Muslim cannot invest in the stock market. This study attempts to clear such misconceptions, thereby proving that it is a beautiful opportunity for Muslims to invest in the stock market. Moreover, as Shanmugam et al. believe, the reason for the rise of the *Shariah* market is that there are no restrictions on the investment from any community.<sup>1</sup> First, it is interesting to know that we have Tata Ethical Fund in India, which is constructed keeping *Shariah* principles in mind. In Tata Ethical Fund, the majority of the investors are people belonging to the Jain community. Islam wants that the money should not be in the hands of only a few.

## 2. REVIEW OF LITERATURE

**Sadegi (2008)** investigated the impact of the introduction of Bursa Malaysia Islamic index on the financial performance and liquidity of the screening securities involved in the Islamic index in Malaysia. The study employed event study methodology to estimate mean cumulative returns of the *Shariah* compliant stocks in the days surrounding the event and also investigate the changes in liquidity using trade volume and bid ask spread surrounding the event days as liquidity proxies. The study found that the introduction of the *Shariah* index has positive and strong impact on the financial performance of the *Shariah* compliant stocks.

**Hakim and Rashidian (2004)** analysis the risk and return of the Dow Jones Islamic World Index Dow Jones World index and Dow Jones Sustainability (DJS) World index by using weekly closing value of the indices and LIBOR a proxy of the risk-free rate during period January 5, 2000 to August 30, 2004. By employing CAPM, the results of the study reveals that the most popular index is market competitive but has underperformed in relation to another morally restricted but non-Islamic index. The study concludes that investors in the Muslim index are not suffering a discernible cost for complying with the *Shariah* restriction.

<sup>1</sup> Bala Shanmugam and Zaha Rina Zahari (2009), A primer on Islamic finance, Research Foundation of CFA Institute, 2009.

**Shusak A. (2012)** In the study researcher had taken the following objectives 1) To evaluate the effectiveness of the Shariah financial market 2) To review the characteristics of Shariah financial instruments 3) To survey the instruments which are available in the Shariah financial market 4) To investigate the performance of Sukuk 5) To evaluate the overall performance of adhering Islamic funds in the financial market 6) To examine the movement of derivative finance in Shariah financial markets.

**Ashraf Md. Hashim, Famdh Habib, Ziyaat Isaacs, Mohamed Anwar Gadhaum (2013)** This paper aims to highlight and critique the process adopted for the Shariah screening and cleansing procedure. The article discusses the descriptive approach of ISRA – Bloomberg about screening stocks to cleanse the income. They conclude that the procedure of ISRA – Bloomberg is exclusive in terms of its criterion for screening stocks, the cleaning process, and coverage of the universe of stocks. It enables the investors by presenting an innovative color-coding scheme to highlight the Shariah compliance of stocks.

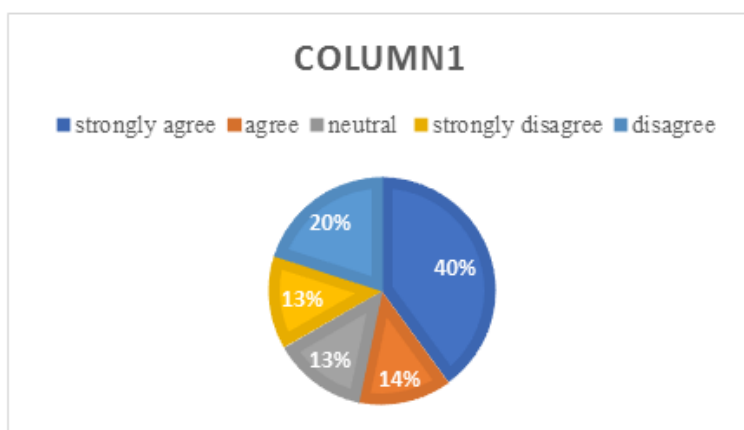
**3: METHODOLOGY OF THE STUDY**

The study is based on both primary and Secondary Sources of data. It includes questionnaires method of data collection and available published literatures such as books, journals, newspapers and relevant government websites.

**4: DATA ANALYSIS AND INTERPRETATION:**

Q No. 1: Investment as per shariah compliant index gives more return than non shariah compliant.

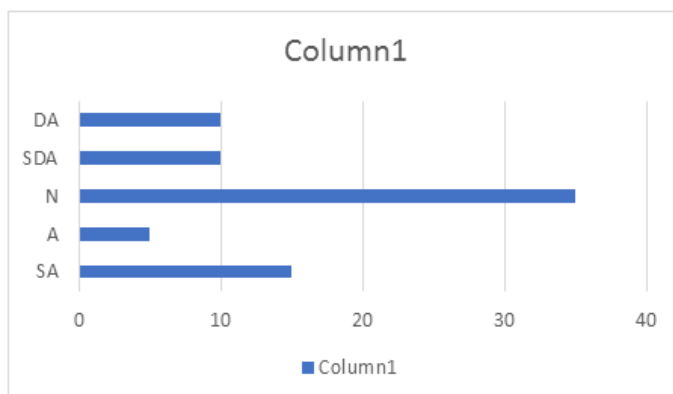
SA	A	N	SDA	DA	TOTAL
30	10	10	10	15	75



**Interpretation:** It can be interpreted from the above question no 1 that most of the respondent agreed on that shariah compliant investment gives more return than non shariah compliant investment it may be because they invest wholly in shariah compliant index and not in conventional investment.

Q No. 2: Shariah compliant stocks perform better than non shariah compliant stocks.

SA	A	N	SDA	DA	TOTAL
15	5	35	10	10	75

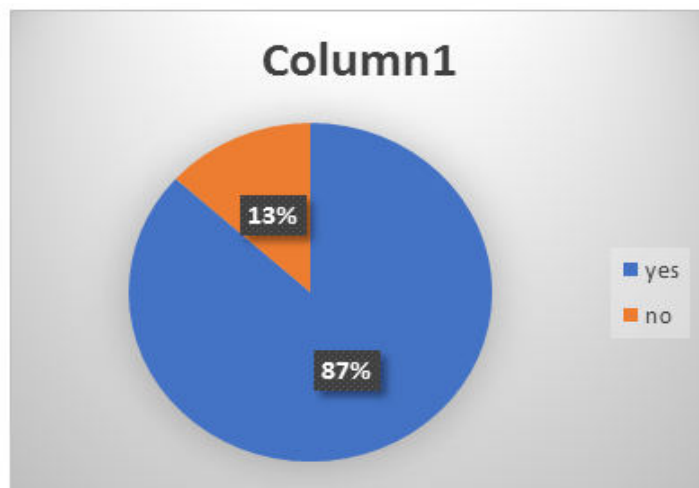


**Interpretation:** performance of any stocks is totally depending upon various factors such as bonus on shares, dividend on shares, market value of shares, capital appreciation etc. there are major of respondent are not sure

about performance of shariah compliant stock indicates that they may not invest in shares or not fully aware about the capital market whereas the ratio of strongly agree is more than disagree and strongly disagree.

Q3: dividend receives on stocks are restricted in shariah.

	No of respondent
Yes	65
No	10
<b>Total</b>	<b>75</b>



**Interpretation:** most of the respondent agreed that dividend on investment in shares are not permissible as per shariah rules.

**5: CONCLUSION:**

This study evaluates the performance and prospects of the Indian stock market with a particular reference to *Shariah*-compliant stocks. Similar research can be undertaken for other nations. The present study has covered the *Shariah*-compliant stocks; other areas can also be considered, i.e., Islamic banking. Research can also be conducted with respect to *Takaful*, which is Islamic insurance based on cooperation. It will open new avenues. This model of *Shariah*-based insurance has been adopted in around 75 countries, for example, in the Middle East, which will open new doors for the countries from a considerable number of *Shariah*-based insurance companies, which need to be explored. A comparative study of traditional insurance with Islamic insurance (*Takaful*) can also be undertaken.

**6: BIBLIOGRAPHY:**

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**A STUDY ON AI IN EDUCATION, PERSONALISED LEARNING AND INTELLIGENT TUTOR SYSTEM****Mrs. Diksha Vaje – Parab****ABSTRACT**

*The integration of artificial intelligence (AI) in education has created transformative prospects to tailor learning experiences and improve educational outcomes. This research paper examines the most recent advances and problems in the development and implementation of personalized learning and intelligent tutoring systems (ITS) powered by AI technology. The study examines the theoretical foundations, design principles, and practical applications of AI-powered personalized learning platforms and ITS. Furthermore, it investigates the pedagogical techniques, adaptive algorithms, and data-driven strategies used to tailor educational content, pacing, and evaluations to individual student needs. Furthermore, the study explores the role of AI in enhancing learner engagement, motivation, and information retention, as well as ethical and privacy problems associated with its application in educational contexts.*

*Keywords: Artificial intelligence, education, personalized learning, adaptive learning, pedagogy.*

**INTRODUCTION**

Artificial intelligence (AI) has transformed many sectors, including education. Traditional one-size-fits-all approaches to teaching and learning are being replaced by personalized learning experiences that are tailored to each student's specific requirements and capabilities. This introduction lays the groundwork for further investigation into AI's transformative potential in education, with a particular emphasis on individualized learning and intelligent tutoring systems (ITS). It defines the research paper's aims, provides a summary of the subjects discussed, and highlights the importance of AI integration in influencing the future of education. Furthermore, it emphasizes the importance of AI in meeting students' different learning requirements, improving educational outcomes, and cultivating a culture of lifelong learning. Overall, this introduction serves as a basis for the following sections of the paper, providing a complete review of the role of AI in transforming education through individualized learning and intelligent tutoring systems.

**REVIEW OF LITERATURE:****1. Theoretical Foundation of AI for education:**

This section examines the theoretical frameworks and models that support the integration of AI in education, including cognitive science, learning analytics, and adaptive learning theories. It investigates how artificial intelligence technology can be used to personalize education, promote self-regulated learning, and improve student learning outcomes.

**2. Technological Advances in AI-Powered Educational Tools:**

This section discusses the most recent advances in AI technologies, such as machine learning, natural language processing, and data mining, as well as its applications in personalized learning and information technology. It evaluates existing AI-enabled educational tools and platforms, such as intelligent tutoring systems, tailored learning environments, and virtual learning assistants, emphasizing their features, functions, and efficacy in assisting teaching and learning processes.

**3. Pedagogical implications and practical applications of artificial intelligence in education:**

This section discusses how AI integration in education affects teaching tactics, curriculum design, and assessment practices. It investigates how AI technology might support individualized instruction, adaptive learning paths, and real-time feedback systems, thereby improving the quality and efficacy of educational experiences for both students and teachers.

**4. Emerging trends, challenges, and future directions:**

This section highlights new developments and obstacles in the fields of AI-enabled personalized learning and information technology, including issues with equality, privacy, and ethics. In addition to outlining future research directions, it discusses possible approaches and suggestions for dealing with these difficulties. These include creating AI-driven learning analytics tools, creating intelligent tutoring programs for a range of learner populations, and investigating AI-supported collaborative learning environments.

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**SCOPE OF STUDY:****1. *Philosophical Underpinnings:***

Examination of the assumptions from cognitive science that underpin intelligent tutoring programs and individualized learning. Analysing how adaptive learning theories and learning analytics are influencing AI-driven teaching strategies. Examination of the pedagogical frameworks that encourage the use of AI in the classroom

**2. *Technological Progress:***

An overview of the artificial intelligence (AI) technologies used in ITS and personalized learning, such as data mining, machine learning, and natural language processing. An analysis of the features, functions, and efficacy of AI-enabled educational technologies and platforms in improving student outcomes. Case studies and illustrations demonstrating creative uses of AI in education

**3. *Educational Consequences:***

AI's effects on curriculum development, assessment procedures, and instructional methodologies. AI technologies enable the customization of learning paths, the distribution of personalized content, and real-time feedback mechanisms. An examination of the roles that teachers and students play in AI-powered, customized learning settings

**4. *Useful Applications:***

Examining effective uses of ITS and AI-driven tailored learning in educational environments. An analysis of how well AI-enabled teaching resources can improve learning outcomes, motivation, and student involvement. Determining the most effective methods and techniques for incorporating AI into current teaching methods

**5. *Obstacles & Things to Think About:***

The identification of implementation obstacles, encompassing ethical considerations, equality issues, and privacy concerns. Analyzing tactics and methods to deal with issues and provide fair access to educational resources powered by AI. Examining the effects on professional development, infrastructural development, and policy-making in educational institutions

With a focus on intelligent tutoring systems and personalized learning, this area of study offers an extensive framework for analyzing the incorporation of artificial intelligence in education. It provides insightful information for conference attendees who are interested in furthering the subject of artificial intelligence in education. It covers theoretical underpinnings, technological breakthroughs, pedagogical implications, practical applications, problems, concerns, future directions, and conclusions.

**SIGNIFICANCE OF THE STUDY :**

The potential of AI in education to change teaching and learning methods, address a variety of learning needs, support educators, encourage lifelong learning, advance educational research and innovation, and satisfy the needs of the future workforce makes the field of study on AI in education—especially personalized learning and ITS—significant overall. Stakeholders may leverage AI technology to create inclusive, flexible, and productive learning environments that equip students to succeed in the digital age by being aware of the implications of AI in education.

**OBJECTIVE OF STUDY:**

1. Compare AI-driven tailored learning strategies to conventional teaching techniques and assess which one improves student learning outcomes more.
2. Examine how personalized learning and ITS influence teaching and learning dynamics, student-teacher interactions, and learning autonomy.
3. Investigate the technological developments in AI-driven personalized learning and ITS, such as machine learning algorithms, natural language processing, and data analysis.
3. Identify the elements that influence student and educator acceptance and uptake of AI-powered educational aids.
4. Examine emerging trends and future perspectives for AI in education, such as creative uses, research gaps, and potential for collaboration and innovation.

**RESEARCH METHODOLOGY:**

The research technique for the study of AI in education, namely personalized learning and intelligent tutoring systems (ITS), entails a systematic approach to exploring, analyzing, and comprehending various elements of

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the integration of AI technology in educational contexts. The research technique for this study includes the following major components:

**1. Design of Research:**

Depending on the study's goals and research questions, a qualitative, quantitative, or mixed-methods research design may be used. Interviews, focus groups, and case studies are examples of qualitative research techniques that can be used to investigate how educators, students, and stakeholders see AI-driven personalized learning and ITS.

Artificial intelligence (AI)-enabled educational systems can be evaluated for efficacy, usability, and impact on student learning outcomes and experiences using quantitative research approaches like surveys, trials, and data analytics.

**2. Data Gathering Techniques:**

Interviews, questionnaires, observations, document analysis, and usage statistics from AI-enabled learning platforms and applications are a few examples of data gathering techniques. To obtain qualitative insights into the experiences, opinions, and attitudes of educators, students, administrators, and other stakeholders on AI in education, focus groups and interviews can be held with these groups of people. Quantitative data on factors like learning results, motivation, student engagement, and satisfaction using AI-driven personalized learning and ITS can be gathered through surveys. An understanding of how AI technologies are used in educational contexts and how they affect teaching and learning processes can be gained through observations of classroom interactions and usage data from AI-enabled educational products.

**3. Data Analysis:**

Qualitative data analysis techniques such as thematic analysis, content analysis, and narrative analysis can be used to detect patterns, themes, and trends in qualitative data gathered through interviews, focus groups, and document review. Quantitative data analysis approaches, such as descriptive statistics, inferential statistics, and data mining, can be used to find patterns, correlations, and interactions between variables of interest.

**4. Validity and Reliability.**

To improve the validity and dependability of their findings, researchers should use procedures such as data source and method triangulation, member verification, and peer debriefing.

Validity relates to the accuracy and veracity of research findings, whereas reliability refers to the consistency and stability of study outcomes throughout time and across contexts.

**5. Reporting and Interpretation:**

Scholars ought to construe their discoveries within the extant corpus, theoretical structures, and factual data concerning artificial intelligence in academia.

To further knowledge and comprehension in the area of artificial intelligence in education, study findings should be presented simply and truthfully via scholarly publications, research papers, and conference presentations, among other suitable formats.

**Hypothesis:**

The goal of research on artificial intelligence (AI) in education, specifically as it relates to intelligent tutoring systems (ITS) and personalized learning, may be to determine how well these technologies work or what effects they have on students' educational experiences. The following are speculative claims that might act as study hypotheses:

**Hypothesis 1:**

The null hypothesis (H<sub>0</sub>) states that there is no discernible difference in the learning results of students using AI-driven personalized learning and ITS compared to traditional teaching approaches.

Alternative Hypothesis (H<sub>1</sub>): When compared to conventional teaching techniques, AI-driven personalized learning and ITS greatly enhance student learning outcomes.

**Hypothesis 2:**

The null hypothesis (H<sub>0</sub>) states that there is no discernible difference in the levels of student engagement between AI-driven personalized learning and ITS and traditional teaching approaches.

Alternative Hypothesis (H<sub>1</sub>): When compared to conventional teaching techniques, AI-driven personalized learning and ITS greatly boost student engagement levels.

**Hypothesis 3:**

Null Hypothesis (H<sub>0</sub>): AI-driven personalized learning and ITS do not significantly differ from traditional teaching approaches in terms of how satisfied students are with their educational experiences.

Hypothesis Alternative (H<sub>1</sub>): When compared to traditional teaching approaches, students express greater satisfaction with their learning experiences when using AI-driven personalized learning and ITS.

**Hypothesis 4:**

The null hypothesis (H<sub>0</sub>) states that there is no discernible difference in the rates of student retention between AI-driven personalized learning and ITS and conventional teaching techniques.

The Alternative Hypothesis (H<sub>1</sub>) states that when ITS and AI-driven personalized learning are used in a course, student retention rates are noticeably greater than when traditional teaching approaches are used.

**FINDINGS:**

**1. Better Learning Outcomes:** There is a lot of promise for better learning outcomes from the integration of AI in education, especially through intelligent tutoring systems and individualized learning. Pupils receive individualized training and feedback, which improves their understanding and retention of the subject matter.

**2. Customized Learning Paths:** To generate customized learning paths, AI algorithms examine the learning preferences, styles, and performance information of each learner. With this personalization, students can target their unique requirements and areas of weakness and advance at their own speed.

**3. Enhanced Engagement:** Intelligent tutor systems frequently use interactive and gamified aspects to keep students interested and motivated. These elements encourage active learning and make students more willing to participate in educational activities.

**4. Effective Resource Allocation:** Artificial intelligence algorithms make the best use of resources by determining which regions of the classroom need more assistance from teachers and then allocating those resources appropriately. By doing this, it is made possible for educators and students to concentrate their efforts where they are most needed.

**5. Data-Driven Insights:** AI analytics help educators understand student development and performance trends. This data-driven method helps instructors make informed decisions about teaching tactics and interventions.

**CONCLUSION**

The results of this study highlight how AI has the potential to revolutionize education, especially in the areas of intelligent tutoring and tailored learning. Teachers can design customized learning experiences that meet the varied needs of their pupils by utilizing AI algorithms. This enhances learning outcomes while also creating a more inclusive and engaging learning environment.

Educators can also take a proactive approach to instruction by using AI-driven insights to detect and close learning gaps before they become obstacles to students' progress. Even though AI has a lot of potential for education, ethical, privacy, and equity issues must be carefully considered before implementing AI.

The study's overall findings support the ongoing investigation and application of AI technologies in education, with an emphasis on leveraging these tools' potential to improve learning outcomes, advance equity, and equip students for success in a world that is becoming more complicated and dynamic by the day.

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**THE ROLE OF ARTIFICIAL INTELLIGENCE IN ONLINE LEARNING AND DISTANCE EDUCATION**

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**ABSTRACT**

*In recent years, the integration of artificial intelligence (AI) into online learning and distance education has revolutionized the way students engage with educational content. This abstract examines the multifaceted role of AI in facilitating personalized learning experiences, enhancing instructional design, providing real-time feedback, and fostering collaboration among learners in virtual environments. Through the analysis of current trends and research findings, this abstract highlights the transformative impact of AI on improving access to education, optimizing learning outcomes, and shaping the future of global education systems.*

*Keyword: Artificial intelligence, online learning, distance education*

**INTRODUCTION**

The field of education has witnessed a significant transformation with the rapid development of technology, particularly artificial intelligence (AI). Online and distance education, which were once seen as alternative modes of learning, have now become mainstream choices for a diverse range of learners. As AI continues to advance, its role in enhancing the online and distance education process has gained considerable attention.

Online and distance education have gained popularity due to their ability to provide flexible learning environments, allowing individuals to pursue education at their convenience. However, ensuring effective instruction and personalized learning experiences can be challenging in these non-traditional settings. This is where AI comes into play, offering tools and technologies designed to address these challenges and enhance the educational journey.

AI-driven adaptive learning systems have emerged as one of the key components of online and distance education. These systems employ machine learning algorithms to personalize the learning experience based on individual student needs, preferences, and progress. By analyzing vast sets of data, adaptive learning systems can identify knowledge gaps, offer targeted resources, and track student progress in real-time. This personalized approach helps students engage more effectively with the course material and ensures their learning experience is optimized to their specific needs.

By analyzing student input, tracking progress, and adapting instruction accordingly, ITS can guide learners through challenging concepts and areas of weakness. This personalized support fosters a deeper understanding of the subject matter and enhances student achievement.

Additionally, AI-driven recommender systems aid learners in navigating the vast array of online and distance education resources by suggesting relevant and tailored content. These systems analyze learner preferences, past behavior, and learning patterns to provide personalized recommendations, enhancing motivation, and knowledge acquisition. By reducing information overload and tailoring options according to learner profiles, recommender systems streamline the process of finding relevant and high-quality learning materials.

Automated assessment and feedback tools, powered by AI, have the potential to revolutionize the evaluation process in online and distance education. These tools can automatically grade assignments, quizzes, and exams, providing timely and constructive feedback to learners. By eliminating manual assessment, instructors can allocate more time to interactive teaching and individual support, while students receive immediate feedback to guide their learning process.

**REVIEW OF LITERATURE:-**

**Adaptive Learning Systems:** It have emerged as a key component in personalized learning within online and distance education. These systems employ AI algorithms to analyze vast amounts of learner data, enabling personalized instruction and tailored content recommendations. Researchers have found that adaptive learning systems significantly enhance learner engagement and improve learning outcomes (Al-Samarraie et al., 2018)<sup>1</sup>. The adaptive nature of these systems allows learners to progress at their own pace, filling knowledge gaps and providing personalized resources, ultimately facilitating a more efficient and effective learning experience.

**Natural Language Processing (NLP):** Natural language processing (NLP) technologies play a significant role in facilitating effective communication and interaction in online and distance education. NLP-powered tools,

such as automated speech recognition and language translation, enhance accessibility and inclusivity for learners from diverse linguistic backgrounds (Banerjee et al., 2019)<sup>2</sup>. Additionally, catboats utilizing NLP technologies provide real-time language support and feedback, fostering interactive discussions and personalized assistance in online learning environments (Xiao et al., 2020)<sup>3</sup>. The integration of NLP in online and distance education enables learners to overcome language barriers and engage more effectively with course content and instructors.

**Recommender Systems:** AI-driven recommender systems offer personalized content recommendations to learners, reducing information overload and facilitating the discovery of relevant learning resources. Research has indicated that recommender systems improve learner satisfaction, engagement, and motivation in online and distance education (Somyürek et al., 2019)<sup>4</sup>. By analyzing learner preferences, behavior, and learning patterns, recommender systems provide tailored suggestions, enabling learners to explore diverse and high-quality educational materials aligned with their interests and goals.

**Automated Assessment and Feedback Tools:** AI-powered automated assessment and feedback tools streamline the evaluation process in online and distance education. These tools can automatically grade assignments, quizzes, and exams, providing timely feedback to learners. Studies have shown that automated assessment tools increase instructor productivity and student satisfaction (Dawson et al., 2019)<sup>5</sup>. The immediate feedback provided by these tools aids learners in identifying areas of improvement, enhancing their learning experience and promoting self-directed learning.

#### **OBJECTIVES:**

- To Analysis AI implementation for online and distance education.
- To study how AI technologies can help students learn better and be more engaged in online and distance education.
- Examine AI enhances the efficiency of online learning platform
- Evaluate AI's impact on learning outcomes and student engagement in online education

#### **RESEARCH METHODOLOGY**

**Survey Method:** Questionnaire (closed ended)

**Data Collection:** 31 responses were gathered from distant learning students, including MBA and IDOL

**Primary Data:** Data is collected by survey done through Google form.

**Secondary Data:** Secondary data is collected in the form of literature review sourced from Google scholar. Research paper should be reviewed to understand the background of this topic and support the argument.

**Techniques of Data Analysis:** Quantitative research technique is used for data analysis.

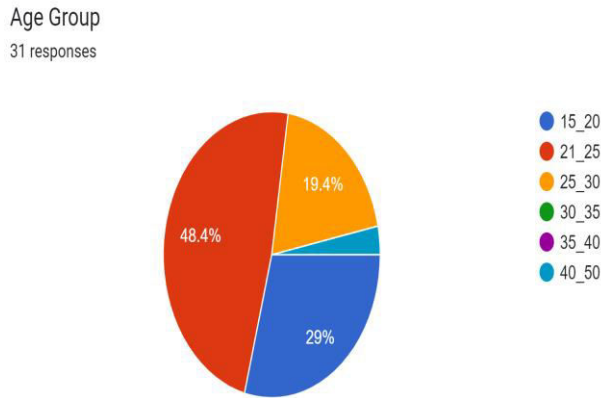
#### **LIMITATION:**

1. **Access and Equity:** AI in online learning can help address access issues by providing personalized learning experiences tailored to individual needs, but it may also exacerbate existing inequalities if not implemented equitably.
2. **Quality of Content:** AI algorithms can analyze student performance data to improve the quality and relevance of course materials, ensuring that they meet the needs of diverse learners.
3. **Data Privacy and Security:** Implementing AI in online learning raises concerns about the privacy and security of student data, requiring robust measures to safeguard sensitive information and ensure compliance with regulations.
4. **Ethical Considerations:** There are ethical implications surrounding the use of AI in education, including issues of bias in algorithms, transparency, and accountability in decision-making processes.

**Significance:** The role of AI in online learning and distance education is significant because it enables personalized learning experiences, offers real-time feedback, automates administrative tasks, and facilitates adaptive learning pathways. AI enhances accessibility, scalability, and effectiveness, making education more inclusive and dynamic for learners worldwide.

**Scope:** This study paper's exclusive audience is distant learning participants, such as MBA, B.ED. Furthermore, AI enables the analysis of large datasets generated from online learning platforms, providing insights into student performance patterns and helping educators refine teaching strategies. Overall, AI's integration into online learning and distance education expands access to quality education, enhances engagement, and improves the effectiveness of teaching and learning processes.

**Figure 1.1**

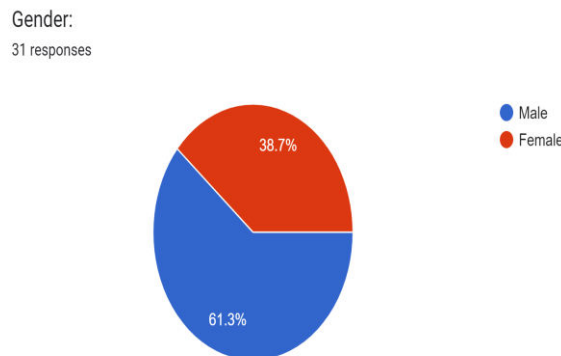


**Table 1.1**

Age	Frequency	Percentage%
15-20	9	29%
21-25	15	48%
25-30	6	19%
35-40	NIL	0
40-50	1	4%

It indicate that the majority of respondent fall within the age 21-25 range, followed by the 20 age group. There are no respondent in the age of 30-40age range, and a small percentage are between 40-50.

**Figure 1.2**



**Table 1.2**

Gender	Frequency	Percentage%
Male	19	61.3%
Female	12	38.7%

It indicates that the majority of respondents are male, comprising 61.3% of the total, while females account for 38.7%.

Figure 1.3

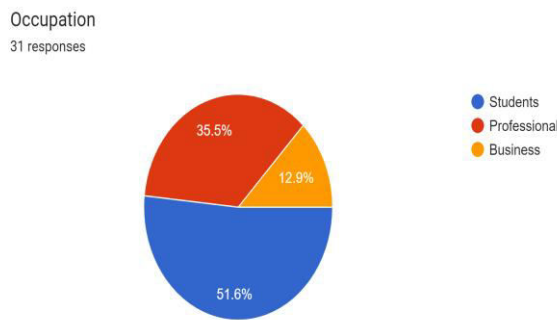


Table 1.3

Occupation	Frequency	Percentage%
Students	16	51.6
Professional	11	35.5%
Business	4	12.9%

The data indicates the occupational status of respondents:

A majority, comprising 51.6% of the respondents, are students. 35.5% of respondents are professionals. 12.9% of respondents are involved in business. This suggests that a significant portion of the respondents are students, followed by professionals, with a smaller proportion involved in business activities.

Figure 1.4

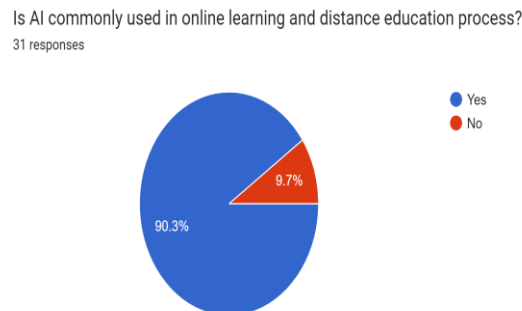


Table 1.4

Frequency of using AI	Frequency	Percentage%
YES	28	90.3%
NO	3	9.7

The high adoption rate of AI (90.3%) in online learning or distance education likely reflects the technology's ability to enhance teaching methods, personalize learning experiences, and provide efficient feedback, highlighting its significant role in transforming educational practices.

Figure 1.5

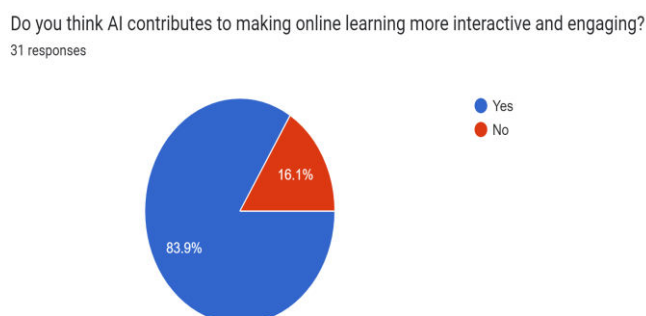




Table 1.5

Respondent	Frequency	Percentage%
YES	26	83.9%
NO	5	16.1%

Based on the provided data, it seems that the majority of respondents (84%) believe that AI is commonly used and contributes to making online learning more interactive and engaging. Only a small minority (16%) indicated otherwise.

Figure 1.6

Do you believe AI enhances the efficiency of online learning platform?  
31 responses

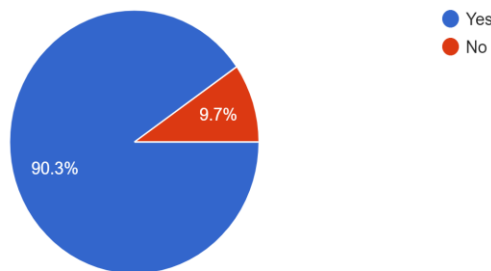


Table 1.6

Respondent	Frequency	Percentage%
YES	28	90.3%
NO	3	9.7%

The data provided suggests that the majority of respondents (90.3%) believe that AI enhances the efficiency of online learning platforms, while a small percentage (9.7%) indicated otherwise.

Figure 1.7

Have you experienced personalized learning recommendations powered by AI in online courses?  
31 responses

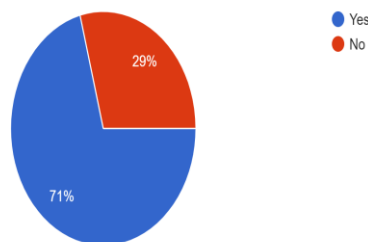


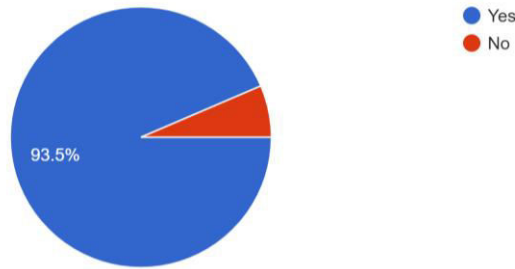
Table 1.7

Respondent	Frequency	Percentage%
YES	22	71
NO	9	29

Based on the data provided, 71% of respondents answered "YES," indicating that they believe AI enhances the efficiency of online learning platforms. On the other hand, 29% of respondents answered "NO," indicating that they do not believe AI enhances the efficiency of online learning platforms.

**Figure 1.8**

Do you believe AI plays a significant role in reducing barriers to access in online Education?  
31 responses



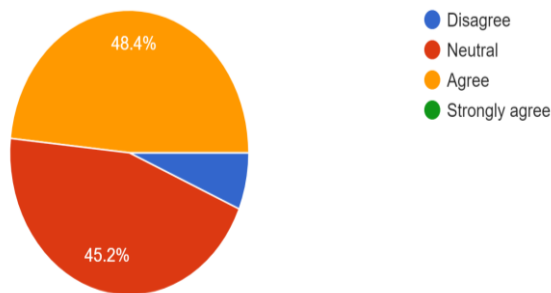
**Table 1.8**

Respondent	Frequency	Percentage%
YES	29	93.5
NO	2	5.5

AI plays a significant role in reducing barriers to access in online education, especially considering the high percentage of agreement (93.5%) in the survey mentioned. AI technologies enable personalized learning experiences, adaptive assessments, and targeted interventions, which can cater to diverse learners' needs.

**Figure 1.9**

Is AI technology effective in providing instant feedback to students in distance education?  
31 responses



**Table 1.9**

Respondent	Frequency	Percentage%
Disagree	2	6.5
Neutral	14	45.2
Agree	15	48.4
Strongly Agree	Nil	0

7% of respondents Disagree that AI technology is effective in providing instant feedback.45% of respondents are Neutral on the effectiveness of AI technology in providing instant feedback.48% of respondents Agree that AI technology is effective in providing instant feedback. No respondents selected Strongly Agree.

**Figure 1.10**

Have you encountered AI- driven virtual tutors or assistants in your online learning experience?  
31 responses

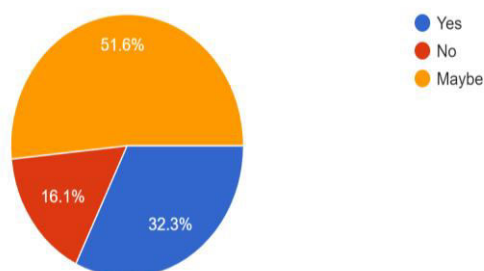


Table 1.10

Respondent	Frequency	Percentage%
YES	10	32.3
NO	5	16.1
May be	16	51.8

These AI-driven tools are becoming increasingly common in various online learning platforms, offering personalized assistance, feedback, and guidance to learners. It's interesting to note that a majority of respondents (51.8%) indicated that they may have encountered AI-driven virtual tutors or assistants in their online learning experience, while 32.3% said "YES" and 16.1% said "NO." This suggests that AI-driven virtual tutors or assistants are indeed being utilized, though not universally across all online learning experiences.

Figure 1.11

You are aware of any technology used abroad that you wish incorporate in our education system

31 responses

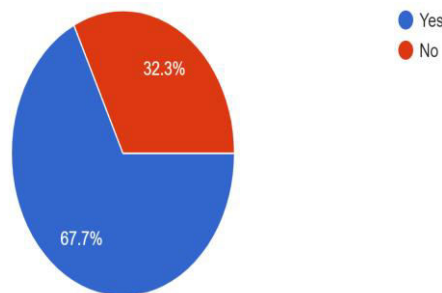


Table 1.11

Respondent	Frequency	Percentage%
YES	10	32.3
NO	5	16
May be	16	52

Above data indicates that a majority of respondents (67.7%) are aware of technology used abroad That they wish to incorporate into their education system, while 32.3% are not aware of such technology.

Figure 1.12

Will you prefer AI over human tutors

31 responses

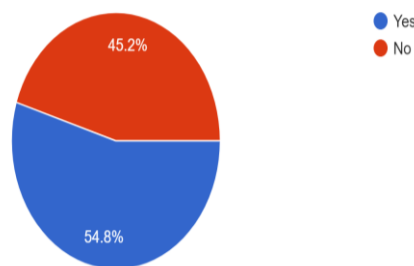


Table 1.12

Respondent	Frequency	Percentage%
YES	17	54.8
NO	14	45.2

Data indicates that a slight majority of respondents (54.8%) prefer AI over human tutors, while (45.2%) do not prefer AI over human tutors.

**SUGGESTION**

AI (artificial intelligence) can provide personalized learning, adaptive assessments, content curation, virtual tutoring, data analytics, automated grading, language translation, simulation and modeling, predictive analytics, and continuous improvement. They can tailor learning experiences, provide real-time feedback, curate

educational content, offer immediate assistance, analyze large datasets, automate grading processes, break language barriers, facilitate interactive simulations, predict future performance, and continuously refine online learning environments and course materials for optimal effectiveness.

## CONCLUSION

The reviewed literature highlights the transformational role of AI in online and distance education. Adaptive learning systems, intelligent tutoring systems, natural language processing, recommender systems, and automated assessment tools have demonstrated their ability to personalize instruction, enhance communication, and improve learning outcomes. The integration of AI in online and distance education holds great potential to provide learners with flexible, engaging, and highly effective educational experiences regardless of geographical or temporal barriers. Further research is needed to explore the long-term impacts of AI in this context and to design optimal AI-powered systems that cater to diverse learner needs.

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- (h) <https://www.mdpi.com>
- (i) ResearchGate<https://www.researchgate.net>

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**A STUDY OF TRANSFORMATIVE IMPACT OF ARTIFICIAL INTELLIGENCE IN BANKING OPERATIONS WITH REFERENCE TO MUMBAI CITY**

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**Lydia Vikas Kalgutkar<sup>1</sup>, Sumaiya Khan<sup>2</sup> and Obaidullah Shaikh<sup>3</sup>**<sup>1</sup>Visiting Faculty and <sup>2,3</sup>Contractual Faculty, Ismail Yusuf College of Arts, Science and Commerce, Jogeshwari -East, Mumbai- 400 060**I) ABSTRACT**

*This research explores the transformative function of artificial intelligence (AI) in the banking sector. It investigates how AI technologies such as Data-driven learning and linguistic processing are transforming various banking operations, including customer service, fraud detection, risk management, and personalized financial advice. The study aims to provide insights into the benefits and challenges of implementing Artificial Intelligence in the Finance industry and to identify strategies for successful integration. By analyzing emerging patterns and prospective opportunities, this research contributes to a deeper understanding of the implications of AI on the future of banking. By synthesizing current literature and empirical evidence, this paper provides insights into the opportunities and considerations for banks integrating AI into their business strategies.*

*I) Keywords: Language Processing, Fraud Detection, Implication of Artificial Intelligence , empirical evidence.*

**II) INTRODUCTION**

Artificial intelligence (AI) has been revolutionizing various industries, and the banking sector is no exception. The revolutionary influence of Artificial Intelligence on banking operations, customer experiences, and overall business strategies is substantial. From personalized customer service to fraud detection and risk management, AI technologies are reshaping the way banks operate and interact with clients. This research aims to delve into the specific ways AI is transforming the banking sector and explore the opportunities and challenges that come with this technological advancement. By examining the current landscape and future prospects, this study seeks to provide valuable insights into the paradigm-shifting effect of AI on the banking industry. This monumental effect of Artificial Intelligence is leading to more personalized customer experiences, reduced operational costs, and increased competitiveness for banks in the digital age.

Artificial intelligence (AI) is being applied in banking functions in various practical ways, such as:

- 1. Customer Service:** AI-powered chatbots provide instant customer support and assistance 24/7, enhancing customer service efficiency.
- 2. Fraud Monitoring:** Computational intelligence techniques analyze transaction data in real-time to detect unusual patterns and prevent fraudulent activities, improving security.
- 3. Risk Management:** AI models assess credit risk by analyzing customer data, helping banks make more accurate lending decisions and manage risks effectively.
- 4. Personalized Recommendations:** AI analyzes customer behavior and preferences to offer personalized product recommendations, enhancing cross-selling and customer satisfaction.
- 5. Process Automation:** AI automates regular duties like data entry and document processing, increasing performance enhancement and reducing manual errors. These practical applications of AI in banking functions demonstrate how technology is transforming the industry and improving services for both banks and customers.

Major Areas of Artificial Intelligence can be used in banking areas are:

- 1) Personalized Financial Services
- 2) Smart Wallets
- 3) Voice Assisted Banking
- 4) Customer support
- 5) Digitalization instead of branch lines
- 6) Reduce Costs
- 7) Mitigate Risk
- 8) Increase Revenue

**IV) LITERATURE REVIEW:**

With the tremendous use of mobile in India, mobile services became a prospective alternative for the banking sector with the tremendous use of mobile in India, mobile services became a prospective alternative for the banking sector with the tremendous use of mobile in India, mobile services became a prospective alternative for the banking sector

Artificial Intelligence (AI) is revolutionizing the banking sector, offering transformative opportunities and challenges. This literature review aims to explore the evolving landscape of AI in banking, highlighting its impact on various aspects of operations, customer experiences, risk management, and strategic decision-making. (Saxena) More specifically, the AI application in innovating financial processes such as mobile banking, internet banking, ATMs, and POS has accelerated the banking services with time and cost-saving and has increased the market share of bank (Patel K. V., 2018). The use of AI for risk management and fraud detection has received considerable attention in the literature. (Zhang, 2020)

**V) STATEMENT OF THE PROBLEM:**

The integration of Synthetic Intelligence into banking services has sparked significant interest and investment in recent years, promising to revolutionize traditional banking operations and customer experiences. However, amidst this enthusiasm, several critical questions remain unanswered, forming the basis of the research problem:

- 1) **Effectiveness of AI Implementation:** While AI technologies hold the potential to streamline processes and enhance customer service, the extent to which they are effectively integrated into banking operations remains unclear. Understanding the challenges and limitations of AI implementation in the monetary sphere is imperative for assessing its true impact.
- 2) **Security and Cyber Threats:** The integration of AI introduces new security challenges and vulnerabilities within banking systems, including the risk of sophisticated cyber-attacks and data breaches. Examining the effectiveness of AI-based security measures and identifying potential vulnerabilities is critical for safeguarding sensitive financial data and maintaining the integrity of banking operations.

**VI) RESEARCH OBJECTIVES:**

- 1) To study the Customer awareness for Artificial Intelligence related Banking Services.
- 2) To explore the domains and applications where Artificial Intelligence is employed within the Banking and Financial Services sector.
- 3) To examine the barriers for adopting AI operated Banking Services.
- 4) To suggest ways to enhance the usage of Intelligent Automation Banking to offer customized Product.

**VII) HYPOTHESIS:**

**H1)** There is a significant impact of demographic variable (Age and Occupation) of customers on the exploration of Cognitive Learning operated banking features.

**VIII) RESEARCH METHODOLOGY:**

The paper is based on both Secondary as well as Primary data. Secondary data was collected from different websites and also from various research papers & journals. Primary data was collected through Questionnaires. 50 respondents were randomly selected using convenience sampling in different area of Mumbai city and survey questionnaire was sent to user and non-user of banking like servicemen, businessmen and students.

Out of 50 respondents 44 answers were obtained from the corresponding participants.. It is clearly evident that the sample decided for the study represents almost each section of society. Data was also gathered from text books and internet sources on the concept of role of AI on banking industry.

**IX) SCOPE:**

Study of Smart Systems in Financial Services and Financial Services in specific private banks and private institutions is constrained to client benefits as it were.

**A) POSITIVE IMPACT OF USE OF COMPUTATIONAL INTELLIGENCE IN FINANCE:****1. Account Investigations:**

Individuals using banking services can utilize chatbots to oversee their balances, past transactions, and any other data associated with their account

**2. Reduced Costs:**

AI can help financial institutions reduce costs by automating labor-intensive tasks and minimizing manual errors. For instance, automating data entry and document processing tasks can significantly reduce operational costs associated with manual labor.

**3. Loan Applications:**

Banks can leverage Virtual Assistants to assist users in loan applications and to walk them through the application procedure.

**4. Credit Score Monitoring:**

Using credit scores to evaluate eligibility for financing often relies on outdated information, misclassification, and errors. However, these days there's so much more information available online that can give a more realistic picture of the person or business under evaluation.

**5. Fraud Prevention:**

It can also identify malicious acts such as identity theft and money laundering. AI tools and algorithms have revolutionized risk management in providing a safer and more reliable banking experience. Thus, it is clear that the impact of Artificial Intelligence in banking has improved risk management.

Some of the key benefits of AI to banks are mentioned above. AI offers several benefits to banks, helping them enhance operational efficiency, improve customer experience, and manage risks more effectively.

**B) Pitfalls For Adopting AI by Banks:**

Banks face several challenges in adopting AI, despite its potential benefits. These challenges include:

**1) Regulatory Compliance:**

The financial industry is heavily regulated, with strict requirements for data privacy, security, and transparency. Implementing AI systems requires ensuring compliance with regulations such as GDPR, PSD2, KYC (Know Your Customer), AML (Anti-Money Laundering), and others, which can be complex and time-consuming.

**2) Talent Shortage:**

There is a high demand for AI talent across industries, and the financial sector is no exception. Banks need data scientists, machine learning engineers, AI researchers, and other experts to develop, implement, and maintain AI systems. However, there is a shortage of skilled professionals in this field, making it difficult for banks to build AI capabilities in-house.

**3) Customer Trust and Acceptance:**

Adopting AI in banking may raise concerns among customers about data privacy, security, and the potential for job displacement. Banks need to communicate transparently with customers about how AI is being used, address privacy and security concerns, and demonstrate the benefits of AI in terms of improved service, efficiency, and risk management.

**4) Cybersecurity Risks:**

AI systems in banking are susceptible to cyberattacks and hacking attempts. Adversaries may exploit vulnerabilities in AI algorithms or manipulate data to deceive AI models. Banks need robust cybersecurity measures to protect against these threats, including encryption, authentication, intrusion detection, and regular security audits.

**X) SIGNIFICANCE AND IMPORTANCE OF THE INVESTIGATION:**

The significance of AI to banks lies in its ability to revolutionize traditional banking practices, enhance operational efficiency, improve customer experiences, and enable better decision-making. AI holds immense significance for banks by driving operational efficiency, enhancing customer experience, mitigating risks, ensuring compliance, unlocking insights from data, and fostering innovation. Embracing AI enables banks to adapt to the digital age, deliver value to customers, and stay ahead in a rapidly evolving financial landscape.

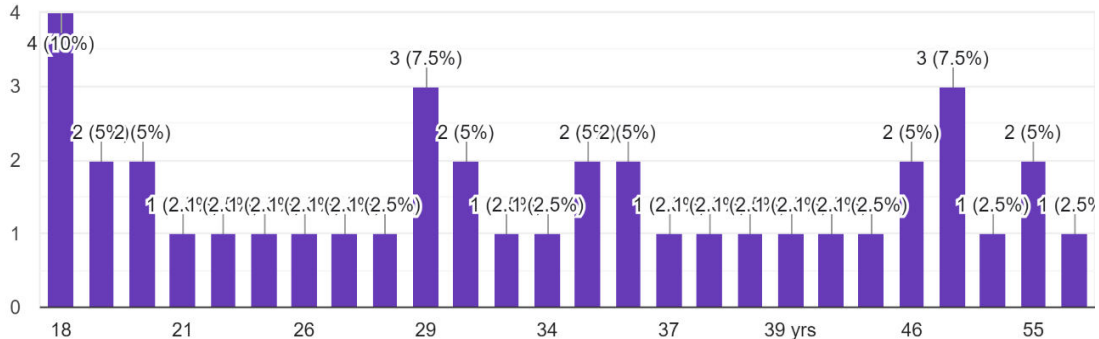
**XI) ANALYSIS AND INTERPRETATION:**

The scrutiny and interpretation of research on the role of artificial intelligence (AI) in banking unveil its transformative potential. Through comprehensive analysis, it becomes evident that AI technologies are revolutionizing various aspects of banking operations. These advancements range from enhancing customer service through chatbots and personalized recommendations to optimizing risk management and fraud detection through sophisticated algorithms. Moreover, the interpretation of research sheds light on the evolving landscape of AI-driven decision-making, enabling banks to make more informed strategic choices. Additionally, the

synthesis of research findings provides insights into the challenges and opportunities associated with the integration of AI in banking, guiding institutions towards effective implementation strategies.

AGE:

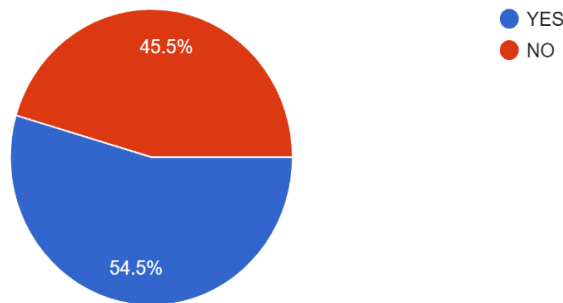
40 responses



The above chart represents the percentage of males and females using AI supported applications in their banking business in today’s world. The total respondents who responded are 44 out of 50.

2) Have you ever used AI-powered features such as chatbots or virtual assistants when interacting with your bank?

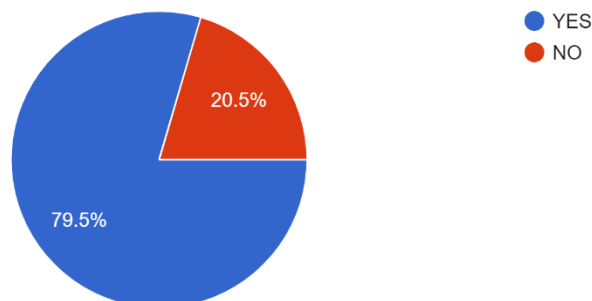
44 responses



The above Pie Chart clearly states that 54.5% of the correspondents are aware of the different AI features offered by the banks while interacting with the banks.

5) Are you concerned about the security and privacy implications of AI in banking?

44 responses



The above Pie-Chart revolves around the challenges of security and privacy while using AI features in banking transactions.

**XII) SUGGESTIONS:**

To use AI efficiently in banks, it's crucial to consider various factors such as specific use cases, data quality, regulatory compliance, talent acquisition, and infrastructure. Here are some suggestions to maximize the efficiency of AI implementation in banks:



1. **Identify Clear Objectives:** Clearly define the objectives and goals of AI implementation in banking operations. Whether it's improving customer service, fraud detection, risk management, or operational efficiency, having a clear vision will guide the selection and deployment of AI solutions.
2. **Data Quality and Accessibility:** Ensure that data used for Artificial intelligence models are characterized by exceptional quality, consistent, and accessible. Invest in data cleaning, integration, and governance processes to ensure that AI algorithms produce accurate and reliable results.
3. **Regulatory Compliance:** Understand and comply with regulatory requirements related to data privacy, security, and transparency. Work closely with compliance teams to ensure that AI systems meet regulatory standards and undergo appropriate testing and validation.
4. **Talent Acquisition and Training:** Invest in hiring skilled AI professionals, including data scientists, machine learning engineers, and AI researchers. Provide ongoing training and development opportunities to keep AI talent updated on the latest techniques, tools, and technologies.

**XIII) REFERENCES:**

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**ROLE OF AI IN CUSTOMER RETENTION****Ms. Sapana Pasi**Assistant Professor, (Visiting Faculty) Government of Maharashtra, Ismail Yusuf College, Jogeshwari (East)  
Mumbai-400060**ABSTRACT**

To write this research paper is evident of the growing concept of customer sensitization and customer awareness that would leave the firm in a big Question mark. To find out the ways to deal with the same studies are conducted and various methods and tactics are recommended by research scholars, data collected to tackle these problems with the help of marketing strategies. In today's world customer relationship management and (CRM) and management information systems (MIS) plays an important role in customer loyalty. And to maintain all the data, firms in today's world use AI mechanisms to entertain their customers in order to make them loyal.

Firms use AI technologies for customer grievance solutions and to serve the customer. Previous research papers throw light on only customer related relationships to make them repurchase, but in today's world not only grievance solution is enough even firms have to support customers by offering various incentives and build a great relationship with them. AI has been used in almost every sector to Retain customers. This research laid down specifications on what is the effective role of AI in customer retention and how firms induced their customers to be loyal in this challenging and dynamic market. This study has become the need of the hour for every businessman to know the changes needed in business operations and applied the same in business and this would be possible by knowing the dynamic changes in technological era.

*Keywords-* AI, customer relationship management, MIS, customer loyalty.

**INTRODUCTION**

Customer retention refers to minimising the loss in customer purchases as customer are so sensitive about Quality and even ready to pay marginal amount for superior goods because of this every firm must ensure better customer services. All companies want to gain more customer attention and repeat purchases. Firm uses customer loyalty programme to retain customer, which include customer relationship management (CRM) because customer retention starts with initial stage when customer puts their first steps into your door to throughout the entire lifetime of your relationship. Retain your customer being a challenging task for every firm due to growing need customer, now customer wants everything in just one blink of eye this would tends firm to well equipped with advanced technology that is AI.

Artificial intelligence (AI) refers to electronic base computer system which is capable to perform intellectual complex targets which is generally performed by humans, like reasoning, calculation, solving intellectual problems and performing. AI has broad concept and very fruitful for every firm. Because of AI application firm able to entertain their customer very easily. AI plays a very vital role in customer retention by providing the firm various applications such as artificial general intelligence, computer vision, experts systems and generative models. Earlier it was very difficult for the firm to attract customer and make them loyal customer, but AI makes it possible with wide marketing services and huge advertising efforts.

**REVIEW OF LITERATURE**

*Aishwarya Mohanty et.al.*, in their study highlighted that how firm can move towards customer loyalty and repeat purchases by focusing on customer services and maintaining cordial relationship with customer. Also elaborated how AI works in customer service management to retain customer by incorporating AI elements.

*Bhenu Artha et.al.*, (January 2022) in this research paper they try to find out how the customer wants vary with time and, how other factors affects the minds of customer. And going online can change the game, firm can gain over their competitors. For this they work on 19 articles for drafting bibliography reference.

*Suphan Nasir (January 2017)* – in his research work he elaborated that, in today's growing market firm need to adapt new technologies and strategies to maintain a relationship network as it is a key to success. Spending of customer create surviving opportunity for the firm.

**OBJECTIVE OF THE STUDY**

- To find out benefits derived from AI elements to the customer.
- To know the effectiveness of AI in customer purchases.

- To study the impact of AI in profit of the firm.
- To estimate the awareness of AI among different Age group.

**HYPOTHESIS**

**H0** Due to continuous use of AI application for Different customer services don't retain customer to be loyal customer.

**H1** continuous using of AI application makes positive impact on customer to become loyal customer.

**RESEARCH METHODOLOGY**

**Universe of the study-** for this research work customer and retailers are interviewed of Mumbai.

**Sample size of the study-** 35 people are taken as a random sampling.

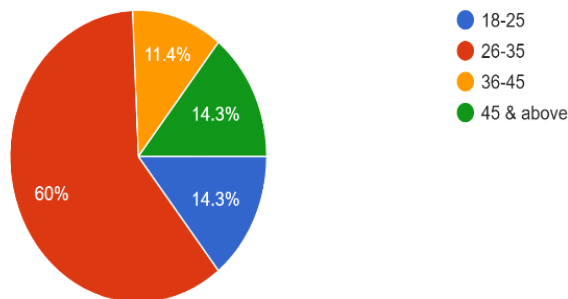
**Techniques of data collection**

Primary data is collected through structured questionnaire from retailers and customer of Mumbai suburban on random sampling. Questions is prepared with the help of google forms. Pie chart and rating scale method used for data collection.

Secondary data is collected for this research work from articles and journal publications through various websites.

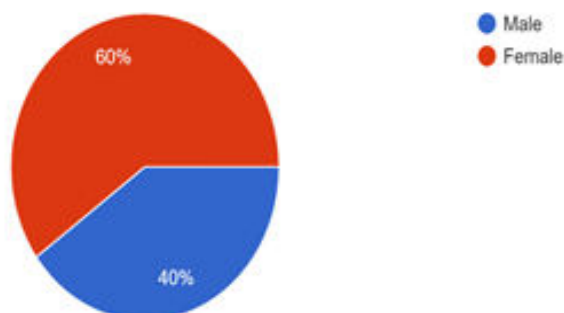
**DATA ANALYSIS**

Age  
35 responses



The below data shows that different age of customer interviewed for research work. among this 60% of respondent are belong to 26 to 35 and 14.3% of respondent belongs to both age group 18 to 25 & 45&above followed by this least respondent have age between 36 to 45.

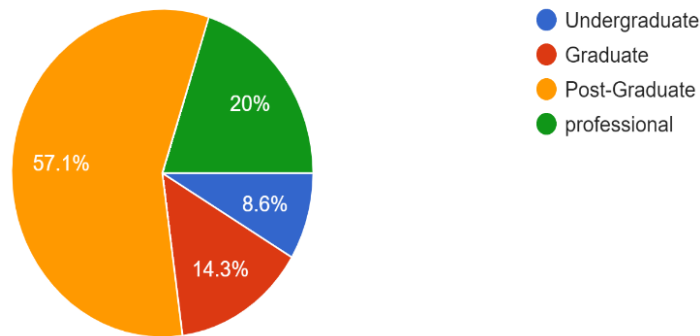
Gender  
35 responses



It seems that 60% of respondents are females and 40% are male.

Qualification

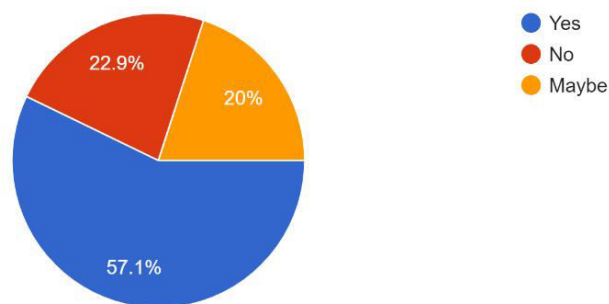
35 responses



This given data represent that most of respondent customer are post graduate only 20% are belongs to professional background and approximately 14% are graduate followed by undergraduate.

have you ever experienced AI application used by firm

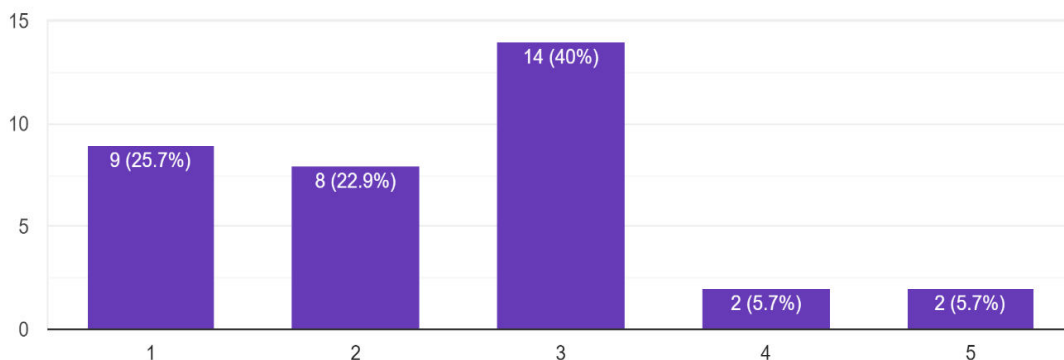
35 responses



the above data represents that majority of respondent mentioned that they have experienced AI based application while correspondence with firm and it contributes near about 57.1%, and 22% customer mentioned they not yet experienced, about 20% respondents may not be sure whether they experienced or not.

how satisfied are you with the effectiveness of AI in your customer retention

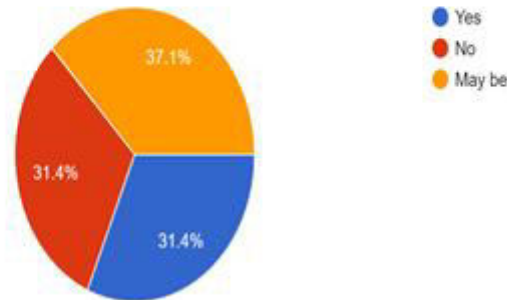
35 responses



above rating scale data shows that number of traders respondents, in this data approximately 40% of people given 3 points to their satisfaction level, and second largest contribution of people who have given 1 point to their level of satisfaction which is 25.7%. 22.9% people has chosen 2 points followed by 5.7% people given 4 points and then 5 points.

Do you think AI powered customer services is more effective than human?

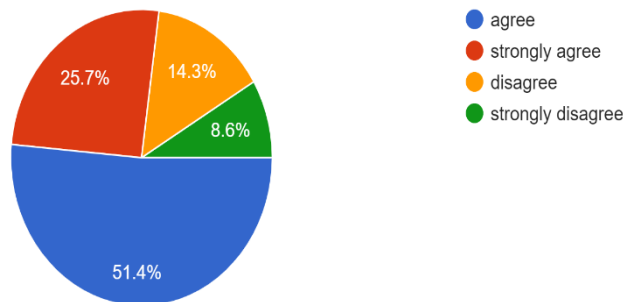
35 responses



we can conclude from this that, people may face dilemma or get confused as majority of people admitted around 37% that maybe it is better than human services and 31.4% people mentioned human services are better than AI powered services and same number of peoples also agreed that AI doing better than humans.

Do you agree AI has potential to be used to violate privacy?

35 responses



The above chart contains details regarding people’s opinion about privacy concern. Privacy is one of vital thing for every customer as well as traders. The above data seems that 51.4% respondents agreed that there is threat of privacy violation in AI services. 25.7% says they are very much sure there is violation of privacy followed by 14.3% people says that there will no such thing and 8.6% people say they are pretty much sure about there is no threat for privacy.

**SUGGESTIONS**

**To Customer**

- 1 There will be workshops and seminars conducted by firm which makes people familiar with your usages of AI application.
- 2 Firm may take an extra effort to educate an undergraduate regarding process and procedure of AI models by providing demonstration.
- 3 Firm must create informative content by developing bogs spot and infographics.

**To Traders**

- 1 Share case studies highlighted successful implementations of AI in customer retention, and mentioned real world examples.
- 2 Share AI related content on various given platforms and occupy customer for reciprocal their query about AI-Based customer retention.
- 3 Firm must ensure privacy and security measures for customer while engaging them into AI driven forces, and ensure to the customer what sort of measures taken to protect their data and confidential information.

**LIMITATION**

- 1 There is other side of the research indicates some limitations of the study which are as follows- for this research work sample size is 35 only which will not represent the true image of picture. As different people have different perception.

- 2 This data may not be reliable as it contains personal bias response given by respondents.
- 3 It should be an ambiguous data because of hurry and lack of confidence miscommunication people just responded because they have to give response.
- 4 Methods used for this survey is mostly close ended questionnaire which does not provide an opportunity to speak from inside.
- 5 Survey constraints to Mumbai suburban customer and traders which may not represents the true data.

### CONCLUSION

The above study shows that how firm introduce a new AI model to attract customer and come across market challenges as it become the need of the hour to adopt the advance technology to retain customer and delight them because delighted customer is loyal customer therefore firm uses AI application to foster the speed and serve the first. Also, the study shows firm need to improve themselves to gain over their rivalry firm. The above study shows youngsters are more active because of good knowledge of technology and they for undergraduate Firm need to undertake various activities to educate customer to take help of AI assistant this will make easy job for customer as well as for traders or businessmen, it is the need for today's world to use AI if they want to survive and firm have to take continuously an effort to let them people know about your AI mechanism for this firm have to build AI content.

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**IMPACT OF ALEXA AT THE DOMESTIC LEVEL****Mrs. Nahida Fatima Mohammed Siraj Shaikh**

Assistant Professor (Visiting Faculty) Government of Maharashtra, Ismail Yusuf College, Jogeshwari East, Mumbai-400060

**IMPACT OF ALEXA AT THE DOMESTIC LEVEL ABSTRACT: -**

*In recent years, the IT sector has come far more than any other sector. The IT sector plays a vital role in globalization. Here I would like to emphasize some key points of AI i.e. (artificial intelligence) and how it become very efficient and useful for many.*

*Not only at the level of the bigger picture but also at a very low-key level i.e. at a domestic level.*

*We all have heard of assistants that we like to use during any task, but here I would like to put more focus on virtual assistants i.e. Amazon Alexa....*

*When u hear the word Alexa which has arrived from Egypt. The name Alexa was chosen as a tribute to the ancient library of Alexandria in Egypt, which is known for being a warehouse or u can even say a hub of knowledge, ideas, and information.*

*Amazon's Alexa was produced by a team of engineers, designers, and a voice scientist at the lab.*

*Keywords: virtual assistant, bigger picture, work efficiency at the domestic level.*

**INTRODUCTION**

Firstly, let me introduce you to some of the basic key points of AI. Artificial intelligence is a software that is made up to build work easily at all levels including national, international, and domestic as well. If we talk about the use of any AI at corporate or any government or anybody, now we hear a lot about the artificial intelligence. The Alexa is a hot-selling software around the globe. The impacts which I am considering here may be positive and negative also. Now come to the positive side of it,

Suppose you are cooking in the kitchen and suddenly you remember to call one of your best friends and you can't leave the kitchen immediately, here you can make Alexa call your friend, and the best thing is you don't have to miss your course while doing other.

It will help you as an assistant at any point in time when you need someone. You can ask it to call, play music, weather conditions, the latest news, play games, and many more things.

Recently I used to go for tuition, there after spending some months I got to know that in that house there is one physically challenged boy on the bed since his birth. It was very difficult for the family to be with him all day long, so ordered Amazon's Alexa. whenever he wanted his mama with him then one of the family members guided Alexa to play mama's voice. In that, she has recorded a song and some soothing phrases for him.

Here there are some negative aspect as well. It diminishes physical interaction, communication skill, and critical thinking. Disrupting routines, requiring maintenance, and fostering addictive behavior, Alexa also contributes to electronic waste.

- ❖ To study about the Awareness of Alexa at local level.
- ❖ To focus on it is useful and effective at domestic level.
- ❖ To focus on how it is useful for students.
- ❖ To study about how it is useful for children for preparing the exam.
- ❖ To find out the scope of Alexa at homes for house maker, patients, employees and so on.

**Hypothesis:-**

The impact of Alexa at the domestic level can be profound and complicated. Here are some hypothesis,

1. **Convenience:-** Alexa's virtual assistant technology make it easier for users to perform any task without any need of anyone. This comfort can lead to increase efficiency in doing any task with very ease. Such as setting alarms, playing music and so on.
2. **Availability:-** Alexa make the bridge for disable person to control various phases of their lives such as lights on off, using voice commands.

3. **Independence:-** by Enabling users to perform tasks independently through voice assistant without taking any help from family members.
4. **Assistance with daily activities:-** Alexa's ability and person's willingness to perform any task with the help of voice assistant it emerges to ease to daily work pressure.

The introduction of Alexa, a voice activated virtual assistant, has a significant positive impact on the disabled individuals.

**LITERATURE OF REVIEW:-**

**Coffee with Mom**

Knowing that his mother would be lonely after his father passed away, Buzz wanted to find a way to stay connected with her, even if he couldn't be with her every day. I gave my mother an Echo Show and said, "Ma, this is going to be your new best friend."

**Recovering from Surgery**

After undergoing a successful kidney transplant surgery, Tim was immobile for a few weeks and quarantined for a few months, with minimal contact with others while he healed. In his own words:

I had been recently gifted an Echo after my surgery and it was really helpful during my recovery. With Alexa, I was able to easily set alarms for taking medication, manage my doctor's appointments, broadcast messages to my caretaker if I needed help, and stay entertained by playing Jeopardy and other games. Most importantly, I was able to check the scores for international soccer games ... all without having to leave my bed and risking my recovery.

**According to the FORBES:**

Alexa blurring the boundaries of disable person emotional well-being and declining off loneliness. In India with a rise in electronic devices there is rise in virtual assistant.it has been now six years in India, over the years, Amazon has worked with different brand to build their market in India that go with their product. Like connecting to each device.

Most of the generation from all decades purchased the Alexa whether for their wife, children, for office purpose and so on.

**RESEARCH METHODOLOGY:-**

**Universe of the Study:-** Alexa's contribution on homemaker, students, and so on.

**The Sample Size of the Study:-**A mixed interviewed of almost 20 persons for this research paper.

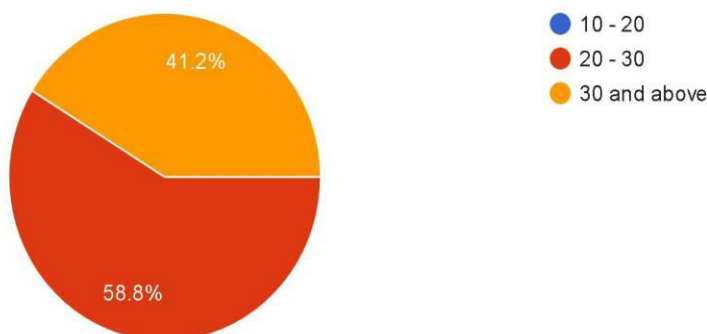
**Techniques of Data Collection:-**

**Secondary Data** has been collected for writing this research paper. Secondary data has been collected from national journals, newspapers, and publications of various websites, writers, which mainly focused on busy individuals, person with disabilities, students etc.

**Primary Data** has been collected from general public survey through a structured questionnaire .

Age group

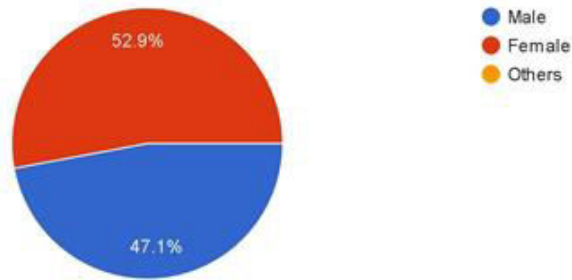
17 responses



In the pie diagram the data shows that age group of people who have surveyed this questionnaire is between from 20 - 30 and from 30 and above.

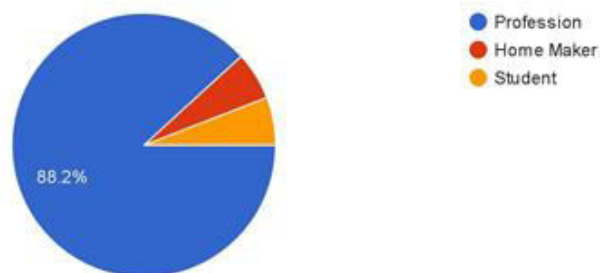


Gender  
17 responses



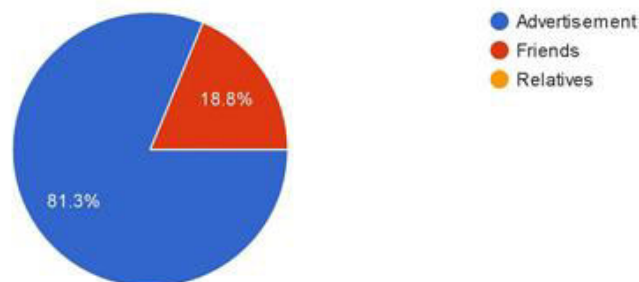
In the pie diagram the data shows that gender of people who have surveyed this questionnaire is mostly men.

Occupation  
17 responses



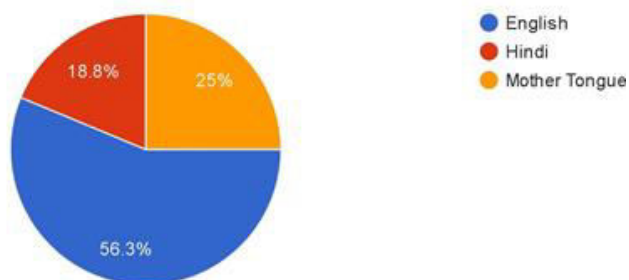
In the pie diagram the data shows that occupation of people who have surveyed this questionnaire is mostly filled by profession persons rather than home maker and students. Which means it is mostly used by employees for reminders, setting meeting note and on.

How do you get to know about Alexa?  
16 responses



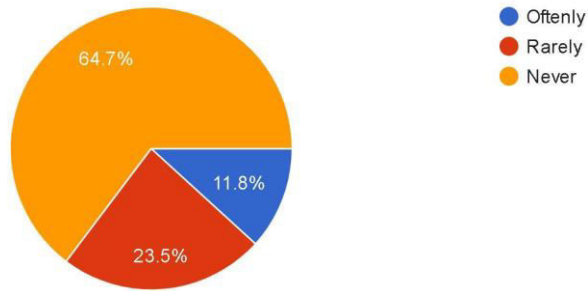
In the pie diagram the data shows that people who have surveyed this questionnaire got to know about Alexa is via ads. Only 18.8% of people got know from friends.

Which language would you prefer?  
16 responses



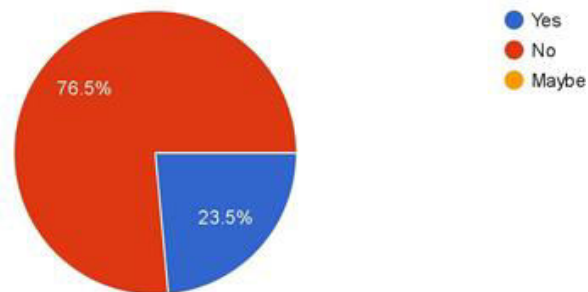
In the pie diagram the data shows that people who have surveyed this questionnaire use mainly English language. After that people use their mother tongue to use as I said it is convenient to use by anyone with the percentage of 25% of total percentage.

How Frequently do you use?  
17 responses



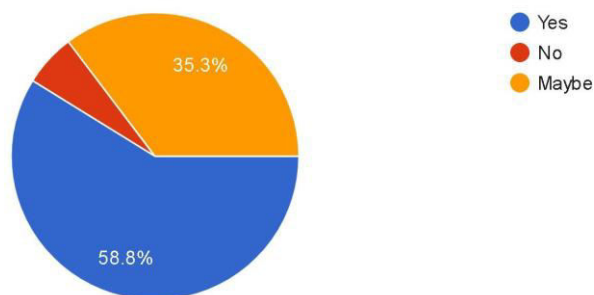
In the above diagram the use of Alexa among people is very low, because the survey did at domestic level and this the one of the negative impact .

Do you understand which technology is used for making Alexa?  
17 responses



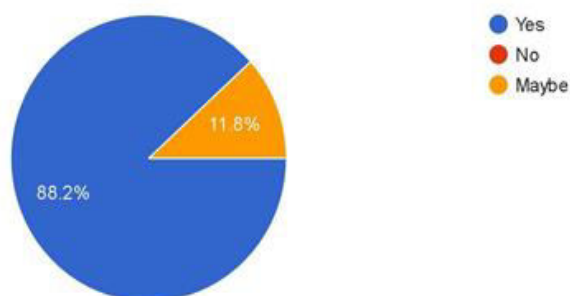
In the pie diagram the data shows that people who have surveyed this questionnaire use are mostly unaware of the technology. Out of 100% only 23.5% people know it.

Can Alexa improve accessibility for individuals with disabilities?  
17 responses



In the pie diagram data shows that people who have surveyed this questionnaire Alexa can improve individuals accessibility with disabilities.

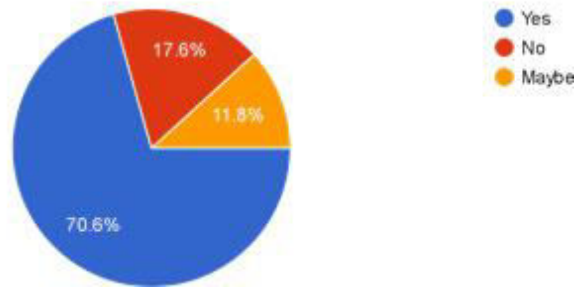
Can Alexa help in entertainment by playing music, audiobooks, and games?  
17 responses



Above pictograph shows that Yes! Many of them use Alexa mostly for entertainment purpose out of 100 % .

Can you make a phone call on Alexa?

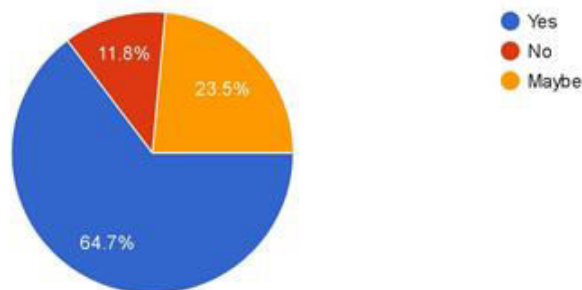
17 responses



Above diagram shows that some of the surveyed people do not that how to use Alexa for making a phone call.this is lack of knowledge of this virtual assistant technology.

Is it useful for educational purpose?

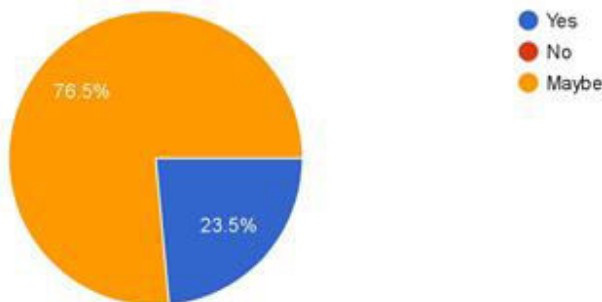
17 responses



The pie diagram shows that it is really very useful or educational purpose.hence some of them doesn't know.

Does it gives correct information?

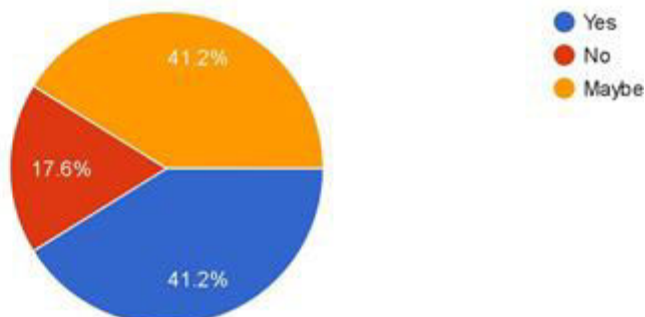
17 responses



Above diagram shows that most of the people are have not used it. In terms of getting information from it.

Would you suggest your friends to use or buy Alexa?

17 responses



The pie diagram indicates that 41.2% of people on the both side says that they might suggest to use or buy Alexa and same percentage of people said maybe.

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**LIMITATION**

1. The sample size is limited to 20 people only which cannot represent the true picture of all users.
2. All the respondents may not be 100% true with their answers due to various personal reasons.
3. Due to privacy protection some questionnaires may not be answered.
4. The interview method used in the survey is mostly closed-ended which may not be able to extract information from them.
5. Survey constraints to Mumbai suburban only which may not show the true image of user of Alexa globally.

**CONCLUSION**

- Overall, impact of Alexa at domestic level is not yet explored it will take some more time to evaluate at another level.
- Alexa offers range of entertainment to every house hold. But with one should know how to properly use Alexa's system.
- Alexa has drastically transform domestic life by offering multi tasks like,setting reminders, playing games, podcast, making a phone call etc.
- It is also very useful for students to get prepare for their studies. Before and during the exams.
- It is even multifaceted and as well complicated.
- User must vigilant about their privacy setting and have to understand that it as of now it is not safe 100%.

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**A STUDY ON AI FOR CREATING SMART AND EFFICIENT BEST BUS SERVICE**

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**Ms. Shweta Dinesh Tiwari<sup>1</sup> and Dr. Kiran H. Mane<sup>2</sup>**<sup>1</sup>Assistant Professor, Nest Academy of Event Management Institute, NAEMD Institute, Marve Road, Malad (W)<sup>2</sup>Associate Professor, Head of Commerce, Prahladrail Dalmia Lions College, Malad (W)**ABSTRACT**

*The transformation of urban transportation through the integration of Artificial Intelligence (AI) has become an imperative, and the Brihanmumbai Electricity Supply and Transport (BEST) bus service in Mumbai stands at the forefront of this evolution. This study explores the multifaceted impact of AI in creating a SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) and efficient BEST Bus Service, with a particular focus on the integration of AI within the digital applications that have become integral to the daily lives of commuters.*

*The study investigates the operational efficiency, passenger experiences, and sustainability of the BEST Bus Service, examining how AI applications, including route optimization, predictive maintenance, and real-time passenger information systems, contribute to these key dimensions. Furthermore, the research extends its analysis to popular digital platforms such as the Chalo App, BEST Pravas App, and M-indicator, exploring the interplay between AI and these applications in enhancing the overall commuting experience. The study delves into the integration of AI within the BEST Bus Service's online payment system, assessing its reliability, security, and the overall ease of transactions.*

**❖ INTRODUCTION**

This study aims to comprehensively investigate and evaluate the impact of AI on the BEST Bus Service, with a specific focus on how AI is integrated into digital applications that have become indispensable tools for millions of commuters. The Chalo App, BEST Pravas App, and M-indicator are central to the daily commuting experiences of Mumbaiers, serving as gateways to real-time information, route planning, and ticketing. The study seeks to unravel the intricate connections between AI and these applications, exploring how they collectively contribute to a more streamlined, responsive, and passenger-centric bus service.

**Digital Applications in Focus:**

**Chalo App:** The Chalo App has become synonymous with real-time information and user-friendly route planning. Leveraging AI, this application holds the promise of optimizing bus routes dynamically, reducing travel times, and providing commuters with accurate, up-to-the-minute information on bus locations and schedules.

**BEST Pravas App:** The BEST Pravas App introduces a digital dimension to ticketing and journey planning. With the infusion of AI, this application is poised to enhance user experiences, offering intuitive interfaces, personalized journey recommendations, and seamless integration with the broader AI-driven improvements within the BEST Bus Service.

**M-indicator:** M-indicator, a staple for Mumbai's commuters, integrates real-time updates on bus schedules and routes. Through the application of AI, M-indicator aims to provide reliable information, ensuring that commuters have access to accurate details crucial for their daily travels.

**❖ REVIEW OF LITERATURE:****1. Hindustan Times (16<sup>th</sup> Jan, 2024) : Now, track your Bus with BEST's new app**

According to BEST officials, it will help passengers know the estimated arrival time of buses and journey time. Brihanmumbai Electric Supply and Transport (BEST) on Monday launched its new mobile app – BEST Pravas – that will let the 30 lakh commuters of the transport body track the buses on any route. They will also be able to access features like emergency help and bus stop alerts. Developed under the ₹112- crore Integrated Transport Management System (ITMS) project, the BEST Pravas mobile app will be available for download on both Android and IOS platforms soon. According to BEST officials, it will help passengers know the estimated arrival time of buses and journey time.

**2. The Indian EXPRESS (27<sup>th</sup> January, 2024) : Now, two apps to track the BEST buses and book tickets online.**

Commuters travelling by the Brihanmumbai Electric Supply and Transport (BEST) undertaking buses may soon expect to book tickets online and also track the arrival of buses through mobile applications. Aiming to make

commuting easy and taking a lesson from the success of App-based taxi services, BEST is considering the introduction of such a mobile application that can be used by commuters. A presentation of two Apps — ‘Mobile bus ticketing’ and ‘Route tracker’.

### 3. Hindustan Times (27<sup>th</sup> January, 2024) : To make travel easier for Mumbai commuters, BEST to launch mobile app soon.

BEST has begun trials of the mobile app, making the beta or trial version of it available to the public on Google play store, from August 26, 2019. It also collected feedback from experts, students and passengers for improving the app. Lakhs of commuters travelling on the buses of Brihanmumbai Electric Supply and Transport (BEST) will be able to plan their journey better from next week as the public transport body is planning to launch its first mobile app on Monday. Under the Intelligent Transport Management System (ITMS) project funded by the Mumbai civic body, BEST has developed this new app. The mobile app will allow real-time tracking of buses for passengers.

### 4. Youtube Video (8<sup>th</sup> August, 2021) :

The link of the video is been attached here for the commuter’s perception towards BEST Bus service AI : <https://www.youtube.com/watch?v=U00DheILKYI>

In this video we could see that there are commuters that were waiting for the bus, but just because of the app in their phone, it became easy for them to trace the buses that were going to come on that particular bus stop. Due to the app, the commuters save their time and even they were calmed that the bus would come in the time due to the real time tracking. The video was even available at Zee Marathi News.

### 5. Outlook Traveller: Chalo Mumbai Luxury Electric Bus Service by BEST Undertaking.

Electronic vehicles, or EV are the immediate future on transport, and the Brihanmumbai Electric Supply and Transport Undertaking of the Mahanagarपालिका, has been taking significant strides in that direction. From December, 2022 BEST had launch its electric luxury bus service aimed primarily at office-goers, the bookings for which can be done

on BEST chalo app. Fitted with all the creature comforts that public transport can provide, the buses have luxury push – back seats with ample leg space, USB charging ports for your mobile and laptop, all-electric AC, and a flexible rescheduling and cancelling choice.

#### ❖ RESEARCH OBJECTIVES:

1. To measure passenger satisfaction with real time information
2. To evaluate the Role of AI in enhancing customer satisfaction of BEST Bus Service

#### ❖ RESEARCH PROBLEM:

To Investigate the impact of AI on passenger experiences, encompassing real-time information systems, online payment mechanisms, and user interfaces of digital applications like the Chalo App, BEST Pravas App, and M-indicator.

#### ❖ RESEARCH GAP:

According to what I discovered, there is lack of empirical studies examining the perceptions, concerns, and expectations of passengers regarding the integration of AI in the BEST Bus Service.

#### ❖ RESEARCH METHODOLOGY:

The primary data was collected through survey method among the group of 15-65 years of Age group to understand their perception regarding enhancing the Artificial Intelligence used in BEST Bus Service. For this questionnaire, was developed as a tool and was filled by 50 respondents which were picked up randomly.

The secondary data was collected from online websites, journal, publication, etc.

➤ Youtube Video and Newspapers

#### ❖ Research Hypothesis:

1. **Null Hypothesis (H0):** There is no relationship between gender and usage of AI apps.

**Alternative Hypothesis (H1):** There is a relationship between gender and usage of AI apps.

#### ❖ HYPOTHESIS TESTING TECHNIQUE:

The Hypothesis Testing would be done by Chi – Square Test.

❖ **SIGNIFICANCE OF THE STUDY :**

The significance of the study is to highlight the customer satisfaction through the use of AI in the digital apps used by BEST Bus service.

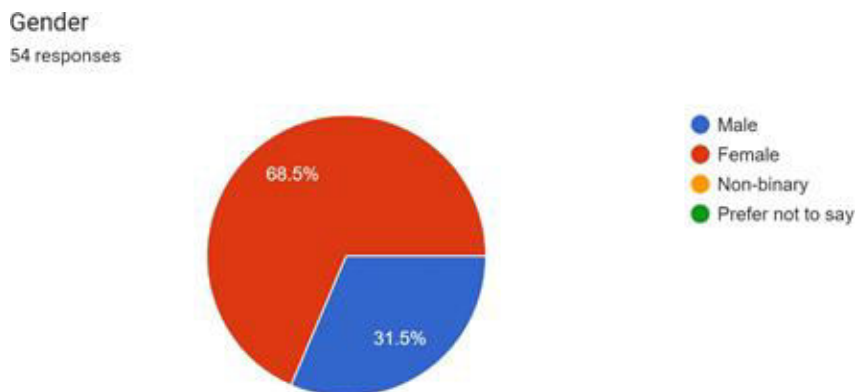
❖ **LIMITATIONS OF THE STUDY :**

Commuters differ significantly in their fare price, occupation, cultures, and issues, which may make, universal findings or recommendations.

1. Responses received from 50 people only.
2. Biasness of the respondents could be one of the limitation.

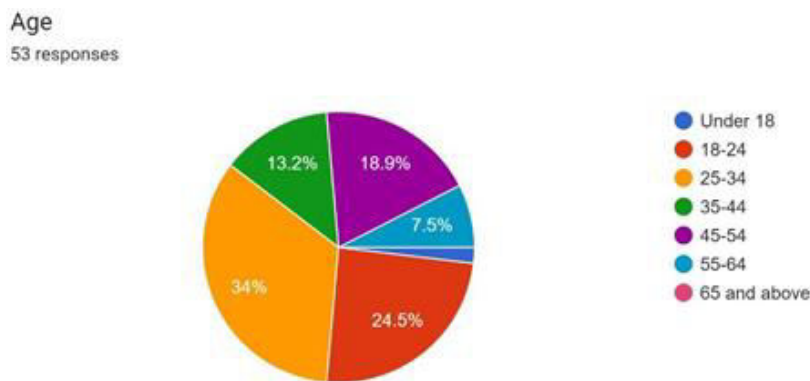
**Data Analysis:**

✓ From the chart below, more than 65% respondents are females and rest are the males respondents.



**Data Analysis:**

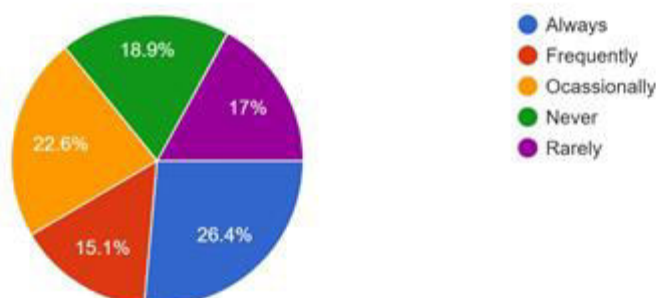
- ✓ 34% respondents are from age group 25-34 years of age.
- ✓ 24.5% respondents are from age group 18-24 years of age.
- ✓ 18.9% respondents are from age group 45-54 years of age.



**Data Analysis:**

✓ In this chart below, 26.4% respondents always utilize real-time information about bus locations and arrival times. But more than 50% of the commuters have used the information occasionally, rarely, and never.

How often do you utilize real-time information about bus locations and arrival times?  
53 responses

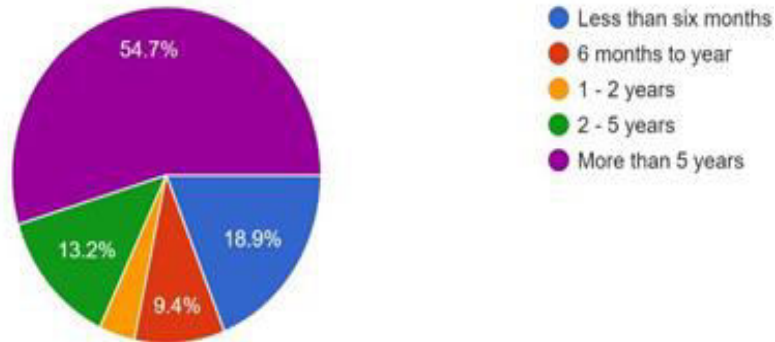


**Data Analysis:**

- ✓ From the chart below, more than 50% of the respondents have been using the busservice for more than 5 years.

How long have you been using the bus service?

53 responses

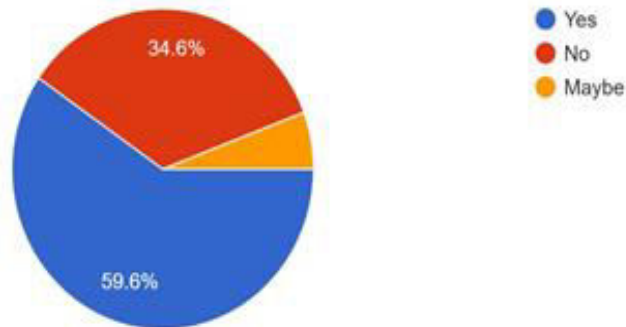


**Data Analysis:**

- ✓ From the chart, it has been noticed that, more than 55% of the respondents are using the apps for real time informations.

Have you used the any App for accessing real-time information about BEST bus routes and schedules?

52 responses

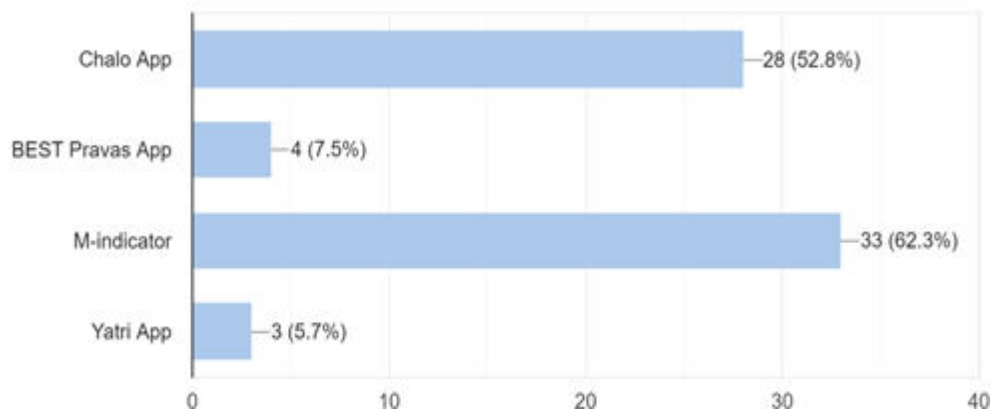


**Data Analysis:**

- ✓ From the analysis, it is showed that all the respondents uses some or the other apps.

Have you used any of these app ?

53 responses



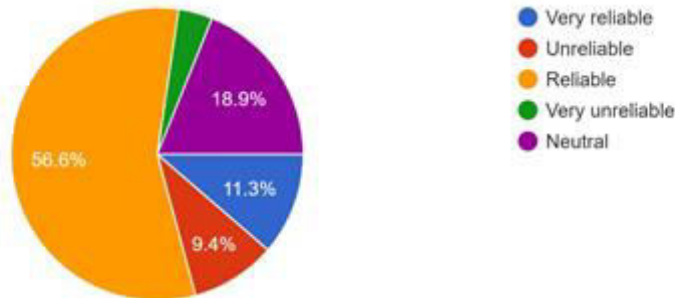


**Data Analysis:**

✓ From this chart, it is evident that more than 50% respondents, find the apps reliable for the real-time information.

How would you rate the reliability of real-time information provided by the app for BEST bus services?

53 responses

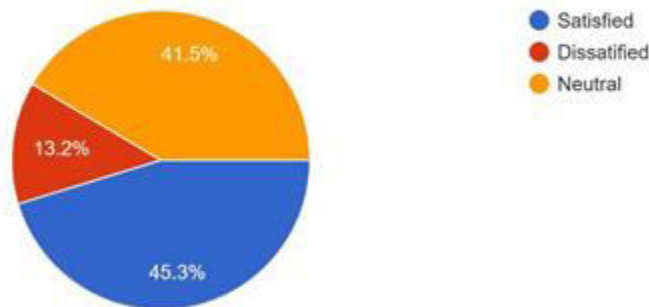


**Data Analysis:**

✓ From this pie chart, it has been showed that more than 45% respondents are satisfied with the user interface and the ease of using the BEST Bus app.

How satisfied are you with the user interface and ease of use of the BEST Bus App?

53 responses



**❖ TESTING OF HYPOTHESIS:**

TABLE NO 1.				
No.	Gender	Usage of AI yes	No	Total
1	Male	13	2	15
2	Female	19	16	35
	<b>Total</b>	32	18	50

Expected				
No.	Gender	Usage of AI yes	No	Total
1	Male	9.6	5.4	15
2	Female	22.4	12.6	35
	<b>Total</b>	32	18	50

p = 0.028818

Since p value is less than 0.05, Ho is rejected

**Alternative Hypothesis (H1):** There is a relationship between gender and usage of AI apps is thus proved.

**❖ FINDINGS OF THE STUDY:**

From the above survey which was done to find out perceptions of commuters towards the AI used by BEST Bus services, is :

1. Mobile applications powered by AI contribute to increased user accessibility, with a notable rise in app usage for trip planning, real-time updates, and personalized features.

2. Passengers exposed to real-time information through AI-powered systems exhibit a statistically significant increase in satisfaction.
3. Increased AI applications in BEST bus service is positively correlated with higher usersatisfaction levels.

**❖ CONCLUSION OF THE STUDY:**

In this comprehensive study on the AI used by the Brihanmumbai Electric Supply and Transport (BEST) Bus Service in its mobile app, the study's findings advocates for the continued integration of AI technologies, to create a SMART and efficient BEST Bus Service.

In conclusion, the positive impacts on passenger satisfaction, operational efficiency, underscore the transformative potential of AI in shaping the future of urban transportation. The successful implementation of these recommendations is integral to fostering an accessible urban mobility through AI in the mobile application for BEST Bus services.

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- <https://www.hindustantimes.com/india-news/to-make-travel-easier-for-mumbai-commuters-best-to-launch-mobile-app-soon/story-N3YIv5p1f2n9Ugmvn9uZSJ.html>
- <https://www.hindustantimes.com/mumbai-news/now-track-your-bus-with-best-s-new-DrSd8Y7iKd4ZXgdsPFPYNK.html>
- <https://www.youtube.com/watch?v=U0ODheILKYI>
- <https://www.outlooktraveller.com/explore/insider/chalo-mumbai-luxury-electric-bus-service-by-best-undertaking>
- Reports of the BES&T, BES&T house Mumbai Journals, BES&T Publications.

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**A STUDY ON PERCEPTIONS AND ATTITUDES OF CONSUMERS REGARDING ARTIFICIAL INTELLIGENCE IN E-TAILING IN MUMBAI**

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**Suryakant Patole and Shifa Saadan**

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**ABSTRACT**

*This research article aims to investigate the consumers' perception and attitudes towards the implementation of artificial intelligence (AI) in e-tailing operations within the city of Mumbai, India. The study examines the impact of AI applications on customer experience, trust, satisfaction, and purchase intentions in the context of online retail stores. Data for this study was collected through structured online questionnaires through Google Form and distributed among a sample of 100 respondents residing in Mumbai.*

*Keywords: E-tailing, Business, Artificial Intelligence, Sustainability Consumer Perception.*

**INTRODUCTION:****Artificial Intelligence**

Artificial intelligence (AI) is a multidisciplinary field revolutionizing various industries, dubbed the fourth industrial revolution. It encompasses technologies that understand consumer psychology, predict behavior, and tailor product recommendations, notably used by leading retailers like Amazon and Alibaba. AI, present since the 1960s, has evolved into diverse forms, aiding in clocks, smart homes, voice assistants, and messaging platforms, notably supporting marketing in retail today. Companies recognize the need for competitiveness, as AI rapidly progresses, offering tailored solutions across different business domains. Proactive adoption and vision alignment are crucial for maximizing AI's potential, promising increased investment returns despite current sector uncertainties.

**Electronic Retailing (E-tailing)**

E-tailing, a subset of e-commerce, involves the online sale of goods and services globally, serving as an extension of existing startups (Bhasin, 2023). The integration of artificial intelligence (AI) into e-tailing significantly enhances various aspects of business operations, including understanding, data collection, and customer issue resolution. AI facilitates personalized purchasing experiences, offering real-time suggestions and tailored recommendations, thereby reshaping consumer shopping behaviors (Oh & Polidan, 2018).

Retailers capitalize on AI to access valuable customer data, optimize advertising strategies, and elevate in-store experiences. Moreover, AI enhances search engine accuracy, leading to more efficient and relevant product searches (Bhasin, 2023). In the retail sector, AI plays a pivotal role in enhancing operational efficiency, streamlining processes, and improving overall productivity (Oh & Polidan, 2018).

Future research endeavors should delve into consumer awareness regarding AI in e-tailing platforms, as well as explore perceived benefits, concerns, trust factors, and demographic influences on AI adoption, particularly in the context of Mumbai (Oh & Polidan, 2018). Understanding these dynamics will contribute to the continued development and implementation of AI technologies in the e-tailing sector, ensuring alignment with consumer preferences and market demands.

**OBJECTIVES:-**

- To determine if there is a shift in the scenario of Electronic Retailing due to AI
- To identify if the price sensitivity of Indian masses is variable for the use of AI tech in their shopping experience
- Explore if AI prompts impulsive buying by analyzing its influence on consumer behavior
- To assess the alterations in consumer preferences resulting from the integration of AI technology

**REVIEW OF LITERATURE**

The integration of artificial intelligence (AI) in retail, as emphasized by the CECoR framework (Bolton et al., 2019; Begley et al., 2018; Black & Van Esch, 2020; Oosthuizen et al., n.d.), has significantly impacted the entire value chain. AI enhances customer experience through chatbots, offering personalized assistance and recommendations, bolstering satisfaction and brand loyalty. Moreover, AI optimizes inventory management with smart shelves and augments supply chain processes through predictive analytics, leading to enhanced forecasting accuracy and operational efficiency. Additionally, AI-driven insights fuel revenue growth by

generating personalized product recommendations, fostering repeat purchases, customer loyalty, and ultimately driving sales (Bolton et al., 2019; Begley et al., 2018; Black & Van Esch, 2020; Oosthuizen et al., n.d.).

In parallel, understanding the CECoR framework is vital for retailers to harness AI's growth potential (Hanif et al., 2022), especially in e-commerce, where AI plays a pivotal role in enhancing creative thinking, user experiences, and management of personalized shopping, product recommendations, and inventory (Hanif et al., 2022). This recognition of AI's importance by companies not only boosts profitability but also creates job opportunities in the e-commerce sector, reshaping consumer interactions and fueling economic progress (Hanif et al., 2022).

Furthermore, AI solutions, leveraging personalized data analysis from various sources (BMW, 2020), optimize marketing strategies and improve the overall shopping experience. Retailers utilize interconnected devices (Deloitte, 2020) to personalize offers and product recommendations, creating positive shopping experiences. Additionally, in Electronic Retailing, AI-powered chatbots (Fedorko & Bacik, 2022) provide 24/7 customer support, enhancing engagement and satisfaction.

**HYPOTHESES:**

H1: AI is streamlining the shopping experience for consumers.

H0: Some customers may not perceive or value the impact of technologies like artificial intelligence on their purchasing behaviors.

H1: AI influences price sensitivity of customers towards products

H0: AI does not influence of price sensitivity of customers towards products

**RESEARCH METHODOLOGY**

**1. Research Design**

In order to fully investigate consumer perception and attitude toward AI in e-tailing in Mumbai, this study employs a quantitative methods research methodology.

**Sampling Population**

Mumbai-based residents who are involved in e-tailing make up the target population.

- **Sampling Technique:** Convenience sampling will be utilized to select participants due to the accessibility of online platforms.

**2. Data Collection Methods**

Quantitative Data: A structured survey questionnaire is administered online to a larger sample of respondents. The questionnaire will include items measuring various aspects of consumer perception and attitude towards AI in e-tailing and their price sensitivity towards it.

**5. Ethical Considerations**

This study will adhere to ethical guidelines, ensuring participant confidentiality, voluntary participation, and informed consent.

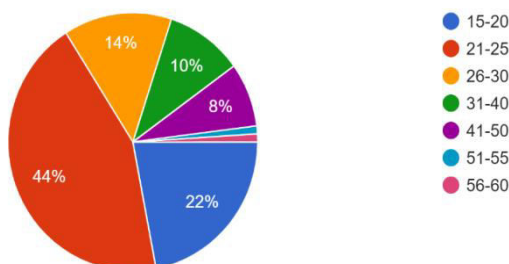
**6. Limitations**

Possible limitations of this study include the reliance on self-reported data, potential biases in participant selection, and generalizability limitations due to the specific context of Mumbai.

**Data Analysis:-**

**Demographic analysis:-**

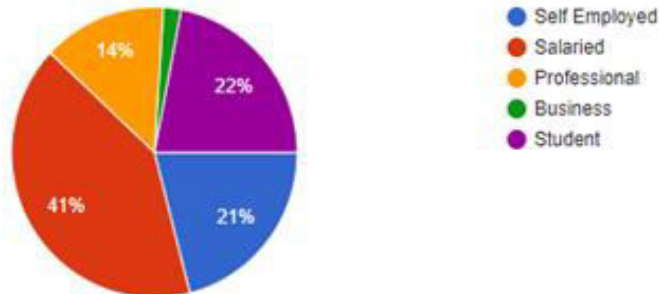
Age Group :-  
100 responses



Out of 100 participants for this study, 80% of the population is below the age of 30, and this gives a vital angle of the future of shopping in metropolitan cities like Mumbai. It also reflects that most of the online buyers are from the age group of 21-30.

Occupation:-

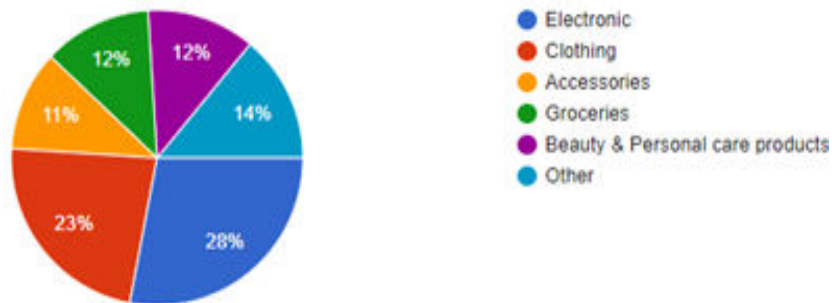
100 responses



Our sample population represents a diverse range of educational qualifications, spanning from second-year students to PhD holders, indicating a comprehensive coverage of societal stratification in our research. Significant portion of our population is engaged in the service sector, comprising nearly 40% of the sample. Furthermore, approximately 23% of the samples hold graduate and post-graduate degrees, while 21% are self-employed individuals.

What types of products do you usually purchase online?

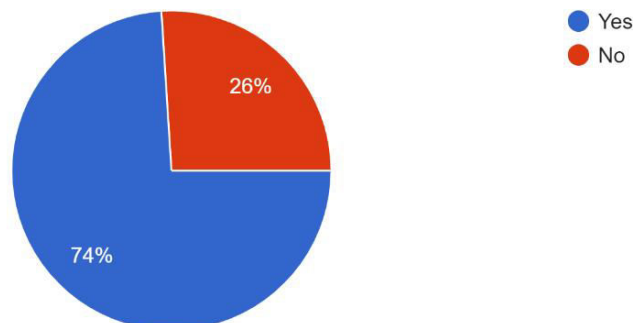
100 responses



Approximately 75% of people are fully aware of the use of AI in online retail platforms. Approximately 25% of consumers are still unaware of artificial intelligence (AI), indicating that these consumers are unconcerned with AI and that it has no effect on their purchasing decisions.

Are you aware of the use of AI in online retail platforms

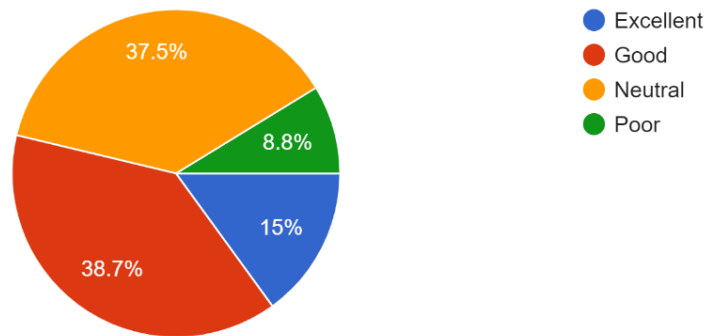
100 responses



According to the data provided, 75% of participants are knowledgeable about its use, while 25% are not.

If yes, how would you rate your experience with AI in online shopping?

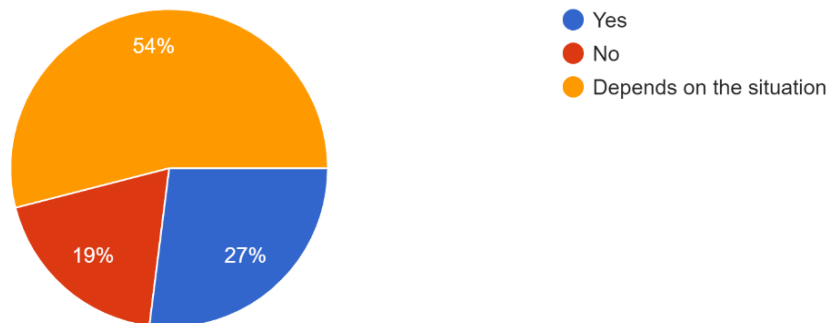
80 responses



55% of respondents have interacted with AI while shopping online. Among those who have interacted with AI, the distribution of their ratings for their experience is as follows: 15% rated it as excellent, 39% as good, 38% as neutral, and 8% as poor. These findings suggest a considerable awareness of AI in online retail and a mixed perception of its effectiveness among users.

Would you prefer human assistance over AI assistance while shopping online?

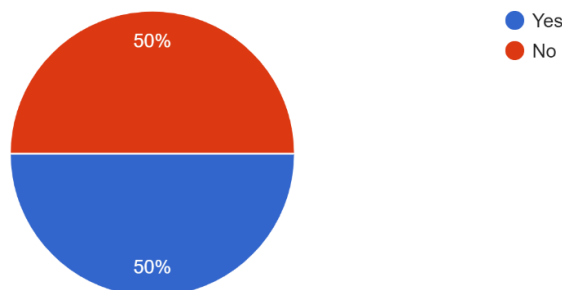
100 responses



27% answered yes, 19% answered no, and 54% stated that it depends on the situation.

Do you think because of AI, you are being impulsive purchaser (the person who purchase goods even he/she doesn't need it.) ?

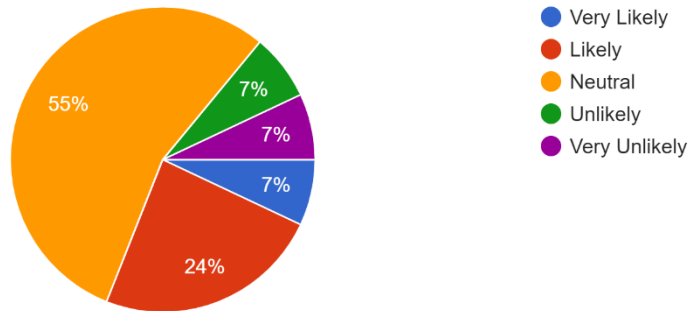
100 responses



The majority of respondents (52%) are unwilling to pay extra for AI-generated personalized recommendations, suggesting they don't perceive enough value to justify a higher price. A sizable portion (36%) express uncertainty (maybe), indicating some recognition of value but hesitancy to pay more. Thus, the hypothesis that consumers are generally willing to pay extra for AI recommendations is rejected. Instead, most don't see the value in paying more, with many unsure or hesitant.

How likely are you trust AI - driven product recommendations ?

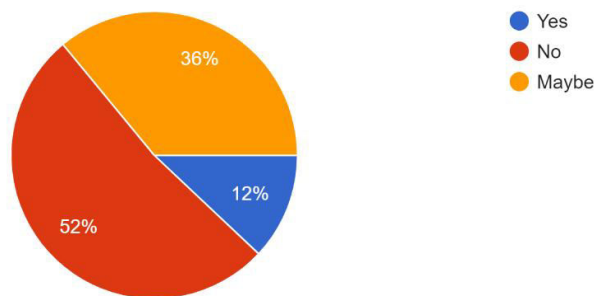
100 responses



Regarding trust in AI-driven product recommendations, 7% are very likely to trust. 24% are likely to trust. 55% are neutral. 7% are unlikely to trust. 7% are very unlikely to trust. Findings reveal varied trust levels among consumers, with many expressing neutrality. While some show high or low trust, most are neutral, indicating uncertainty or ambivalence towards AI recommendations.

Would you be willing to pay premium price for personalized recommendations generated by AI ?

100 responses



The majority (52%) are unwilling to pay extra for AI-generated personalized recommendations, suggesting they don't see enough value to justify a higher price. A sizable portion (36%) are uncertain about paying extra, indicating some recognition of value but not full commitment. Only 12% are willing to pay extra, contradicting the hypothesis that consumers universally value AI-driven recommendations. Thus, the hypothesis that consumers are generally willing to pay a premium for AI recommendations is rejected. Instead, most don't see the value in paying extra, with many uncertain or hesitant.

**SUGGESTIVE FRAMEWORK**



A four-step suggestive framework has been constructed based on the research findings.

To market AI in e-tailing, launch targeted campaigns emphasizing its benefits like personalized recommendations and enhanced customer service. Utilize diverse channels like social media and email marketing, showcasing successful AI implementations in e-tailing through case studies. Educate the audience on AI's relevance in e-tailing via informative content and partnerships with influencers. Engage in community

outreach and events to establish credibility. Gather feedback through surveys and focus groups to understand customer experiences with AI. Listen to concerns and suggestions, prioritizing transparency. Analyze feedback to identify areas for improvement in AI technology and marketing initiatives, collaborating with product teams to implement changes. Continuously refine strategies based on insights to align with customer preferences, fostering engagement and driving long-term success in the digital landscape.

## CONCLUSION

This study showcases how artificial intelligence (AI) fosters creativity and enhances user experiences in e-commerce, particularly in areas like personalized shopping, product recommendations, and inventory management (Forgan, 2020). AI has transformed e-commerce into a consumer-friendly environment, benefiting both companies and consumers (Forgan, 2020). Furthermore, AI is reshaping the dynamics between retailers and shoppers by providing accurate customer insights, improving recommendations, and enhancing personalized services (Forgan, 2020). As AI continues to evolve, it is expected to create new opportunities for employment in the e-commerce sector (Forgan, 2020).

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**THE ROLE OF AI IN ONLINE SHOPPING AND ITS INFLUENCES ON CONSUMER BUYING BEHAVIOR AND DECISION-MAKING**

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**ABSTRACT**

*In the rapidly evolving landscape of online shopping, Artificial Intelligence (AI) has emerged as a transformative force, profoundly influencing consumer buying behavior and decision-making processes. This research delves into the multifaceted role of AI in shaping the online shopping experience, with a specific focus on personalized recommendations, predictive analytics, and virtual shopping assistants.*

*The study aims to assess the effectiveness of AI-generated personalized recommendations in guiding consumer choices and influencing purchasing behavior. Additionally, it explores how predictive analytics, fueled by AI, anticipate and align with individual preferences, impacting the overall decision-making process. The role of virtual shopping assistants, powered by AI algorithms, is examined to understand their influence on consumer engagement and their contribution to informed decision-making.*

*Index Terms: Artificial Intelligence, Consumer, Online shopping.*

**INTRODUCTION**

In the digital age, the fusion of technology and commerce has given rise to a transformative shopping experience, with online platforms becoming ubiquitous in meeting consumer needs. At the heart of this evolution is the integration of Artificial Intelligence (AI), a formidable force reshaping the dynamics of online shopping and redefining how consumers make purchasing decisions. This research delves into the multifaceted role of AI in the realm of online shopping, examining its profound influences on consumer purchasing behavior and decision-making processes.

The surge in e-commerce has provided consumers with unparalleled convenience and accessibility. However, the sheer volume of choices and information can be overwhelming. Herein lies the significance of AI, offering a sophisticated toolkit to streamline and personalize the online shopping journey. This study focuses on three pivotal dimensions: personalized recommendations, predictive analytics, and virtual shopping assistants, each playing a crucial role in shaping the consumer's interaction with the digital marketplace.

The first dimension, personalized recommendations, explores how AI algorithms analyze user preferences and behaviors to provide tailored product suggestions. This aspect is central to understanding how AI guides and influences consumer choices, impacting the ultimate purchasing decision. The second dimension involves the utilization of predictive analytics, where AI anticipates and adapts to individual preferences, aiming to align seamlessly with consumer needs. This predictive capability significantly influences the decision-making process by providing insights into potential preferences and trends.

Lastly, the study delves into the role of virtual shopping assistants, AI-powered entities designed to enhance user engagement and facilitate decision-making. These virtual assistants leverage natural language processing and machine learning to provide real-time assistance, offering a personalized and interactive shopping experience.

**RESEARCH METHODOLOGY:*****Survey and Questionnaire Design:***

Develop a survey to gather quantitative data on consumer experiences with AI-generated personalized recommendations, predictive analytics, and virtual shopping assistants. Include questions assessing the perceived effectiveness, satisfaction, and influence of AI in online shopping.

***Literature Review:***

Analyze studies that assess the impact of AI on consumer behavior and decision-making processes.

**RESEARCH OBJECTIVE:**

- 1) Identify the Effectiveness of AI-Generated **Personalized Recommendations**.
- 2) Examine the Role of **Predictive Analytics** in Anticipating Consumer Preferences.
- 3) Analyze the Influence of **Virtual Shopping Assistants** on Consumer Engagement.
- 4) Examine Consumer Awareness and Understanding of AI Technologies.

**DATA COLLECTION**

*Primary data* : In gathering primary data for this research a strategic survey methodology was employed, focusing on the diverse demographic of Mumbai Metropolitan Region (MMR). The sampled population comprised college students, teachers, and civilians, ensuring a comprehensive representation of individuals engaged in online shopping. This multi-faceted approach aimed to capture varied perspectives and experiences, recognizing that both students and professionals, as well as civilians, contribute significantly to the online shopping ecosystem.

*Secondary data*: Secondary data has been collected from previously research articles, websites.

*Limitation*: The survey was conducted with limited sample size.

**LITERATURE REVIEW:**

The research paper authored by Liang and Turban In 2018, titled “**AI Technologies and Altered Consumer Purchasing Behavior in Online Shopping,**” delves into the transformative impact of Artificial Intelligence (AI) on consumer behavior within the context of online shopping. This study specifically investigates how the integration of AI technologies shapes and alters the decision-making processes of consumers in the digital commerce environment. By analyzing the interplay between AI-driven features and consumer purchasing behavior, Liang and Turban contribute to understanding the profound changes brought about by AI in the online shopping domain. The research likely explores the nuances of personalized recommendations, predictive analytics, and other AI applications, shedding light on the mechanisms through which these technologies influence and reshape the choices made by consumers in the dynamic landscape of e-commerce.

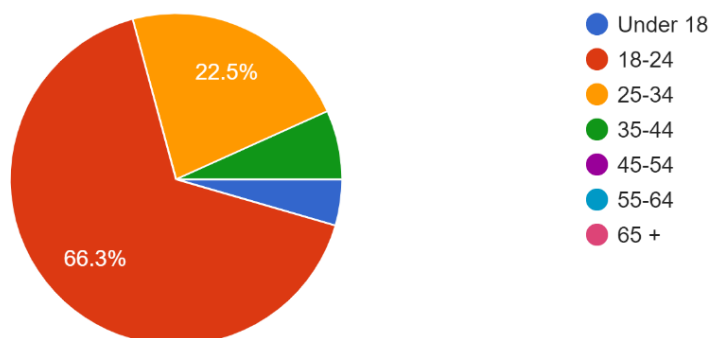
The research paper by Wang and Zhang (2019), titled “**Impact of AI-Generated Personalized Recommendations on Consumer Choices,**” explores the profound influence of AI-driven personalized recommendations on consumer decision-making processes. In this study, the authors delve into the intricate dynamics of machine learning algorithms that tailor product suggestions based on individual preferences. The research seeks to uncover the persuasive nature of these AI-generated recommendations and their direct impact on shaping consumer choices in the realm of online shopping. By examining the behavioral shifts induced by personalized suggestions, Wang and Zhang contribute valuable insights into the evolving landscape of e-commerce, where AI technologies play a pivotal role in enhancing the user experience and influencing purchasing behavior.

**Data Analysis and interpretation:**

According to the information received from respondents about their choices regarding the role of AI in Online Shopping and its Influences on Consumer Buying Behavior and Decision-Making shown below through pie chart.

Age :-

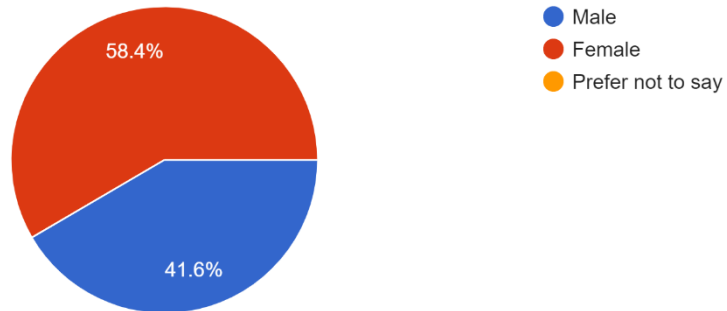
89 responses



This above pie chart indicates that the Respondents are between the age group from under 18 to 60.

Gender :-

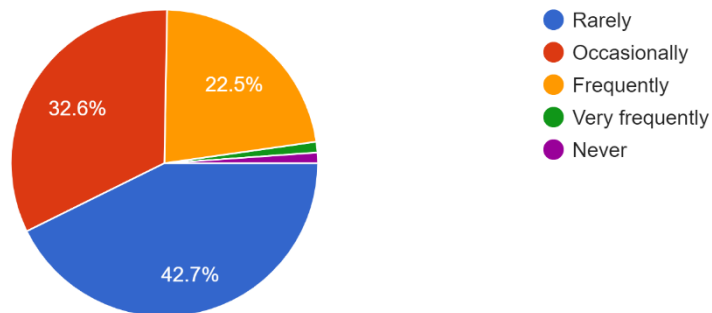
89 responses



This above pie chart indicates that the Respondents gender male are 41.6 % and female are 58.4%.

How frequently do you engage in online shopping ?

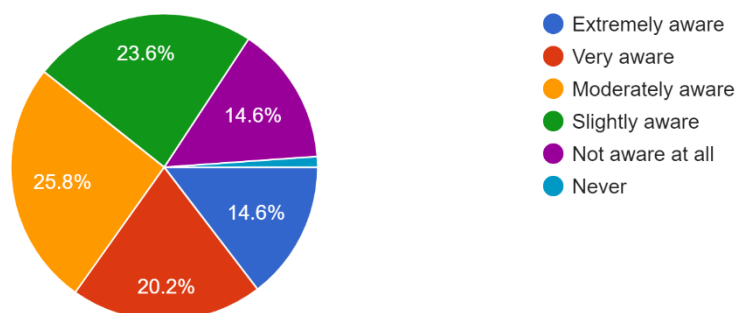
89 responses



The above pie cart indicates that maximum response from respondent is 42.7% people rarely engage in online shopping and 22.5% are frequently engaged online shopping.

How aware are you of the use of AI technologies in online shopping platforms?

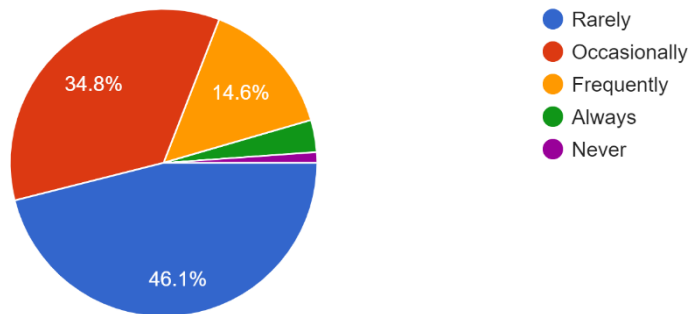
89 responses



The above pie chart indicates that 25.8% people moderately aware with AI technologies in online shopping platforms.

How often do you rely on personalized product recommendations provided by online platforms?

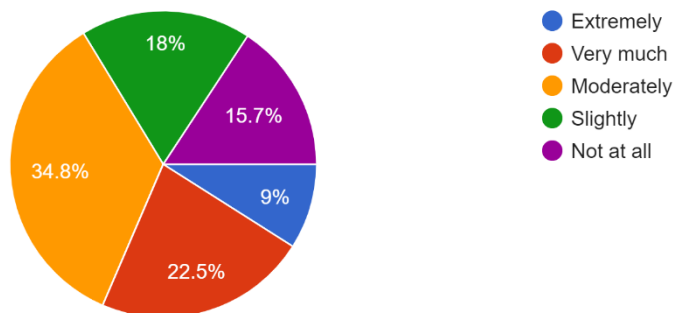
89 responses



The above pie chart indicates 46.1% rarely and 34.8 % occasionally and personalized product recommendation provided by online platform.

To what extent have AI-generated recommendations influenced your purchasing decisions?

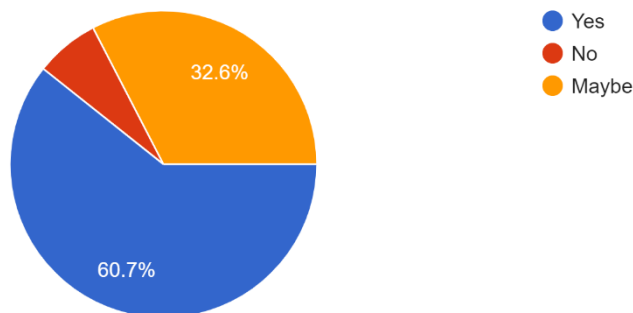
89 responses



The above pie chart indicates 34.8% moderately and 22.5% very much A.I generated recommendations influenced by purchasing decision.

Are you familiar with how online shopping websites predict what you might like to buy?

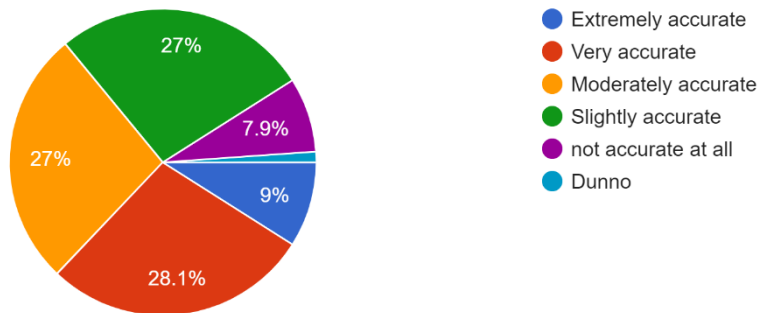
89 responses



The above pie chart indicates 60.7% Yes and 32.6% No for familiarity with how online shopping websites predict what they might like to buy.

How accurate do you perceive the predictions made by AI about your preferences on online shopping platforms?

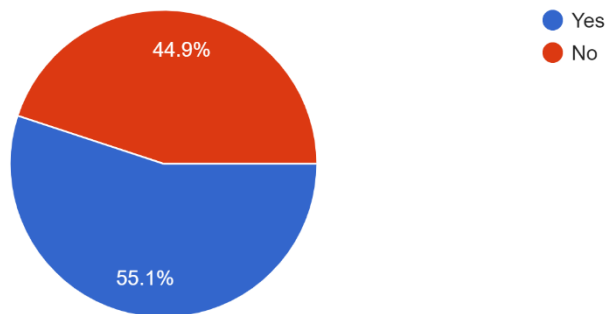
89 responses



The above pie chart indicates 27% Very accurate and 7.9% not accurate at all predictions made by AI about their preferences on online shopping platforms

Have you interacted with virtual shopping assistants in online shopping?

89 responses



The above pie chart indicates 44.9% Yes and 55.1% No for how they interacted with virtual shopping assistants in online shopping.

How helpful do you find virtual shopping assistants in aiding your decision-making process?

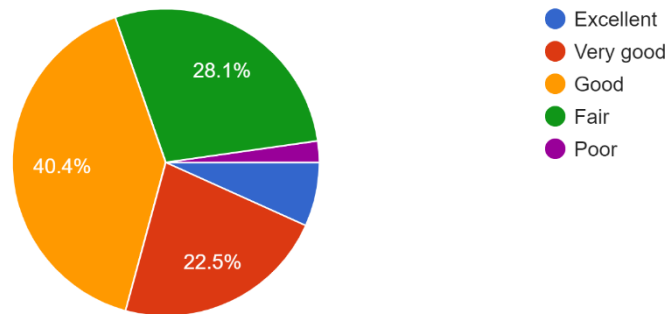
89 responses



The above pie chart indicates 27% Moderately helpful and 16.9% Not helpful at all for virtual shopping assistance.

How would you rate your understanding of how AI technologies influence your online shopping experience?

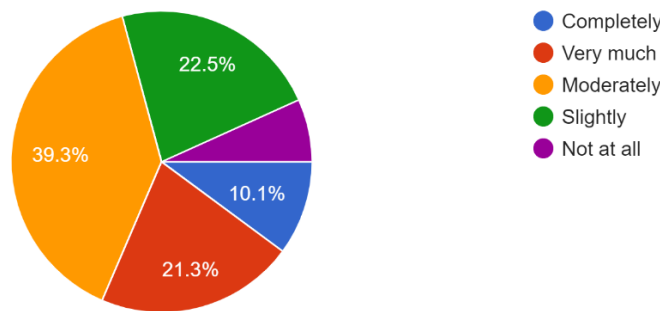
89 responses



The above pie chart indicates 40.4% Good and 22.5% very good for AI technologies influence their online shopping experience.

To what extent does your awareness and understanding of AI influence your trust in online shopping platforms?

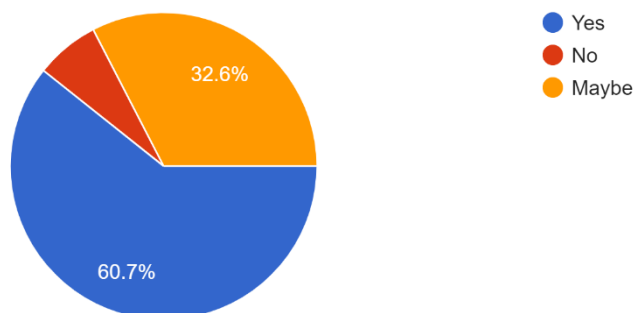
89 responses



The above pie chart indicates 39.3% Moderately and 22.5% slightly are awareness and understanding of AI influence.

Are you familiar with how online shopping websites predict what you might like to buy?

89 responses



The above pie chart indicates 60.7% Yes and 32.6% maybe for familiarity with how online shopping websites predict what they might like to buy.

### CONCLUSION

The comprehensive survey conducted among a diverse group of participants, including college students, teachers, and civilians, provides valuable insights into the nuanced relationship between Artificial Intelligence (AI) in online shopping and consumer behavior. The findings contribute to a deeper understanding of the impact of AI-generated personalized recommendations, predictive analytics, virtual shopping assistants and consumer awareness on purchasing decisions.

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The survey results reveal considerable interaction with virtual shopping assistants, with a majority finding them moderately to very helpful in their decision-making process. This emphasizes the positive impact of AI-driven virtual assistants in enhancing consumer engagement during the online shopping experience.

The study demonstrates a positive trend in consumer awareness and understanding of AI technologies in online shopping platforms. A substantial proportion of respondents indicated at least a moderate awareness, reflecting a growing familiarity with AI applications in the online retail landscape.

The research establishes a positive correlation between consumer awareness and understanding of AI technologies and their level of trust in online shopping platforms. A majority of respondents expressed at least a moderate level of trust, emphasizing the potential influence of awareness and comprehension on building consumer confidence.

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**A STUDY ON SOCIAL MEDIA: A PERIL TO ONE'S SPENDING HABIT**

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**Dr. Manoj K Mishra<sup>1</sup> and Dr. S. V. Dongre<sup>2</sup>**<sup>1</sup>Assistant Professor, Department of Accountancy, Thakur College of Science & Commerce, Mumbai<sup>2</sup>Associate Professor, Department of Commerce, Mahatma Basweshwar Mahavidyalaya, Latur, Maharashtra**ABSTRACT**

*The usage of social media has increased over time, and it is influenced by various factors such as advertisements, trends, suggestions, and peer pressure. These factors may or may not increase consumers' tendency to overspend.*

*The research aimed to understand the correlation between these influencing factors and the reasons for consumers' overspending behavior. The goal was to determine if social media has an impact on driving consumers to exceed their budget.*

*To conduct the study, a well-structured questionnaire approach was utilized to collect primary data, which was distributed across various social media platforms. Additionally, secondary data was gathered from blogs, research papers, and news articles.*

*The findings of the study indicate that the influencing factors on social media are moderately and negatively correlated with the reasons for overspending. It suggests that other factors also contribute to consumers' tendency to overspend.*

*Keywords: Social Media, Overspending, Correlation, Consumers.*

**INTRODUCTION**

The rise of the popularity of social media among Gen Z, such as Facebook, Instagram, Twitter, etc, are believed to bring change in the habits of consumers, and the major change we see is the shift from offline to online shopping, due to social media and e-commerce combining. The benefits of this have been used by various brands to advertise their products and attract their potential customers.

According to the study conducted by DigitasLBi, Facebook alone influenced 52 per cent of consumers online, followed by Pinterest at 46%, Instagram at 43%, and 36% from Twitter. During the pandemic (Covid-19), there was a rush on e-commerce websites to buy products that they couldn't find in retail stores. Thus, global retail e-commerce sites saw a record of 22 billion monthly visits in which the majority of customers were directed from various social media platforms. [HubSpot]. The tempting advertisements and promotional content, fear of missing out on the trend, suggestions/ recommendations, and also due to peer pressure, are some of the factors which impact consumers' behaviour. Thus, the result clearly shows that social media has brought a major shift in the habits of consumers.

Could the shift in consumers' behavior, influenced by advertisements, peer pressure, trends, or recommendations, lead to dangerous overspending?

Thus, the research has been designed to assess whether social media influences customers significantly to spend more than the budget (exceeding their budget).

The paper begins with an introduction to the topic, followed by a discussion of methodology, review of literature, analysis of findings, and conclusion.

**RESEARCH OBJECTIVES**

To evaluate the extent to which social media exerts influence over consumers, potentially leading them to exceed their predetermined budgetary limits

**REVIEW OF LITERATURE****I] Consumers Buying Behaviour and Consumers' Spending Decisions**

1. With the ever evolution of technology, specifically the rise in usage of social media among GenZ, has proven the way for brands and marketers to advertise their latest products to their potential customers. As per the report, there are about 470.1 million monthly active users with a growth rate of 4.2% in India (OOSGA), thus paving a huge opportunity for brands to influence and integrate customers through advertisements.
2. The research conducted by DigitasLB provides insightful data concerning the varying degrees of influence exerted by different social media platforms on online consumers. According to their findings, Facebook emerges as a particularly influential platform, impacting the online decisions of a substantial majority,



specifically 52% of consumers. This signifies the pervasive reach and impact of Facebook as a medium for consumer engagement and persuasion.

In addition to Facebook's prominence, the study reveals notable influence percentages for other popular social media platforms as well. Pinterest, for instance, exerts a significant influence over the decisions of 46% of online consumers. Instagram, with its visually oriented content, holds sway over 43% of consumers, while Twitter, known for its real-time updates and engagement, influences the choices of 36% of the online consumer population.

3. Giving reviews has grown in popularity in recent years and has a stronger impact on consumer behavior than the conventional TV advertising method. If consumer psychology is one of the factors we take into account, it's crucial to understand that reviews posted on social media have a significant influence on consumers' purchasing decisions, as more than 51% of consumers, according to a research, read customer reviews on social media and forums before making decisions [sproutsocial].
4. Another crucial facet we prioritize for examination is the impact of product recommendations made by friends or relatives on social media, which wield substantial influence over consumers' purchasing choices. Research conducted by [Simplilearn] has demonstrated that such endorsements from personal connections result in a notable 9 percent uptick in product sales.

Furthermore, an independent study conducted by [Forbes] has revealed that a striking 80 percent of consumers are inclined to experiment with new products and services based on the suggestions put forth by their peers. This underscores the enduring power of social networks and the interpersonal relationships that traverse the digital landscape, as they play a pivotal role in steering consumer behaviors and fostering product adoption.

5. Considering the fear of missing out on trends (FOMO) and the habit of comparing one's lifestyle with others on social media often leads to peer pressure. Consequently, FOMO and peer pressure to achieve a similar lifestyle to others can result in making erroneous decisions and overspending. As per CNBC's reports, nearly 90% of millennials believe that social media fosters a tendency to compare their wealth or lifestyle with their peers. In contrast, 71% of Generation X and 54% of Baby Boomers share the same sentiment. Furthermore, Schwab's 2019 Modern Wealth survey indicates that approximately 49% of millennials, aged between 23 to 38, acknowledge that social media has influenced them to spend money on experiences. As aptly stated by Jim Herbert, "Peer pressure has always been a powerful influencing factor when it comes to making purchases."
6. According to recent trend analysis conducted by Cloutrack, it has become increasingly evident that consumers are exhibiting a propensity to allocate their expenditure towards products and services endorsed by influencers and celebrities in whom they place their trust. The study reveals that a substantial 49% of consumers base their purchasing decisions on the recommendations made by social media influencers.

This phenomenon is particularly pronounced within specific niche markets, as evidenced by the influence exerted by prominent "finfluencers" endorsing financial products and gaming enthusiasts advocating gaming-related merchandise. In these instances, consumers within the realm of social media actively seek guidance and validation from such influential figures, subsequently shaping their purchasing choices

#### **LIMITATIONS:**

1. The limitation duration of the study and focus was only at Thakur College of Science and Commerce, Kandivali.
3. A variation can be found in the study, due to the limited number of respondents and limited range of age bracket (16-26).

#### **METHODOLOGY**

The study was done to determine how social media impacts the behaviour and various factors that tend consumers to overspend. To gather primary data from 120 respondents across the age group of 16-26, the study used a well-structured questionnaire approach. To find relevant information, other research papers, blogs, and articles were also studied.

#### **HYPOTHESIS**

**H0:** Social media does not cause consumers to spend over their budget.

**H1:** Social media causes consumers to spend over their budget, due to various factors.

**ANALYSIS AND INTERPRETATION OF FINDINGS**

**1. Demographics**

**Chart 1.1**

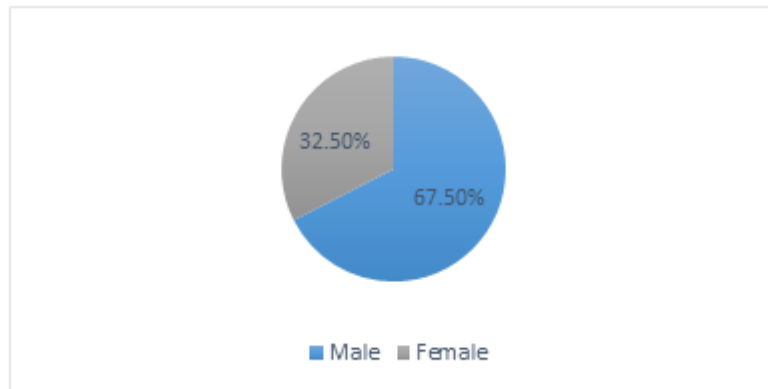
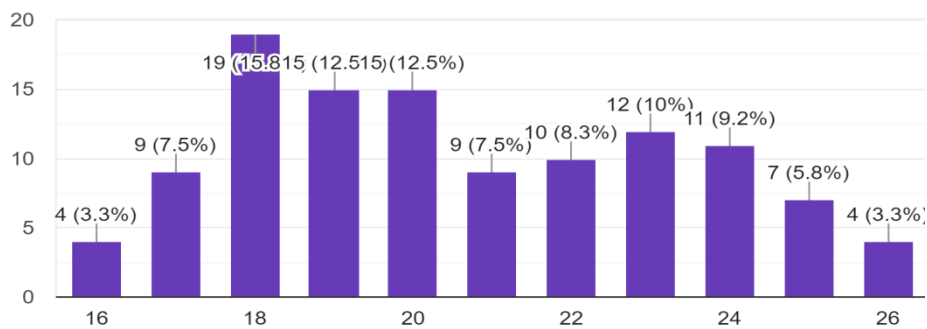


Chart 1.1 displays the gender distribution of the study, revealing a higher percentage of male respondents compared to females. The frequency of male respondents is 81, accounting for 67.50% of the total, while female respondents have a frequency of 39, making up 32.50% of the total.

**Graph 1.2**



Graph 1.2 presents the age distribution, showcasing notable percentages from various age groups. Age 20 holds the highest contribution with 32.26%, closely followed by age 18 with 30.65%.

**2. Social Media Users**

**Table 2.1**

	Frequency	Percentage
Yes	118	98.3%
No	2	1.7%
<b>Total</b>	120	100.00%

Table 2.1 presents the percentage of total social media users among the respondents. Among the 120 participants who participated in the survey, an overwhelmingly large majority comprising 118 respondents are active users of diverse social media platforms, which includes popular platforms such as Facebook, Instagram, Twitter, among others.

3. Distribution of Purchasing Frequency

Chart 3.1

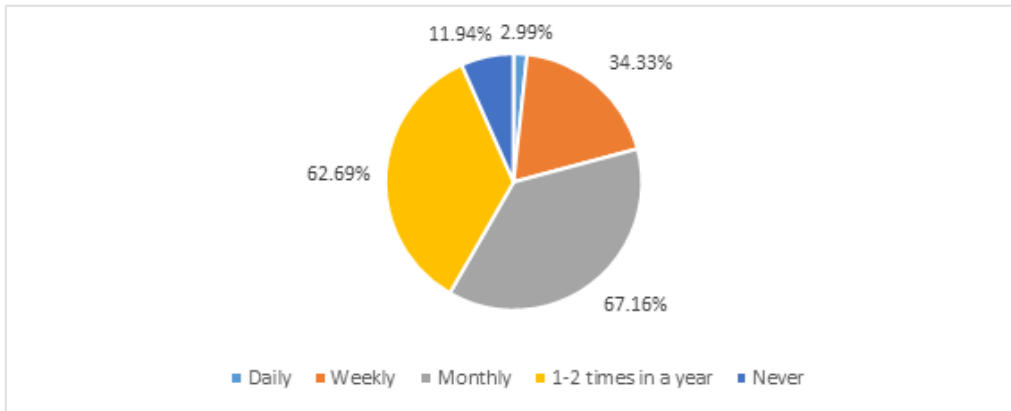


Chart 3.1 presents the frequency counts of purchasing distribution. The data analysis unveils noteworthy trends in respondents' frequency of engagement. The "Monthly" category emerges as the predominant choice, commanding a substantial share of 67.16%. In close proximity, we find the categories "1-2 times in a year" and "Weekly," accounting for 62.69% and 34.33% of respondents, respectively. In contrast, the "Daily" category registers the lowest participation, encompassing merely 2.99% of the respondents. These statistics provide valuable insights into the distribution of engagement frequencies among the surveyed individuals.

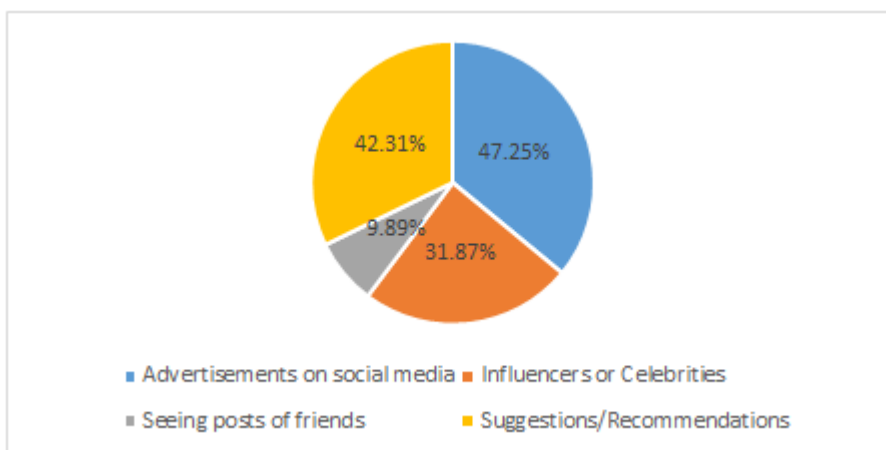
Table 3.2

Belief in Social Media Impact on Spending	Percentage
Yes	58.33%
No	27.50%
Not Sure	14.17%
<b>Total</b>	<b>100.00%</b>

Out of the 120 respondents, 58.33% believe that social media has increased their spending. On the other hand, 27.50% of respondents do not believe that social media has impacted their spending, and 14.17% of respondents are uncertain about the influence of social media on their spending habits.

4. Influencing Factors to Make Purchase Decisions

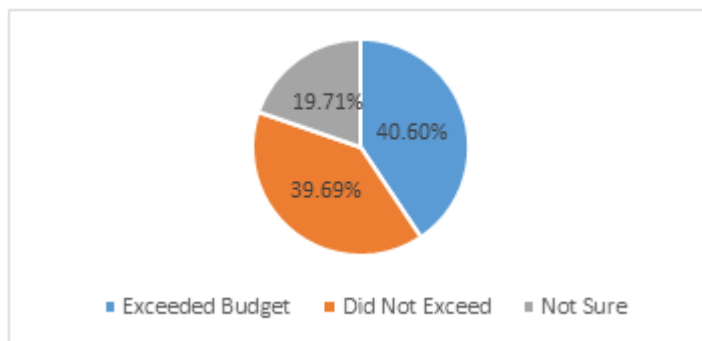
Chart 4.1



The data (Chart 4.1) indicates that advertisements on social media have the highest frequency at 86 occurrences, constituting 47.25% of the total. Suggestions/Recommendations follow closely at 77 instances (42.31%), while Influencers/Celebrities account for 58 occurrences (31.87%). These findings underscore the influential role of social media in shaping purchase decisions.

5. Consumers Overspending Distribution

Chart 5.1



These numbers shed important light on the prevalence of impulsive purchases and the potential financial implications of social media's influence on consumer behavior.

The table gives a concise summary of the replies from social media users regarding their experiences going over their allotted budgets. 40.60% of the total respondents admitted that they have made purchases that went beyond their spending limits. 39.69% of respondents, on the other hand, claimed that they did not go over their budget while making purchases that were influenced by social media. In addition, 19.71% of respondents said they weren't sure if they had spent more money than they had planned to when making these purchases.

6. Correlation Between Influencing Factors and Reasons to Overspend

To find the correlation between the influencing factors and the reasons to overspend, we need to assign numerical values to both sets of data. Let's use the values 1, 2, 3, and 4 to represent "Advertisements on social media," "Influencers or Celebrities," "Seeing posts of friends," and "Suggestions/Recommendations" for both influencing factors and reasons to overspend, respectively.

Table 6.1 Distribution of Influencing Factors

Influencing Factors	Frequency	Percentage
Advertisements on social media	86	47.25%
Influencers or Celebrities	58	31.87%
Seeing posts of friends	18	9.89%
Suggestions/Recommendations	77	42.31%
<b>Total</b>	<b>239</b>	<b>100%</b>

Table 6.2 Distribution of Reasons to Overspend

Reasons to Overspend	Frequency	Percentage (%)
Advertisements on social media	56	20.00%
Influencers or Celebrities	73	26.07%
Seeing posts of friends	69	24.64%
Suggestions/Recommendations	32	11.43%
<b>Total</b>	<b>280</b>	<b>100.00%</b>

Now calculating the correlation between the influencing factors and the reasons to overspend. For this, we will use the Pearson correlation coefficient, which measures the linear relationship between two variables.

The formula for Pearson correlation coefficient (r) is:  

$$r = \frac{\sum(X_i - \bar{x})(Y_i - \bar{y})}{\sqrt{\sum(X_i - \bar{x})^2 \sum(Y_i - \bar{y})^2}}$$

Where:

$X_i$  and  $Y_i$  are the numerical values for the influencing factors and the reasons to overspend, respectively.

$\bar{x}$  and  $\bar{y}$  are the means of the numerical values for the influencing factors and the reasons to overspend, respectively.

Using the given data, we can calculate the correlation between the influencing factors and the reasons to overspend. However, since the percentages are already provided, we can directly use them as the numerical values for calculation.

Where  $X_i$  and  $Y_i$  are the percentages for the influencing factors and the reasons to overspend, respectively.

Let's calculate the means of the percentages:

$$\bar{x} = \{47.25 + 31.87 + 9.89 + 42.31\}/\{4\} = \{131.32\}/\{4\} \approx 32.83\%$$

$$\bar{y} = \{20.00 + 26.07 + 24.64 + 11.43\}/\{4\} = \{82.14\}/\{4\} \approx 20.54\%$$

Finally, let's calculate the correlation coefficient (r):

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}}$$

$$\approx -193.67/328.86$$

$$\approx -0.5889$$

The correlation coefficient (r) is approximately -0.5889, which indicates a moderate negative correlation between the influencing factors and the reasons to overspend. This means that there is a tendency for certain influencing factors to be associated with lower frequencies of corresponding reasons to overspend, and vice versa. However, as the correlation coefficient is not close to -1, the relationship is not very strong, and other factors may also be influencing the reasons for overspending.

### SUMMARY OF ANALYSIS

A statistical measure that expresses the degree and direction of the linear relationship between two variables is the correlation coefficient (r). Its value spans from -1 to +1, with 0 denoting no linear correlation and -1 denoting a perfect negative correlation and +1 denoting a perfect positive correlation.

The correlation coefficient (r) in this instance is roughly -0.5889, which indicates a moderately negative correlation and is closer to -1 than to 0. This implies that as one set of data frequency or percentage rises, the frequency or percentage of the other data set tends to fall, and vice versa. It implies that some influencing elements typically have lower frequencies or percentages of reasons for overspending, and vice versa.

In summary, the moderate negative correlation suggests that there is a visible link between the influencing factors and the reasons to overspend, but it is not the only factor influencing individuals' spending behavior. Other factors and complexities might also be involved in determining why people overspend.

### CONCLUSIONS

Based on the findings presented in the aforementioned study, it can be reasonably inferred that a discernible correlation exists between specific influencing factors, including social media advertisements, recommendations from personal connections, and the fear of missing out on prevailing trends, and the manifestation of overspending behavior among consumers. These factors, as elucidated by the research, appear to wield a certain degree of influence over consumer expenditure patterns.

However, it is important to underscore that the study does not purport these identified influencing factors to be the exclusive or exhaustive determinants of such behavior. Rather, it acknowledges the likelihood that additional, as yet unidentified, factors may also contribute to consumers' propensity to engage in overspending. Thus, while the study sheds light on critical factors at play, it also underscores the complexity of consumer behavior and the need for further exploration to unveil the full spectrum of influences impacting spending decisions.

### FUTURE SCOPE OF STUDY

1. The study highlights the critical significance of identifying and comprehending specific influencing factors that play a pivotal role in shaping consumer spending decisions.
2. It underscores the imperative for conducting deeper investigations to attain a more profound and comprehensive comprehension of the intricacies inherent in overspending behavior.
3. This heightened understanding can be harnessed as a valuable tool for the development of precise strategies aimed at cultivating responsible spending habits among consumers.
4. By recognizing the nuanced complexities embedded within consumer decision-making processes, organizations and policymakers can formulate strategies that are not only more refined but also more effective in achieving their objectives.
5. Ultimately, these endeavors contribute to the enhancement of financial literacy and the cultivation of more judicious expenditure patterns among individuals.

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## A STUDY ON DIFFERENT ASPECTS OF SHARIAH FINANCE BASED CAPITAL MARKET WITH REFERENCE TO FINTECH (AI)

**Ashfaq Ahmad Khan<sup>1</sup>, Mohammed Mukhtar Khan<sup>2</sup> and Kashmiri Saudagar<sup>3</sup>**

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### ABSTRACT

*The Shariah-based capital market is a pivotal component of Islamic finance, adhering to Shariah law's ethical principles. This market offers various investment avenues, including equities, Sukuk (bond), derivatives, unit trusts, ETFs, REITs, commodity funds, and Takaful (insurance), all in compliance with Islamic tenets. The market's resilience and growth, exemplified by the flourishing Sukuk market and innovative Shariah-compliant products, reflect its global significance. Regulatory bodies, scholars, and financial institutions shape and regulate these markets, emphasizing ethical finance, transparency, and mutual cooperation. As investors increasingly seek responsible investment options, Shariah-based capital markets promote financial inclusion and sustainable development, embodying values of fairness, integrity, and social responsibility in the global financial system.*

*Keywords: Islamic Finance, Shariah, Takaful, Sukuk*

### INTRODUCTION

The Shariah-based capital market, guided by Islamic principles, eschews interest-based transactions and invests ethically, attracting diverse investors globally. It surpassed USD 2.05 trillion in 2017, with Sukuk (bond) issuance hitting USD 399.9 billion. This growth underscores confidence in Shariah-compliant finance, fostering ethical investments and financial inclusion. Understanding its mechanisms and trends illuminates its role in promoting sustainable economic development.

### MEANING

Islamic Finance aligns with Shari'ah law, forbidding interest, excessive uncertainty, gambling, and harmful transactions. It emphasizes ethical conduct, transparency, and social responsibility in

#### 1) Shariah-Based Equity Markets

Financial services and investments.

In the realm of finance, Shariah-based equities embody the ethical heartbeat of companies aligned with Islamic principles. These securities mirror businesses engaged in Shariah-compliant activities, bearing the stamp of approval from Islamic scholars through rigorous stock screening. For a company to earn the coveted title of Shariah-based, its revenue must steer clear of non-compliant domains like alcohol, gambling, or interest-based dealings. Malaysia, with its pioneering Shariah Advisory Council, stands tall in fostering this ethical financial landscape. Amidst global authorities and institutes, each crafts unique screening norms, illuminating the path toward ethical investment.

#### 2) Sukuk (Bond) Soaring: A Harmonious Crescendo in Islamic Finance

In the dynamic symphony of Islamic finance, the Shariah-based Sukuk market stands out as a crescendo of growth. From 2001 to 2007, Sukuk witnessed a dazzling 84% annual compound growth, reaching a valuation of \$80-90 billion. The 2008 subprime crisis cast a momentary shadow, causing a dip to \$14 billion in the initial eight months. Sukuk, derived from the Arabic "sakk," meaning certificate, epitomizes trust in asset ownership, distinguishing itself from conventional bonds by abstaining from interest payments.

Easily traded and imbued with liquidity, Sukuk embodies real assets, offering investors diverse income options through instruments like Salam, Bai-muajjal, and Ijarah.

#### 3) Shariah-Based Derivatives

In the ever-evolving landscape of Islamic finance, the rise of Shariah-based derivative instruments emerges as a powerful chord in risk management. These instruments, crafted within the principles of Shariah law, encompass profit rate swaps, structured options rooted in the art of promise (wa'd), and innovative tools like the Islamic FX outright and foreign exchange wa'd. Underpinned by contracts such as bai salam and bai istisna, Shariah-based derivatives diverge from traditional counterparts by disallowing speculation or maisir (gambling). Designed for hedging and arbitrage, these instruments harmonize financial growth while upholding Islamic principles, shunning riba and excessive uncertainty.

**4) Shariah-Based Unit Trus**

In the symphony of financial instruments, Shariah-based unit trusts strike a unique chord. Unlike their conventional counterparts, these trusts exclusively dance to the rhythm of Shariah-compliant stocks and securities, embracing Murabahah, Musharakah, and innovative structures like bai salam. With a diverse sphere of investments spanning leasing, public works, and real estate, they navigate the melody of short-term, medium-term, and long-term commitments. Categorized by risk, these trusts offer low, medium, and high-risk tunes, tailored to open-ended or closed-ended funds. Governed by the harmonious concept of "Bai'al naqdi," these trusts orchestrate financial growth.

**5) Shariah-Based Exchange Traded Funds**

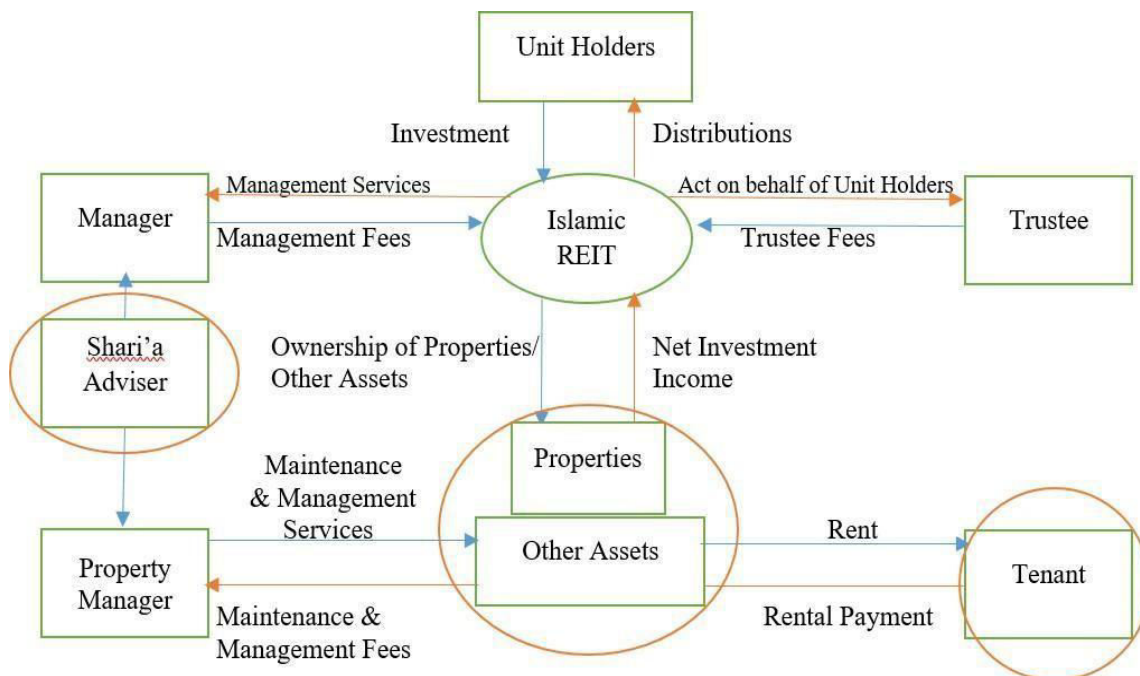
Launched in February 2006, Shariah-based Exchange Traded Funds (ETFs) represent a paradigm shift in the world of finance. Unlike traditional counterparts, these ETFs are a dynamic interplay of quoted securities meticulously chosen to mirror benchmark indices.

What sets them apart is adherence to Shariah-compliant stocks, and passing rigorous screening processes for ethical engagement. Trading on the stock exchange adds a layer of flexibility, allowing investors tax efficiency, cost-effectiveness, and transparent clarity. In this financial ballet, Shariah-based ETFs emerge as a harmonious blend of innovation, ethics, and investor-friendly advantages.

**6) Shariah-Based Reits**

In the intricate realm of finance, Shariah-based Real Estate Investment Trusts (REITs) take centre stage, mirroring their traditional counterparts with a touch of ethical finesse. Designed as property trusts, these REITs adhere zealously to the principles of Islamic laws, notably the rule of ijarah—utilizing lease financing for property acquisition. Their portfolio extends beyond physical real estate, encompassing Sukuk, real estate from private firms, and assets from Shariah-based companies. Malaysia led the way in 2006 with the groundbreaking issuance of \$130 million by the Malaysian Al-Aqar, marking a harmonious blend of financial innovation and Shariah principles.

**7) Structure of an Islamic Reits**



Source: Jaafar (2007).

**8) Shariah-Based Commodity Funds**

In the tapestry of Shariah finance, Commodity Funds emerge as ethical voyagers navigating the seas of trade. Upholding Islamic principles, these funds embark on a journey through meticulous Shariah screening, ensuring only halal commodities grace their portfolio. Guided by Usmani's rules, the seller's ownership dance, a prohibition on short sales, and the nuanced allowance for forward sales within the realms of bai salam and bai



istisna paint a picture of ethical clarity. Commodity dealings veer away from forbidden territories like pork and wine, embracing a realm where transparency in possession and fixed prices reign supreme. Welcome to the realm where ethical trade meets financial seas.

### 9) Shariah-Based Indices

In the cosmic realm of finance, the DJIM Index and T11-FTSE Islamic Index emerged as the pioneering constellations in 1999 and 2000, casting a Shariah-compliant glow worldwide. MSCI and S&P, enchanted by this celestial dance, joined in, crafting their own benchmarks. S&P's symphony included the S&P 500 Shariah Index, S&P Japan 500 Shariah Index, and the S&P Europe 350 Shariah Index from 2006. MSCI, a luminary, gifted the financial galaxy with three radiant indices: MSCI Emerging Markets Islamic Indices, MSCI USA Islamic Index, and MSCI World Islamic Index. Meanwhile, Indonesia's bourse birthed the Jakarta Islamic Index, a star-studded spectacle since 2000. The financial cosmos, aglow with Shariah brilliance, continues to captivate the investment universe.

### 10) Quantitative Screens of Major Islamic Index Families

Major Islamic index families, like DJIM, T11-FTSE, S&P, and MSCI, embark on a journey through quantitative screens, defining the celestial order in the Shariah-compliant universe. DJIM Index: Launched in 1999, DJIM uses rigorous screens, to evaluate financial ratios, debt levels, and business activities. Only firms meeting Shariah principles earn a place in this exclusive galaxy. T11-FTSE Islamic Index: Illuminating the heavens since 2000, T11-FTSE employs meticulous criteria. Corporations with debt ratios below set limits and no engagement in prohibited sectors dance in this divine constellation. S&P Shariah Indices: S&P's symphony of Shariah screens, such as the S&P 500 Shariah Index, harmonizes financial data, ensuring compliance with Islamic tenets. Prohibiting interest-driven earnings, it charts a virtuous trajectory. MSCI Islamic Indices: Pioneering MSCI crafted three enchanting indices—MSCI Emerging Markets, MSCI USA, and MSCI World Islamic. These indices orbit within strict parameters, omitting firms entangled in impermissible activities. As these Islamic index families weave their quantitative spells, investors traverse the cosmos guided by the virtuous glow of Shariah compliance.

### 11) Shariah-Based Takaful (Insurance)

In the tapestry of Islamic finance, Takaful emerges as a luminary, casting its glow on the shadows of traditional insurance. Guided by Quranic wisdom and Hadees, Takaful stands as a testament to ethical financial practices, rejecting the games of chance and pursuit of profit. Instead, it thrives on a sacred covenant where kindred souls unite, contributing to a shared reservoir of protection. Takaful, with its three divine models, becomes a symphony of mutual cooperation, a financial haven where shared values triumph over the allure of profit. Within its sanctuary, Family and General Takaful's plans bloom, weaving a celestial tapestry of collective resilience and shared well-being.

### FINTECH IN SHARIAH FINANCE

- Islamic Banking Apps: Provide access to Shariah-compliant banking services like account management and fund transfers.
- Islamic Crowdfunding Platforms: Enable ethical investment via profit and loss-sharing agreements.
- Shariah-Compliant Robo-Advisors: Offer investment advice aligned with Islamic principles.
- Blockchain-Based Halal Certification: Ensures transparency in Shariah-compliant transactions.
- Islamic Peer-to-Peer Lending Platforms: Connect borrowers and investors for Shariah-compliant financing.
- Islamic Cryptocurrency: Digital currencies complying with Shariah principles.
- Digital Sukuk Platforms: Facilitate issuance and trading of Islamic bonds.
- Shariah-Compliant Payment Gateways: Ensure transactions adhere to Islamic finance principles.

### SUGGESTIONS

Shariah-Based Capital Markets offer diverse Islamic investment avenues. Equities, Sukuk, derivatives, unit trusts, ETFs, REITs, commodity funds, and Takaful emphasize ethical finance. Equities undergo stringent screening, while Sukuk ensures trust in asset ownership. Derivatives manage risk within Shariah principles. Unit trusts cater to various risk profiles, and ETFs provide flexibility with Shariah compliance. REITs expand beyond real estate, and commodity funds navigate halal trade. Takaful fosters mutual cooperation over profit motives. Together, they compose a dynamic ecosystem appealing to investors aligned with Islamic values in their financial pursuits.

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**CONCLUSION**

In summary, Shariah-based capital markets represent a dynamic ecosystem guided by ethical principles and Islamic values. These markets offer diverse investment avenues such as equities, Sukuk, derivatives, unit trusts, ETFs, REITs, commodity funds, and Takaful, all adhering to Shariah law.

The growth and resilience of Shariah-based markets, exemplified by the thriving Sukuk market and innovative products like Shariah-compliant ETFs and REITs, underscore their global significance. Regulatory bodies, Islamic scholars, and international financial institutions play crucial roles in shaping and regulating these markets.

The emphasis on ethical finance, transparency, and mutual cooperation within Takaful further enhances the integrity of Shariah-based capital markets. As investors increasingly seek responsible investment options, these markets serve as beacons of financial inclusion and sustainable development, aligning with broader societal goals.

In essence, Shariah-based capital markets not only provide financial opportunities but also embody values of fairness, integrity, and social responsibility, contributing to a more ethical and inclusive global financial system.

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**AI TRANSFORMING EDUCATION: A COMPREHENSIVE ANALYSIS OF ITS APPLICATION IN IMPLEMENTING THE NATIONAL EDUCATION POLICY 2020**

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*The manuscript explores the dynamic intersection of Artificial Intelligence (AI) and the National Education Policy 2020 (NEP) in India, unraveling their profound implications on education. Commencing with the inception of AI in 1956, the narrative delves into the current AI renaissance fueled by machine learning's widespread adoption. The NEP 2020, as a transformative force in Indian education, envisions a global knowledge superpower, with AI playing a pivotal role in fostering holistic, flexible, and multidisciplinary education. The literature review navigates through policies, and the alignment of AI with educational goals, emphasizing the need for strategic planning in transforming teachers' roles. The manuscript also surveys common AI tools in India, highlighting their diverse applications, and sheds light on AI's integration into the NEP, exemplified by the ARIES platform. Lastly, the evolving roles of teachers in the context of AI are discussed, emphasizing the need for strategic policy making to ensure continued teacher prominence in education.*

*Keywords: Artificial Intelligence (AI), National Education Policy 2020 (NEP), Education Transformation, Machine Learning, Holistic Education.*

**INTRODUCTION**

The term "artificial intelligence" (AI) was indeed first coined at a workshop held at Dartmouth College in 1956. The workshop, organized by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon, marked the beginning of AI as a field of study. The attendees discussed the possibility of creating machines that could simulate human intelligence [1]. We're in an AI renaissance with widespread adoption of machine learning across sectors. This AI type thrives on analyzing vast datasets, driven by the exponential growth of daily data creation (2.5 quintillion bytes) and the increased processing power of today's devices, thanks to Moore's law. The success of machine learning hinges on the synergy of big data and powerful computing, essential for processing millions of data points in its algorithms. The National Education Policy (NEP) serves as a comprehensive blueprint for the development and reform of education in India, spanning all educational levels from pre-primary to higher education. Having undergone revisions in 1968 and 1986, the NEP witnessed its latest update in 2020, with approval from the Union Cabinet after extensive consultations with stakeholders and experts. Positioned as a transformative force, the NEP 2020 envisions India as a global knowledge superpower, emphasizing holistic, flexible, and multidisciplinary education aligned with 21st-century needs. In tandem, Artificial Intelligence (AI) emerges as a pivotal component within this framework, encompassing diverse technologies like machine learning, natural language processing, computer vision, and robotics. AI holds the potential to revolutionize multiple sectors, though its integration into education demands careful consideration. The NEP 2020 recognizes the indispensability of AI in contemporary education, aiming to instill crucial skills from an early age and harness AI solutions for improved accessibility, personalized learning, and cultural diversity. The policy further endeavors to propel AI research, innovation, and address global challenges, underscoring its commitment to creating opportunities and fostering inclusivity. As the integration of AI into the NEP 2020 unfolds, it stands as a visionary initiative requiring meticulous planning, implementation, and evaluation to ensure sustained effectiveness and impact.

**2. LITERATURE REVIEW:**

**2.1. AI in Education:** Numerous studies have investigated the impact of AI on various aspects of education. In their work, Balaji et al. (2019) [2] explored the use of AI in personalized learning, highlighting its effectiveness in adapting educational content to individual student needs. Similarly, Wang et al. (2020) [3] emphasized the role of AI in intelligent tutoring systems, demonstrating its potential to provide tailored support and feedback to students.

**2.2. Global Initiatives and Policies:** Several countries have recognized the transformative potential of AI in education and have formulated policies to guide its integration. The European Commission's Digital Education Action Plan (DEAP) (2018) [3] is a notable initiative, emphasizing the need to harness AI for improving teaching and learning processes across Europe. Additionally, the United States Department of Education's

National Education Technology Plan (NETP) (2017) [4] outlines strategies for leveraging AI to enhance educational equity and accessibility.

**2.3. Alignment with Educational Policies:** The alignment of AI strategies with national educational policies is crucial for successful implementation. The Australian Government's Quality Schools Package (2018) [5] exemplifies this alignment, emphasizing the use of AI to support teachers and enhance student learning experiences while adhering to broader education policy goals. Similarly, Singapore's Smart Nation initiative (2014)[6] integrates AI into education, aligning with the country's broader strategy for creating a digitally advanced society.

**2.4. Application of AI in Implementing NEP:** The National Education Policy 2020 in India recognizes the transformative potential of AI across all levels of education. Research by Sharma and Kapoor (2021) [7] emphasizes the importance of aligning AI initiatives with the NEP's goals, particularly in fostering critical thinking and multidisciplinary education.

The literature review highlights the multifaceted relationship between AI in education, global initiatives and policies, and the alignment of AI strategies with national education policies. Previous research provides insights into the potential benefits of AI in enhancing personalized learning and intelligent tutoring systems. Global initiatives and policies, such as the DEAP and NETP, demonstrate the international recognition of AI's role in education. Aligning AI strategies with national policies is crucial, as exemplified by Australia and Singapore. In the context of India, the NEP 2020 serves as a visionary framework, and future research should focus on the effective integration of AI to realize its goals and enhance the overall education landscape.

**3. Some of the ways that AI is used in the NEP are [8]:**

- Teaching contemporary subjects such as AI and Design Thinking to school children to develop their digital literacy, coding and computational thinking skills.
- Integrating topics such as AI, big data analysis and machine learning with the undergraduate education to train industry-ready professionals.

Offering Masters and doctoral programmes in core areas of AI such as Machine Learning in all universities.

Literature Search	Elicit	Connected Papers	Research Rabbit
Writing Assistants	ChatGPT	WordTune	Bard
Grammar & paraphrasing	Quillbot	PaperPal	Grammarly
Citations	Zotero	Mendeley	JabRef
Illustrations	Canva	BioRender	Draw.io
Data (Quantitative)	R	SPSS	JASP
Data (Qualitative)	ATLAS.ti	Nvivo	Ottter
Productivity	Trello	Notion	Pomofocus

Fig. 1. shows logos of AI tools with their uses.

- Using AI-powered solutions for establishing multilingual as well as holistic education.
- Promoting research in AI through the National Research Foundation (NRF) to address global challenges in areas such as healthcare, agriculture and climate change.

An example of an AI tool that is used in the NEP is the ARIES platform, which stands for Artificial Intelligence for Environment and Sustainability. This is an AI tool that supports countries as they apply the new international standard for natural capital accounting, the System of Environmental-Economic Accounting (SEEA) Ecosystem Accounting. The ARIES platform can help measure and value the ecosystem services and

natural assets, such as forests, water, soil and biodiversity, that are essential for human well-being and economic development. The ARIES platform can also provide policy-relevant information and scenarios for decision-making and planning [9]

**5.AI in Education: Evolving Roles for Teachers:** While machines may not replace teachers soon, AI developers aim to alleviate various teacher tasks, allowing them to focus on human aspects of teaching. As AI functionalities improve, teachers may see a reduction in burdens related to knowledge transmission. This shift theoretically enables teachers to concentrate on higher-order thinking, creativity, collaboration, and social values in learning activities. Policymakers must strategically review the transformation of teachers' roles in AI-rich environments to ensure they continue to play a critical role in education.

**TABLE 1: AI-AS-A-SERVICE EXAMPLES [10]**

TECHNOLOGY	COMPANY	AI AS A SERVICE PLATFORM
Alibaba Cloud	Alibaba Cloud	Cloud-based AI tools to support the demands of businesses, websites, or applications.
Amazon AWS	Amazon	Pre-trained AI service for computer vision, language, recommendations, and forecasting. It can quickly build, train, and deploy machine learning models at scale or build custom models with support for all the popular open-source frameworks.
Baidu EasyDL	Baidu	Supports customers to build high-quality customized AI models without having to code.
Google TensorFlow	Google	An end-to-end open-source platform for machine learning, including an ecosystem of tools, libraries, and community resources that enables researchers to share the state-of-the-art in machine learning and developers to easily build and deploy machine-learning-powered applications.
IBM Watson	IBM	Allows users to bring AI tools and apps to the data wherever it resides regardless of the host platform.
Microsoft Azure	Microsoft	Includes more than 100 services to build, deploy, and manage applications.
Tencent WeStart	Tencent	Maps AI capabilities, professional talent, and industry resources to support the launch or enhancements of start-ups. It connects industry partners, disseminates and applies AI technology in different industry sectors.

**7. CONCLUSION**

This paper has explored the role of AI in education, with a focus on the NEP 2020 as a case study. It has shown how AI can enhance various aspects of education, such as personalization, accessibility, diversity, and innovation. It has also reviewed the global initiatives and policies that support the integration of AI into education, and highlighted the importance of aligning AI strategies with national educational goals. The paper has argued that the NEP 2020 is a visionary initiative that recognizes the indispensability of AI in contemporary education, and aims to create a global knowledge superpower that fosters opportunities and inclusivity. However, the paper has also acknowledged the challenges and limitations of implementing AI in education, such as ethical, social, and technical issues. Therefore, the paper has suggested some recommendations for future research and practice, such as:

- Conducting more empirical studies to evaluate the impact and effectiveness of AI in education, especially in the Indian context.
- Developing ethical and legal frameworks to ensure the responsible and transparent use of AI in education, and to protect the rights and interests of students, teachers, and other stakeholders.
- Providing adequate training and support for teachers and students to develop their AI literacy and skills, and to foster a culture of lifelong learning and collaboration.
- Establishing partnerships and networks among researchers, educators, policymakers, and industry to facilitate the exchange of knowledge and best practices, and to foster innovation and sustainability.

The paper concludes that AI is a powerful and promising tool that can transform education and society, but it also requires careful and critical consideration. By integrating AI into the NEP 2020, India has taken a bold and

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progressive step towards achieving its educational vision, but it also faces significant challenges and opportunities. The paper hopes that this study will contribute to the ongoing dialogue and debate on the role of AI in education, and inspire further research and action in this field.

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**A STUDY ON INNOVATIVE TECHNIQUE ADOPTED BY BEST BUS SERVICES WITH REFERENCE TO CHALO BUS APP**

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**ABSTRACT**

*The study emphasis on innovative techniques adopted by BEST Bus Services in order to bring out necessary changes in their service pattern. The Advancement in technology and digitalization forced each and every sector to make use of advance technology in their services which will lead to generate a greater demand and will improve efficiency and productivity of that particular industry. However, after the introduction of the app various changes have been observed and noted too in passengers/commuters' expectations. It is equally very important for commerce industry to understand the needs and expectations of the passengers and try to fulfill them through the best possible way. Upgradation and updating the services is one of the crucial parameters of BEST Bus Services over a period of time. A survey has been conducted with a random sampling of 60 commuters belonging to the Mumbai suburban region. The findings of the study will help to identify the changes that have occurred after introduction of the bus app.*

*Keywords: Latest Techniques, Innovation, Modernization, User Friendly App, Bus travel industry.*

**INTRODUCTION**

Public transport in Mumbai involves the transport of millions of its citizens by train, road and water. Mumbai has the largest organized bus transport network among major cities. BEST operates one of India's largest fleets of buses. Chalo is India's First bus transportation technology company that provides live bus tracking services and contactless payment solutions to transform everyday bus travel into a safer and more reliable experience. The legal name of Chalo is Chalo Mobility Private limited. It is launched in Mumbai in partnership with Brihanmumbai Electric Supply and Transport (BEST) undertaking. Chalo mobile app enables its passengers to buy online tickets and bus pass via an electronic wallet. The Chalo app is free, that allows commuters to track their bus live location and informs them when their bus will reach the destination stop. Commuter's expectations matter a lot, because if you can fulfil them than they are likely to spend more and respond more after their positive experience. The Chalo app allows passengers to buy passes which is more convenient than paying cash to the conductor. Along with app they do have a Chalo card, commuters can recharge the Chalo card wallet with any amount from Rs. 10 onwards, in multiple of Rs. 100/- the balance on card never expires. The bus transport service covers the entire city and also extends its operations outside city limits into neighbouring urban areas.

**Why Innovation is Important?**

- ❖ In this present era where we can see a stiff competition going on every sector has achieved and adopted advancement in technology in order to retain their customers, clients, passengers and so on.
- ❖ That is why innovation in products and services is a must.
- ❖ So that one can continue and remain consistent in their activities for a longer period of time.

**REVIEW OF LITERATURE**

**Rahul N. Wadekar<sup>1</sup>, K.Y. Shinde<sup>2</sup> and Kanwalpreet Kaur Puri<sup>3</sup> (2021)** Consumer Behaviour towards Best Bus in Mumbai City Post Lockdown. The Objectives of the Study was to evaluate the change in preference of BEST Bus. 2. To find influence of population on preference of BEST Bus post lockdown. Primary data is collected through online questionnaire and secondary data is collected from online material. Non-random convenience sampling. Sample size was 61. Residents of Mumbai City. Data has been collected from total 61 respondents out of which 34 are female respondents and 27 are male respondents. This is a positive aspect for BEST, and in case the people are satisfied, they might opt for the service in the coming days as well. The decrease in preference for services was seen towards educational purpose and sight- seeing.

**Ms. Kanwalpreet Kaur Puri, Asst. Professor, JM Patel College, Goregaon West Mr. Sohil Altaf Pirani, Research Scholar, BAMU University (2019),** Consumers Perception towards BEST Bus Service in Mumbai City. The main purpose of the study was to identify Consumer's Perception towards travelling by BEST BUS and to Find Out Various Factors That Influences THE PREFERENCE OF TRAVELLING. The Data has been collected through online questionnaire. The Secondary source of data has been collected through Books, Journals and Magazines. Sample size was 75 respondents belonging to Mumbai city. This study also throws

light on several factors such as professional drivers, comfort level, cost of ticket, frequency of bus, fixed timings of bus, waiting time etc that correlates to frequencies of travelling by BEST BUS.

**Cascetta & Carteni, 2014** The quality of bus transit service depends on numerous factors, such as average travel time and reliability, transit waiting time, monetary costs, comforts of riding, information, and personal security.

### **SCOPE OF THE STUDY**

This study would be undertaken to analyze the innovative changes that have occurred in the service provided by BEST Bus services in Mumbai. It would also be helpful to us to understand the factors that have influence passenger's perception towards the bus app.

### **RESEARCH METHODOLOGY**

It's a specific procedure used to identify, select, process and analyze the information used in the research paper. In order to present the accurate fact. It also helps the researcher to evaluate over all reliability and validity of the research paper. In short research methodology emphasis on systematic way or method of doing research.

**Problem of the study:** The study is based on innovative techniques adopted by BEST Bus Services with reference to its app and what is the problems face by the commuters at the time of operating or using the bus app.

### **RESEARCH OBJECTIVE:**

1. To study the innovative techniques adopted by BEST Bus Services.
2. To identify the factors that has influenced passengers towards the use of the Chalo bus app.
3. To analyse how commuter's expectations helps BEST bus services to improve further in terms of products and services.
4. To study the limitations of the Chalo bus app.

### **HYPOTHESIS**

In light of the discussion in preceding sections, the following hypothesis is proposed:

Using CHI- SQUARE TEST.

- **H0:** There is no significance in using Chalo bus app of BEST Bus services at the time of travelling by bus.
- **H1:** There is a significance in using Chalo bus app of BEST Bus services at the time of travelling by bus.

### **Research Design**

The research design provides guidelines about the data element. The study is based on both primary data and secondary data. The primary data was collected through structured questionnaire for which the sample size was 60 respondents (Bus passengers) were selected from different areas of the city. Secondary data gathered from different database sites; articles and journals written by various authors also referred.

### **Area of the Study**

The study is undertaken in and around the Mumbai city and its suburban areas.

### **Research Approach**

The questionnaire method of survey is used for collecting primary data from commuters belonging to Mumbai region. We appealed all respondents to fill in the questionnaire, by themselves by self- explaining the various aspects mentioned in it. It contained both open ended and close ended questions in the structured form which is very easy to understand at a glance.

### **Sample Technique**

A convenient sample (Probability sampling method) of 60 commuters belonging to Mumbai region shared their information regarding the study. They were requested to complete the questionnaire on voluntary basis. The study was done in January 2024.

### **Data Usage**

The analysis and interpretation are done on the basis of primary data. However, for conclusion and recommendation both primary and secondary data is used along with the verbal knowledge and information obtained from respondents. The data collected from these sources were analysed using tools like chi- squared test methods.



**Table- 1:** Age, Gender and Occupation Wise Demographic Pattern of Individual Commuter/ Passenger.

Demographic Category of Commuters	Parameters	Number of Representatives	
		Total (60)	Percentage
Gender	Male	25	58.3
	Female	35	41.7
	Other	-	-
Age	18-29 YEARS	54	90
	30-44 YEARS	5	8.3
	45-59 YEARS	1	1.7
	60 & ABOVE	-	-
Employment	Student	41	68.3
	Self- Employed	1	1.7
	Private Service	15	25
	Public Service	1	1.7
	Business	1	1.7
	Others	1	1.7

Table- 1: Indicates a Demographic category includes gender, Male- 58.3 and female- 41.7. Majority of the respondents belongs to the age criteria from 18-29 years. Employment status 68.3 percent were students, 25 percent belonging to private sector job and other profession includes public sector, self-employed, others and business were 1.7 percent.

**Table- 2:** Do you think introduction of Chalo Bus app of BEST Bus Services is one of the innovative techniques adopted by them?

Mode of Preference	Total (60)	Percentage
Yes	39	65
No	2	3.3
May Be	19	31.7

Table 2 Indicates that 65 percent of commuters felt that introduction of Chalo bus app of best bus services is one of the innovative techniques adopted by them, whereas 31.7 holding neutral opinion and 3.3 with the opinion of no.

**Table- 3:** Do you feel that Chalo app of BEST Bus services is useful at the time of travelling by bus.

Mode of Preference	Total (60)	Percentage
Yes	51	85
No	9	15

Table 3 highlighted that 85 percent of the commuters think that Chalo Bus app of Best Bus services is useful at the time of travelling by bus. Whereas 15 percent are with the opinion of No, the app is not that useful at the time of travelling by bus.

**Observed Data**

Mode of Preference	Total (60)	Percentage
Yes	51	85
No	9	15

**Solution:**

Here  $P = \frac{1}{2}$ ,  $E = N \times P$

$= 60 \times \frac{1}{2} = 30$

Level of Significance  $\alpha = 0.05$

Decision Criteria

$n = 2$

$\chi^2$  with  $n-1 = 2-1 = 1$

Reject  $H_0$  if  $\chi^2 > \chi^2 (n-1), \alpha = 0.05$

Do not reject HO if  $\chi^2 \leq 3.84$

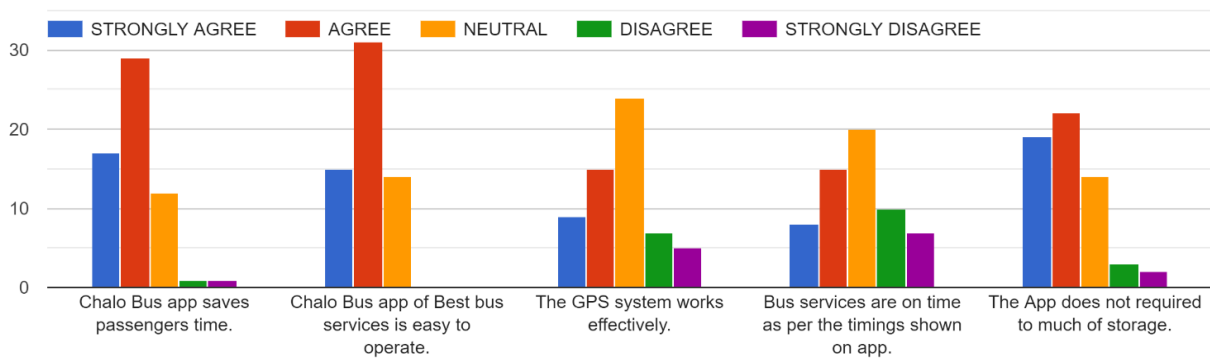
Observed

Data(O)	( E )	(O <sub>i</sub> – E <sub>i</sub> ) <sup>2</sup>	(O <sub>i</sub> – E <sub>i</sub> ) <sup>2</sup> /E <sub>i</sub>
51	30	21	0.7
9	30	21	0.7

$\sum 1.4$

Interpretation: Our Null Hypotheses Rejected and Alternate Hypothesis Accepted.

Please select your level of agreement to the following questions?



**SUGGESTIONS AND RECOMMENDATIONS:**

1. The GPS system of Chalo Bus app of BEST bus services should work effectively and efficiently.
2. The Bus driver and BEST management should be responsible towards the timings of bus departure. (in order to avoid delay in services)
3. The BEST Bus Staff should hold a polite approach in their behaviour at the time of dealing with the passengers.
4. The Bus app should come up with even more interesting features.
5. The frequency of Buses should be more. (taking into consideration peak hours and crowd of passengers)

**CONCLUSION**

- 1) It is concluded that commuter’s want friendly and effective service at the time of travelling by bus.
- 2) And not just friendly it should feel like the service has been personalized for them.
- 3) Focus on retaining the passengers/ commuters rather than losing them.
- 4) Should come up with even more effective services.
- 5) Should resolve the problems of commuters in an efficient manner.

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**UNVEILING CUSTOMER PERSPECTIVES ON THE USE OF ARTIFICIAL INTELLIGENCE IN BANKING**

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**ABSTRACT**

*This study investigates customer perceptions and preferences regarding the integration of artificial intelligence (AI) in banking services. A survey was conducted among 75 respondents, primarily aged 18-24, representing Mumbai Suburban, to explore their views on AI-driven features such as personalised recommendations, fraud detection systems, and automated services. Findings reveal a predominantly positive perception of AI in banking, with a majority of respondents acknowledging the value and benefits of AI-driven features. However, there is also recognition of the importance of human interaction in banking interactions. While many respondents trust AI for its accuracy and reliability, some express concerns or remain neutral. The study underscores the need for banks to balance AI-driven automation with personalised human interaction to meet customer preferences effectively. Understanding these insights is crucial for banks to enhance customer satisfaction and trust in AI-powered banking services while addressing areas for improvement.*

*Keyword: Artificial Intelligence, Customer Perspectives, Automated chatbot, AI-based fraud detection systems, Personalised recommendations, Banking services.*

**INTRODUCTION**

In recent years, the banking industry has undergone a significant transformation fueled by technological advancements, notably the integration of Artificial Intelligence (AI) into various services. AI-driven features like automated chatbots and personalized recommendations offer banks opportunities to enhance efficiency and improve customer service. Understanding customer preferences towards these AI-driven features is crucial for maintaining competitiveness in the digital age. By aligning services with customer needs, banks can improve satisfaction and drive innovation. This study aims to explore consumer attitudes toward AI in banking, focusing on confidence levels in AI technologies and associated concerns such as security and privacy. Employing scales ranging from strongly disagree to strongly agree, the research seeks to capture comprehensive customer sentiments. The questionnaire covers adaptability to AI-driven changes, awareness of AI in banking, trust in AI systems, and privacy concerns. Additionally, demographic variables like gender and age will be analyzed to understand their influence. Ultimately, the study aims to provide valuable insights for banks to strategically integrate AI in a customer-centric manner.

**HOW ARTIFICIAL INTELLIGENCE IS USED TO IMPROVE TRANSACTIONS**

- **Chatbots:** Chatbots are a great way to enhance the customer experience. With their ability to reply to inquiries promptly and precisely, chatbots are a great way to enhance the customer experience. This is because they free up human agents' time so they can work on more complex tasks.
- **Smart Wallets:** An AI-powered financial services solution known as a smart digital wallet spans the value chain to provide a smooth, frictionless, and secure delivery of financial services to all parties involved. Artificial intelligence-enabled mobile wallets for paying for movies, events, bus tickets, taxi fares and utility bills.
- **Robo Advisor:** Portfolio management, comprehensive goal planning, account services, and simple account setup are all provided by the top robo-advisors. Low costs, thorough instruction, and security features are also provided.
- **Cyber Security:** Artificial intelligence (AI) is not only able to neutralise external threats; it can also monitor internal threats and breaches and suggest corrective actions to prevent data theft or misuse.
- **Credit Scoring:** A mathematical model called a credit scoring model is used to calculate the probability of default, or the likelihood that a customer will cause a credit event, such as bankruptcy, obligation default, failure to pay, or cross-default events.
- **Challenges of Artificial intelligence:** While AI is a useful tool that can better everyone's banking experience, it is not without issues. Obtaining quality data is a major problem for its proper operation. AI may not be as useful as it could be if there is insufficient data or poor quality data. make a concise rephrase

**REVIEW OF LITERATURE**

The interview shows that the advantages of Artificial intelligence in the rural banking sector are mainly taken up by the younger and middle age group generation till the age of 40. The age group beyond 40 seem to be struggling with using artificial intelligence in banks and seem quite reluctant too (D'Cunha et al., 2022, 54-58).

Artificial Intelligence is rising in popularity, and banks are experimenting with and using this technology to change the way consumers are supported. As a result, artificial intelligence has a bright future in the banking sector. The introduction of AI makes it easier for clients to conduct transactions anywhere and at any time without waiting in long lines at the bank. Artificial intelligence's goal is to give personalised, high-quality client pleasure as well as efficient and time-saving services. (Tripathi et al., n.d., 433-442).

Cristi, Spulbar & Birau (2023) Impact of Artificial Intelligence in Banking Sector with Reference to Private Banks in India concluded from out of 200 responses Portfolio management, comprehensive goal planning, account services, and simple account setup are all provided by the top robo-advisors. Low costs, thorough instruction, and security features are also provided. from below 18 years and above 60 age group is comparatively very low from the other age group. Because 18-25 years age group customers have more knowledge about AI in banks as they are more eager to learn new things, Also females showed more interested to transact after the use of AI. However the responses from bankers suggested integrating banking with AI is an expense but it will surely reduce their work pressure and errors in banking transactions. Overall with the help of artificial intelligence it will be more easier as a customer however knowledge and training is also required. (SHETTY et al., 2023,).

**OBJECTIVE OF THE STUDY**

- To examine customer attitudes and preferences towards AI-driven features in banking, including automated chatbots, personalised recommendations, and AI-based fraud detection systems.
- To assess the impact of AI-driven features on customer satisfaction and loyalty within the banking sector.
- To explore the relationship between customer awareness of AI technology and their perception of AI-driven banking services.
- To identify potential demographic differences in customer preferences for AI-driven features in banking, such as age and gender.

**SIGNIFICANCE OF STUDY:**

The significance of the study lies in its potential to not only improve customer satisfaction and loyalty through tailored banking services but also in building trust and confidence in AI technology. By understanding and addressing customer preferences and concerns, banks can enhance their competitiveness, drive innovation, and strengthen relationships with customers in an increasingly digital banking landscape.

**SCOPE OF THE STUDY:**

The study is aimed to understand customers' knowledge and perspective with AI supported mechanisms like chat bots, cyber security etc in the banking sector. We have considered both of the genders male and female in this study. The purpose of this study is to investigate how customers view the banking industry in light of artificial intelligence.

**LIMITATION OF THE STUDY:**

The study comprises a maximum of 75 respondents, primarily aged 18–24, potentially limiting its broader applicability across diverse age groups. Additionally, geographic restrictions constrain the study's relevance beyond the specified area, potentially undermining its applicability to regions with distinct banking systems or cultural contexts.

**RESEARCH METHODOLOGY:**

In addition to primary data from a questionnaire, the study is based on secondary data from a range of sources, including journals, newspapers, reports, e-books, and research articles. Convenience sampling is used along with a quantitative research design in this study. An online survey is used to gather information on client views of AI-driven banking service features, demographics, and attitudes towards human involvement.

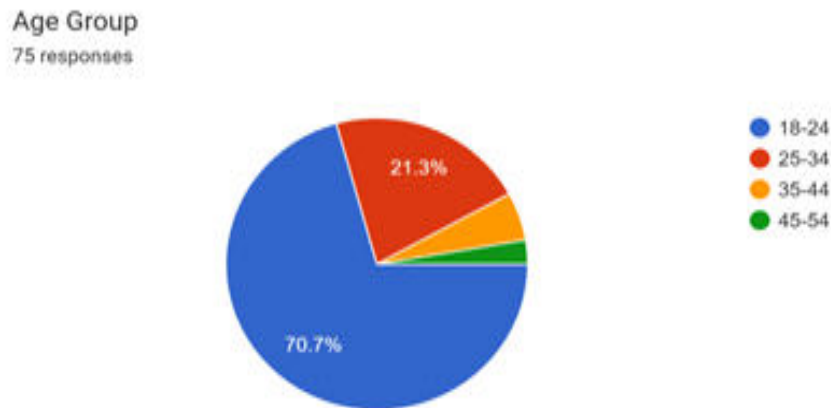
**DATA ANALYSIS AND INTERPRETATION:**

**Table 1.1:** Sample Size for Present Study based on Age Criteria

AGE	FREQUENCY	PERCENTAGE %
18-24	53	70.7

25-34	16	21.3
35-44	4	5.3
45-54	2	2.7
<b>TOTAL</b>	75	100

Figure 1.1: Pie Chart Depicting Sample Size for Present Study India



The data illustrates that the majority of respondents (70.7%) fall within the age group of 18-24. A smaller proportion consists of individuals aged 25-34 (21.3%). Those aged 35-44 and 45-54 represent only 5.3% and 2.7%, respectively, of the total respondents. This distribution suggests that the survey sample predominantly comprises younger individuals, particularly those in the 18-24 age range.

Figure 1.2: Pie Chart Depicting Sample Size for Present Study

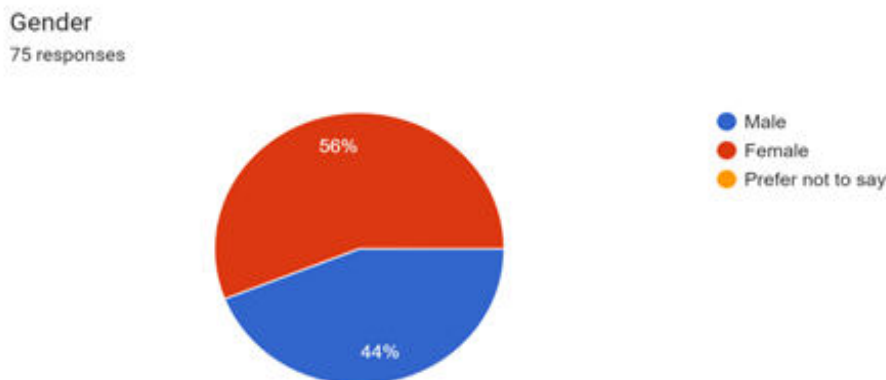


Table 1.2: Sample Size for Present Study based on Gender

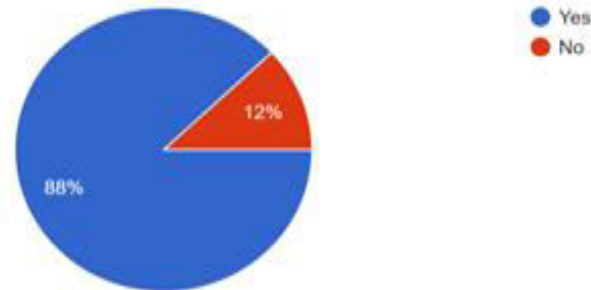
GENDER	FREQUENCY	PERCENTAGE %
MALE	33	44
FEMALE	42	56
<b>TOTAL</b>	75	100

The data indicates that among the respondents, 56% identify as female, while 44% identify as male. This suggests a slightly higher representation of females in the survey sample compared to males. Overall, the survey sample comprises a mix of genders, with a slight majority being female.

**Figure 1.3:** Pie Chart Depicting Sample Size For Present Study

1. Are you aware of Artificial Intelligence (AI) technology and its applications in various industries, including banking services?

75 responses



**Table 1.3**

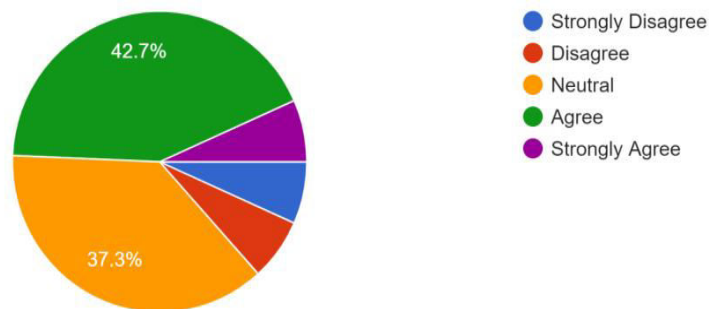
AWARENESS OF AI	FREQUENCY	PERCENTAGE %
<b>YES</b>	<b>66</b>	<b>88</b>
<b>NO</b>	<b>9</b>	<b>12</b>

Approximately 88% of the surveyed individuals demonstrate awareness of the implementation of AI mechanisms within the banking sector, while the remaining 12% indicate a lack of awareness regarding the same.

**Figure 1.4**

2. Automated chat bots in banking services provide quick and efficient assistance for resolving customer inquiries.

75 responses



**Table 1.4**

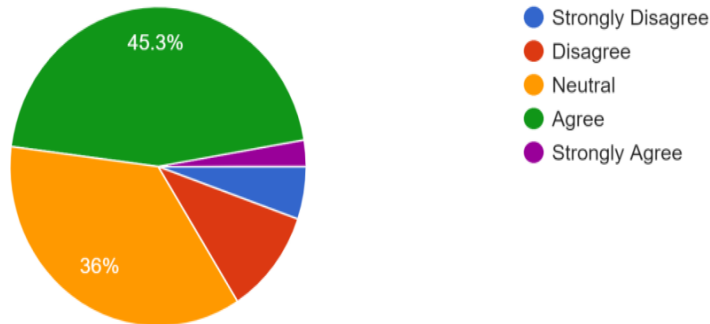
RESPONDENT	FREQUENCY	PERCENTAGE %
<b>Strongly Disagree</b>	5	6.7
<b>Disagree</b>	5	6.7
<b>Neutral</b>	28	37.3
<b>Agree</b>	32	42.7
<b>Strongly Agree</b>	5	6.7

The data shows varied views on the efficiency of banking chatbots. While 13.4% disagree, 37.3% are neutral. Conversely, 42.7% agree, with an additional 6.7% strongly agreeing. This highlights differing perspectives on chatbots' effectiveness in customer service.

**Figure 1.5**

3. Personalized recommendations generated by AI systems enhance my overall banking experience.

75 responses



**Table 1.5**

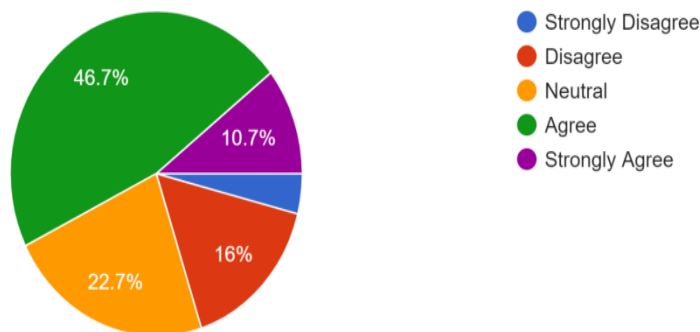
RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	4	5.3
Disagree	8	10.7
Neutral	27	36
Agree	34	45.3
Strongly Agree	2	2.7

Different viewpoints on how AI-generated personalized recommendations affect the banking experience are revealed by the data. About 36% of respondents are indifferent, while 15.6% of respondents disagree. On the other hand, 47.6% concur, and 2.7% strongly disagree. This shows a variety of viewpoints about how well AI recommendations work to improve the banking experience.

**Figure 1.6**

4. AI-based fraud detection systems increase my trust in the security of banking transactions.

75 responses



**Table 1.6**

RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	3	4
Disagree	12	16
Neutral	17	22.7
Agree	35	46.7
Strongly Agree	8	10.7

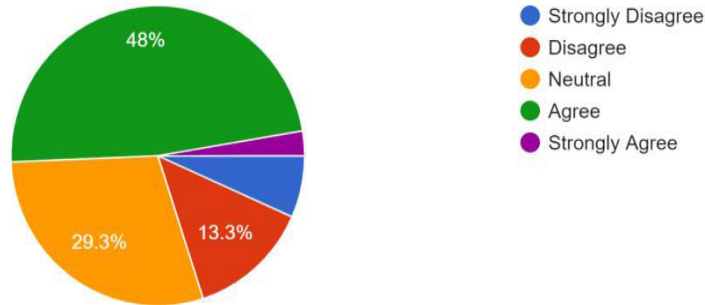
The data indicates that a majority of respondents, 57.4% (46.7% agree and 10.7% strongly agree), have confidence in the security of banking transactions due to AI-based fraud detection systems. However, 20% (16% disagree and 4% strongly disagree) express skepticism, while 22.7% remain neutral on the matter.



**Figure 1.7**

7. AI-enabled recommendations for financial products or services are relevant and helpful in managing my finances.

75 responses



**Table 1.7**

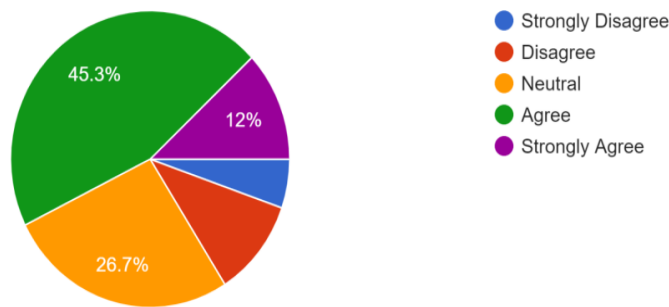
RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	5	6.7
Disagree	10	13.3
Neutral	22	29.3
Agree	36	48
Strongly Agree	2	2.7

The data suggests that a considerable portion of respondents, constituting 50.7% (48% agree and 2.7% strongly agree), find AI-enabled recommendations for financial products or services to be relevant and helpful in managing their finances. However, 20% (13.3% disagree and 6.7% strongly disagree) hold a contrary opinion, while 29.3% remain neutral on the matter.

**Figure 1.8**

8. AI-driven banking services offer a higher level of convenience compared to traditional banking methods.

75 responses



**Table 1.8**

RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	4	5.3
Disagree	8	10.7
Neutral	20	26.7
Agree	34	45.3
Strongly Agree	9	12

The data reveals that a majority of respondents, comprising 57.3% (45.3% agree and 12% strongly agree), believe that AI-driven banking services offer a higher level of convenience compared to traditional banking methods. However, 16% (10.7% disagree and 5.3% strongly disagree) express dissenting views, while 26.7% remain neutral on this aspect.

Figure 1.9

9. I feel confident in using AI-powered banking services due to their accuracy and reliability.  
75 responses

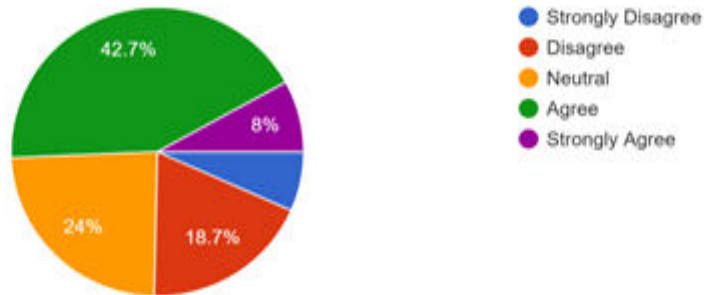


Table 1.9

RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	5	6.7
Disagree	14	18.7
Neutral	18	24
Agree	32	42.7
Strongly Agree	6	8

Most people (51.7%) feel sure about using AI-powered banking services because they believe these services are accurate and reliable. However, some (25.4%) don't feel the same or are unsure (24%). This shows that people's confidence in AI-powered banking varies.

Figure 1.10

10. AI-based features in banking services enhance my overall satisfaction as a customer  
75 responses

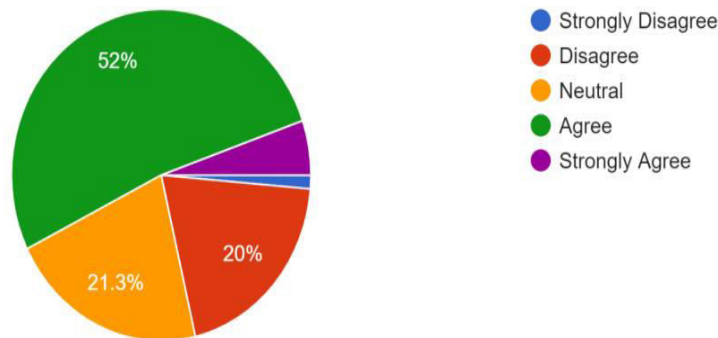


Table 1.10

RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	1	1.3
Disagree	15	20
Neutral	16	21.3
Agree	39	52
Strongly Agree	4	5.3

The data reveals a strong consensus (57.3%) among respondents who believe that AI-based features in banking services significantly enhance their overall satisfaction. This positive perception is likely attributed to the efficiency and convenience offered by AI-driven enhancements in banking experiences. However, a considerable proportion (21.3%) remain neutral, signalling a necessity for deeper investigation into the factors influencing satisfaction with AI-driven features.

Figure 1.11

12. In your opinion, does the human touch in banking interactions add a sense of trust and reliability that cannot be replicated by AI-driven processes alone?

75 responses

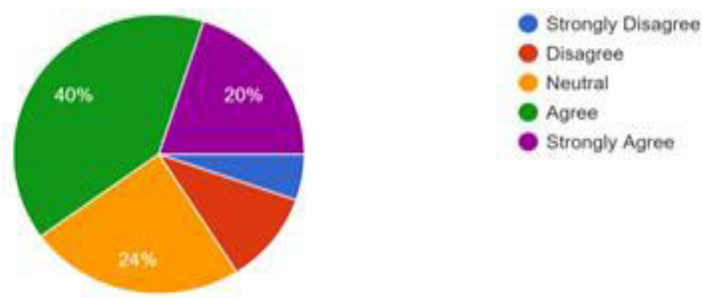


Table 1.11

RESPONDENT	FREQUENCY	PERCENTAGE %
Strongly Disagree	4	5.3
Disagree	8	10.7
Neutral	18	24
Agree	30	40
Strongly Agree	15	20

The data suggests that 60% of respondents believe human interaction in banking adds trust and reliability not replicated by AI alone. However, 16% disagree, and 24% remain neutral. This indicates a strong preference for human involvement in banking services, though a significant portion holds differing views or remains undecided.

**DISCUSSION AND CONCLUSION:**

The study provides valuable insights into customer perceptions of AI-driven features in banking. Primarily, respondents aged 18-24 exhibit strong engagement with technology, with slightly more females participating. Overall, there is a positive sentiment towards AI in banking, particularly regarding AI-based recommendations, fraud detection, and personalised services. However, respondents also emphasize the importance of human interaction in banking for trust and reliability. While AI-driven services are viewed positively, areas for improvement include accuracy and reliability concerns. Addressing these issues can enhance customer satisfaction and trust. The research underscores the evolving landscape of AI in banking and highlights the need to balance automation with personalised service delivery to drive innovation and improve customer experiences.

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**VOICES FROM THE LEDGER: EXPLORING THE ROLE OF ACCOUNTANTS IN THE AGE OF ARTIFICIAL INTELLIGENCE**

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**Professor Sneha Lulla**

**ABSTRACT**

*Accounting professionals all across the world are becoming more aware of the benefits that AI may provide. The relevance and role of accountants are permanently changing for the better because of this sea change. This study seeks to find out accountants' views, their changing roles due to AI, as well as their willingness, readiness, or competence to adopt AI in each area of accounting, as well as whether they see AI as a help or as an additional challenge for them. It also asks whether they believe AI will have an impact on their jobs.*

*Keywords: Accounting, Accountant, Artificial Intelligence*

**INTRODUCTION:****Accounting:**

The practise of recording a business's financial transactions is known as accounting. Accounting is a crucial task for decision-making, budgeting, and measuring economic success in any size of the firm.

Accounting has been variably defined as the maintenance or production of the financial records of transactions of the firm, the analysis, verification, and reporting of such records, as well as "the principles and procedures of accounting"; it also refers to the profession of becoming an accountant.

Accountancy is the term used to describe an accountant's profession or area of work.

**Accountant:**

An individual who carries out accounting tasks like financial statement analysis, audits, or account analysis is referred to as an accountant. Accountants are specialised in finance and are in charge of a variety of accounts, both public and private. These accounts may be owned by either a corporation or an Individual. As such, they may find work with corporations of different sizes-from small to large-governments, different organizations like non-profits, or they may set up their own private practice and work with individuals who enlist their services. They perform multiple accounting duties, which vary based on where they work.

A CPA can analyse financial data for top business decision-makers as anything from a straightforward bookkeeper to a strategic counsel.

An accountant performs various functions, and some of the major ones are discussed below:

Maintaining Books of Accounts, Statutory Audit, Internal Audit, Cost Accounting, Taxation, Mmanagement Accountant, Financial Advice, etc.

**Artificial Intelligence (AI):**

Artificial intelligence (AI) is the imitation of human intelligence in machines created to act and think like humans. Any machine that demonstrates characteristics of the human mind, like as learning and problem-solving, may also be referred to by this term.

Ability to reason and take actions that have the best likelihood of reaching a certain objective is the ideal quality of artificial intelligence. Machine learning is a subset of artificial intelligence that refers to the idea that computer programs can automatically learn from and adapt to new data without human assistance.

**A.I. and Accounting:**

Even though AI has applications in almost every aspect of business, the accounting industry has seen the greatest impact. Accountants may now rapidly get the data they need rather than having to spend hours sorting through columns of data. This not only saves a tonne of time, but it also produces data that is more precisely targeted.

In both AI and accounting, data is a fundamental component. The ability of AI to collect, arrange, sort, and analyse numerical data can make it a useful tool for accountants. An organisation can create a more holistic accounting strategy that is based on more effective bookkeeping and financial accessibility when artificial intelligence in accounting is fully and appropriately utilised.

**Top Issues faced by Accountants:**

1. Lack of IT Knowledge in the Accounting Sector.

2. Rising Competition in the Accounting Field.
3. Accountants must deal with a far more interconnected world, rising technological demands, and needs for a foundational understanding of accounting. This requires wearing many hats in order to fully understand how the financial picture is constructed.
4. Keeping up with tax laws is an ongoing challenge for accountants.
5. Threats to accounting systems from the inside and outside, such as ransomware attacks, are widespread and will only get worse in the future.

### **How Will AI Affect the Future of Accounting?**

The accounting industry is greatly influenced by technology, yet this influence may also be dividing the field.

Accounting firms are utilizing cutting-edge technology to give clients better insights and cut down on the time spent on repetitive procedures in order to satisfy their clients' constantly changing requirements.

There may be a **digital divide between smaller and medium-sized businesses** as respondents from smaller organizations were less likely to consider themselves early adopters of technology and less likely to be reaping the rewards of recent technology investment. Smaller businesses need to invest in technology solutions that enable them to meet customer expectations if they want to stay competitive.

### **This Leads to the Real Questions**

“Are accountants ready to adopt AI in their job role?”

“Are they looking for AI as an aid or a challenge while performing their tasks?”

“Is AI going to take up their jobs?”

This study aims to answer these questions.

### **REVIEW OF LITERATURE**

In the International Research Journal of Commerce Arts Science, Dr. Mohammad Anzar (2016) published The Role of Artificial Intelligence in Accounting Systems.

In this research, the focus was on how AI has impacted every walk of life and accounting too. This study has described the effects of AI on accountants and how accountants need to cope with the advanced technology to save their jobs, but it does not explain accountants' view on AI.

Manisha Dave discusses the role of artificial intelligence in accounting.

Inspira-Journal of Commerce, Economics & Computer Science (JCECS) 271 ISSN: 2395-7069, Volume 05, No. 3, July-September 2019.

She came to the conclusion that accountants' functions have expanded and they are no longer required to perform routine chores. Chartered Accountants may now concentrate on the growth and expansion of the business as well as its overall performance while providing clients with a more useful and superior level of service. Due to the significant advancements in artificial intelligence, accountants and their job in the accounting profession would be well-versed in this new world.

Automation of Accounting Processes: The Impact of Artificial Intelligence

Dr. Chukwuani, Victoria Nnenna, Dr. Egiyi, Modesta Amaka, Department of Accountancy, Enugu State University of Technology Department of Accountancy, Godfrey Okoye University, Nigeria

They come to the conclusion that businesses cannot avoid utilising AI technology, particularly if they hope to remain competitive in the near future. It is critical that accountants who are already in practise work to develop their AI skills in order to stay relevant to their companies or clients.

Much research has been conducted on AI and its application in accounting, but very few have focused on accountants' perspectives and their challenges in adopting the latest technology like AI and How AI works in each domain of Accounting.

### **OBJECTIVES OF THE STUDY**

1. To determine whether accountants are **aware of artificial intelligence**.
2. To learn how **accountant's view AI** and to **understand the changing role of Accountants in the age of Artificial Intelligence**.

3. To learn about the obstacles and challenges that accountants confront as they carry out their duties.
4. To identify the areas of accounting where AI can help companies and accountants the most and to determine whether AI can aid accountants in removing their challenges and obstacles.
5. To learn what accountants think about using AI in their privately held firms.
6. To learn what accountants think about the professional training and instruction that has been given to them to help them deal with cutting-edge technologies like AI.

**HYPOTHESIS**

**H0:** The role of Accountants will not change significantly in the era of Artificial Intelligence.

**H1:** The role of Accountants will change significantly in the era of Artificial Intelligence.

**RESEARCH METHODOLOGY**

**Study Area:** Accountants such as accountants working in a company, chartered accountants, ICWA accountants, and accountants working in a privately owned firm within a country are the target audience for this study.

**Sampling Design:** Convenience Sampling method has been used to collect data.

**Data Collection:** Secondary data from various published sources has been used to learn about the benefits of AI, the most recent technological developments, and their application in the field of accounting.

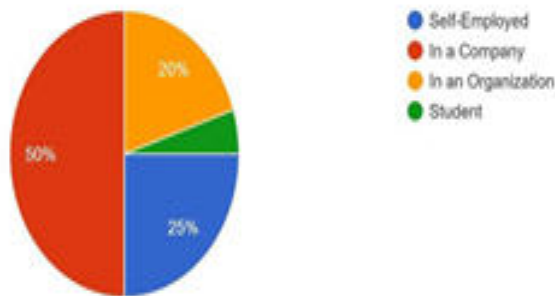
Primary data has been collected from the accountants by way of a questionnaire to know their aids and challenges and other related issues in their work due to AI.

**Data Analysis:** Quantitative data has been collected via a questionnaire. Answers obtained through a questionnaire is analysed and interpreted to arrive at a conclusion.

**Interpretations of the study**

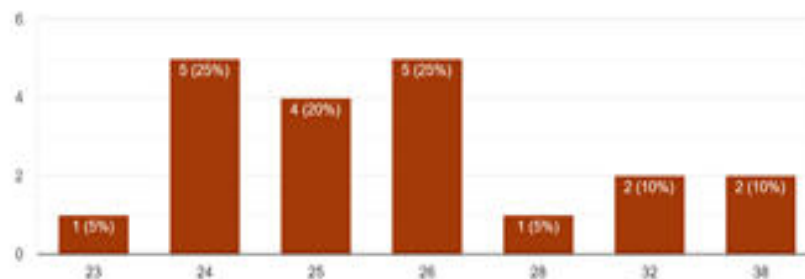
3. Do you work for yourself or for a company or organization?

20 responses



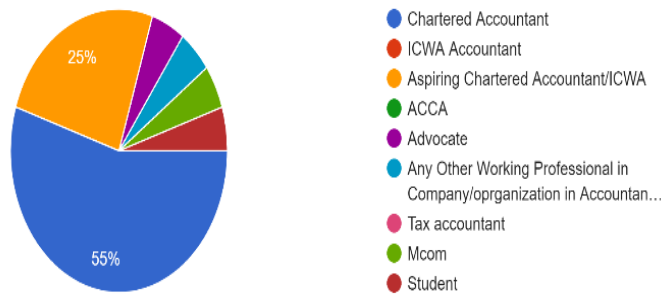
2. Age

20 responses



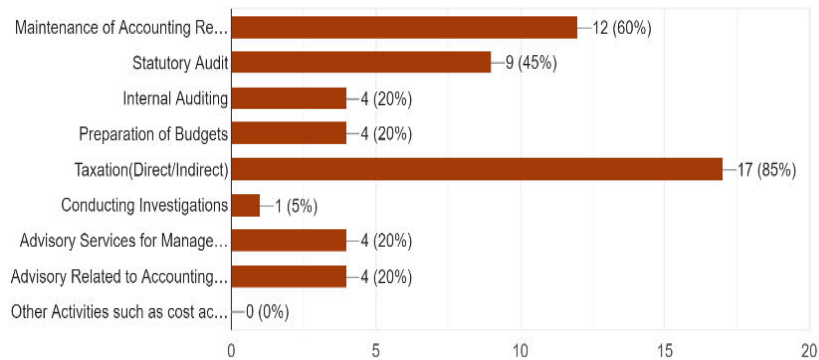
4. What qualifications do you have as an accountant?

20 responses



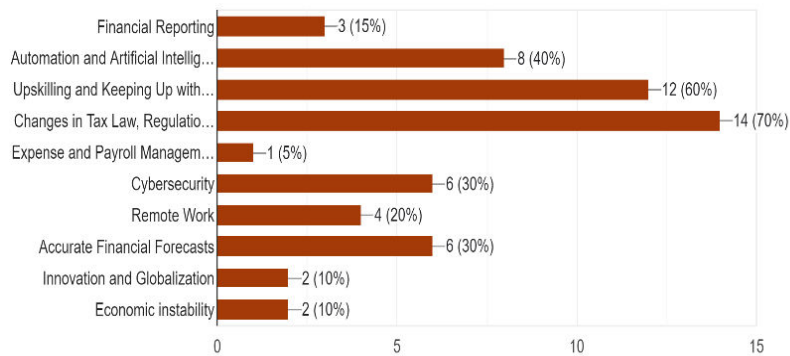
5. What are the roles and responsibilities you perform in your area of work?

20 responses



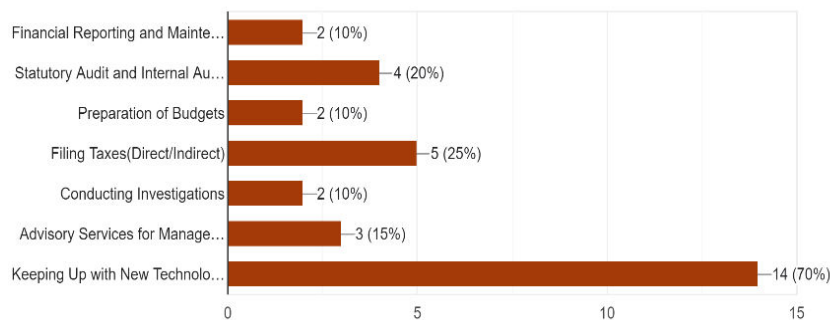
6. What challenges do you face when you perform your responsibilities in the accounting field?

20 responses



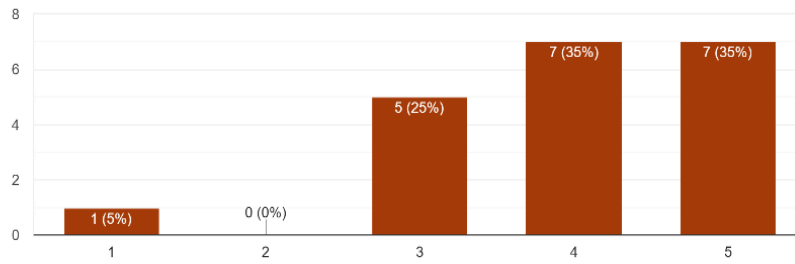
7. Which accounting tasks do you find more challenging to complete?

20 responses



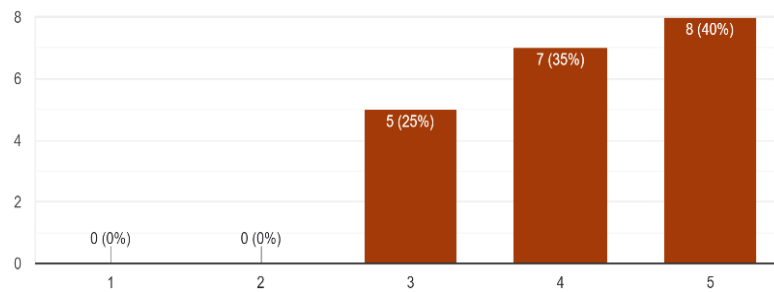
8. Do you agree that the last day to file tax returns for the previous year and the end of the financial year are too hectic for you?

20 responses



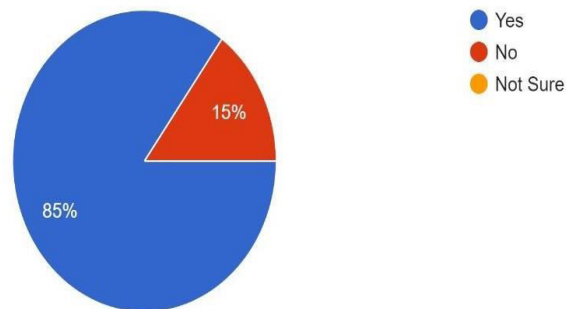
9. Do you agree integrating Advanced technologies will lessen your workload?

20 responses



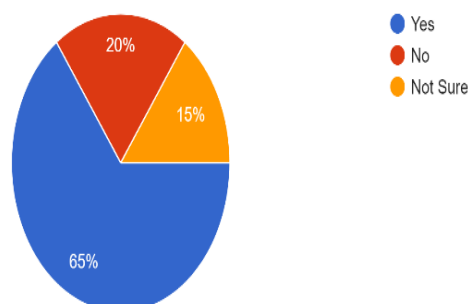
10. Are you aware of Artificial Intelligence(AI)?

20 responses



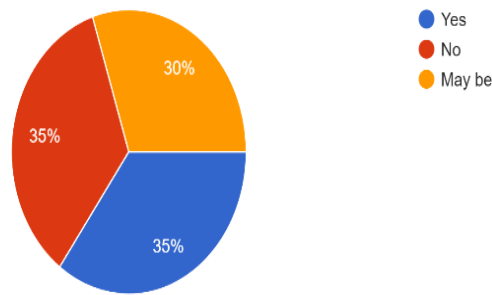
11. Are you aware of how AI has evolved in the accounting profession?

20 responses

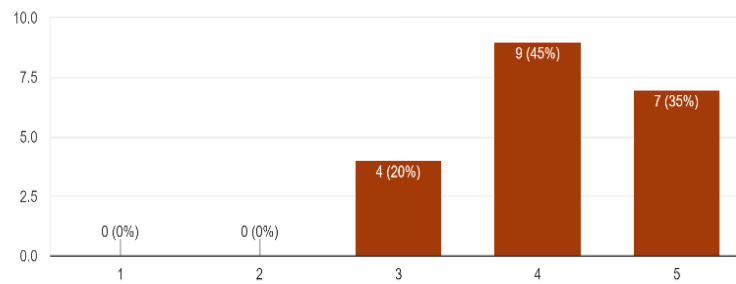




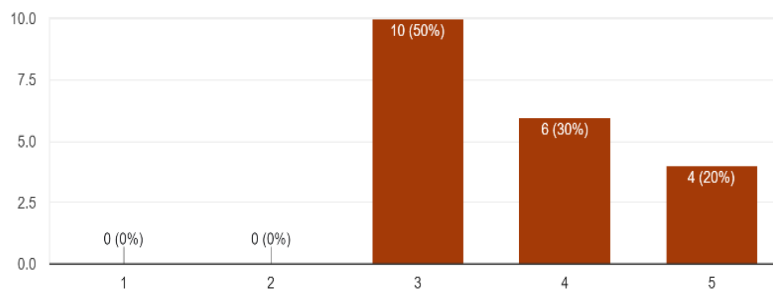
12. Does your organization or you use AI to carry out accounting roles?  
20 responses



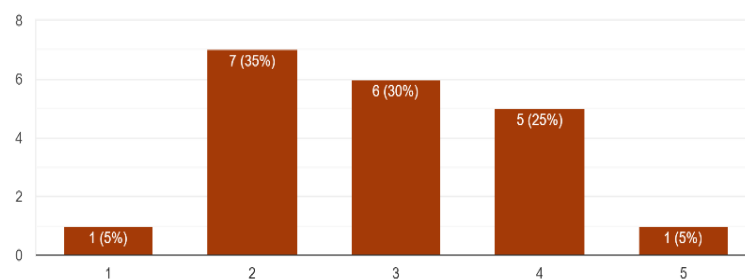
13. Do you agree that using AI will make your job simpler than before?  
20 responses



14. How would you rate the difficulty of integrating Artificial Intelligence into your job role?  
20 responses

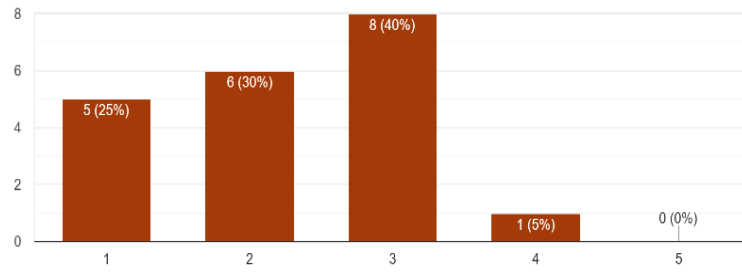


15. How well do you believe training is available to integrate advanced technology such as AI into accounting?  
20 responses



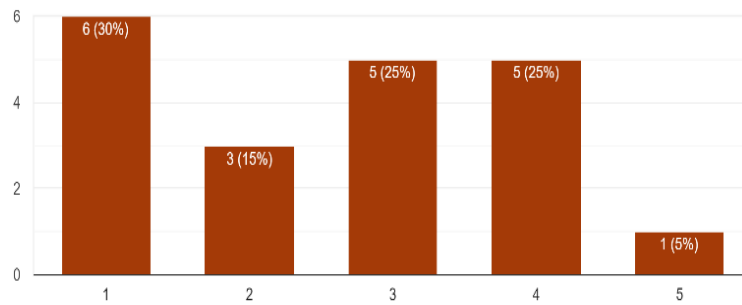
16. What extent of information and training does the ICAI and other accounting professional organizations provide about AI and its application in the accounting field?

20 responses



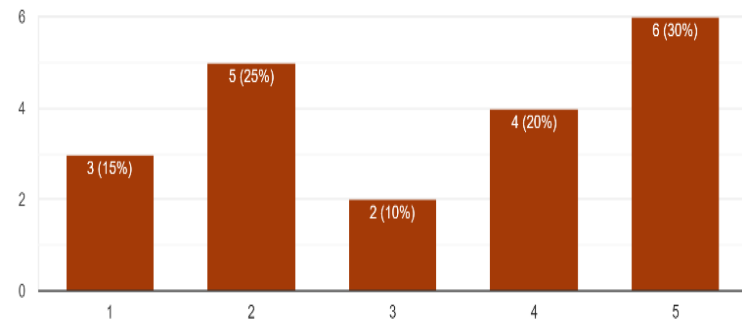
17. Do you agree artificial intelligence will lead machines to take your job at work?

20 responses



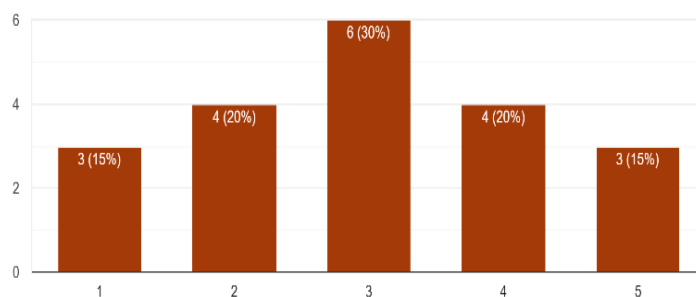
18. Do you Agree that AI will result in unemployment in the future?

20 responses

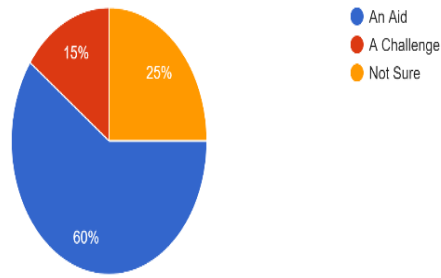


19. Do you agree that AI will lessen the importance of your accounting job?

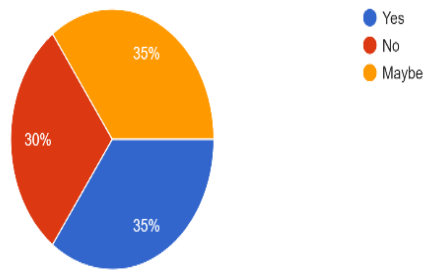
20 responses



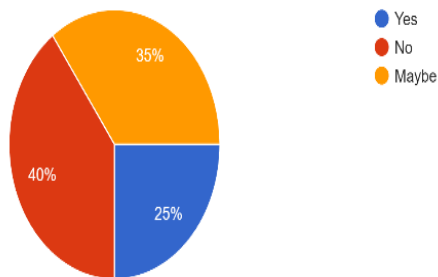
20. In your current accounting role, how do you perceive AI as an aid or a challenge?  
 20 responses



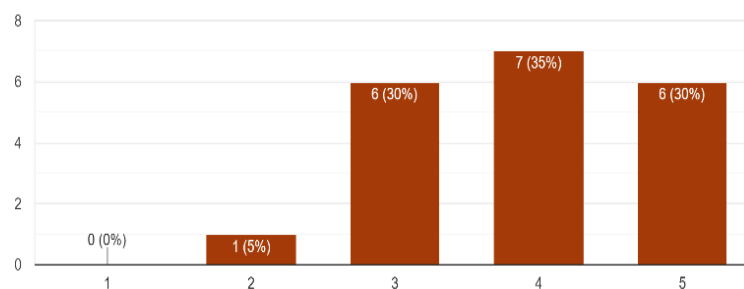
22. Do you believe you are putting enough effort into keeping up with technological advancements in the accounting profession?  
 20 responses



23. Do you view the younger generation as a threat since they are more technologically savvy?  
 20 responses

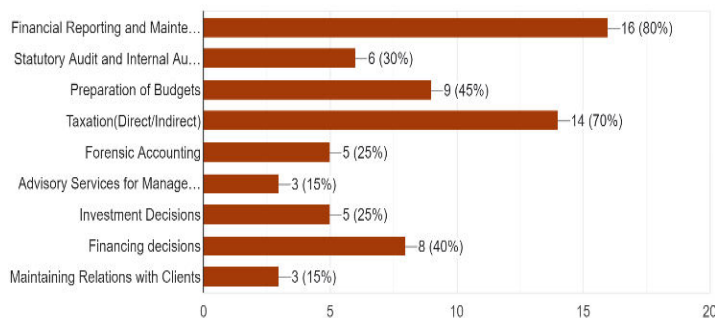


24. Do you agree that the function of accountants needs to change in light of current trends?  
 20 responses



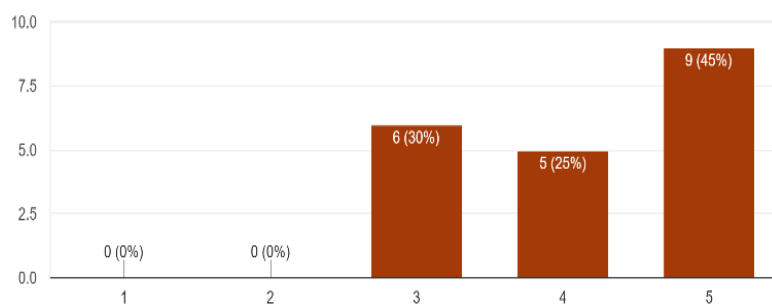
26. What are the areas of accounting where AI can help the most?

20 responses



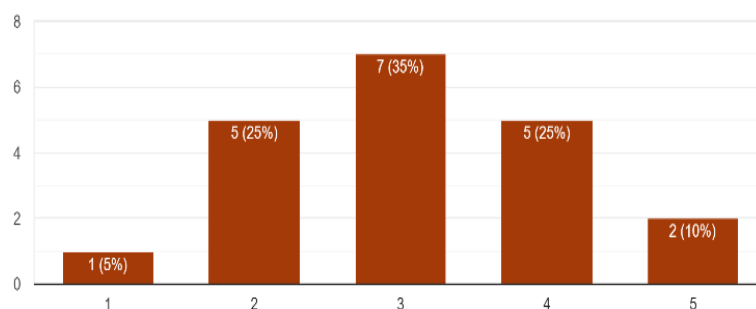
27. How willing are you to accept AI in your job work as it becomes more important in the future?

20 responses



28. How much are you prepared to use artificial intelligence in your accounting role?

20 responses



- Twenty responses, ranging in age from 23 to 38, were gathered from various age group. A total of 50% of the population is employed by a firm, 20% by an organisation, and 30% by themselves.
- About 80% of respondents are reputable accountants. Different accountants carry out various duties in their fields of expertise, but the majority of them handle tax preparation, accounting record maintenance, and auditing work. Around 70% of people struggle with the effects of changing tax rules and regulations, 60% have trouble keeping up with new technologies, and 40% struggle with automation and AI.
- The hardest work for accountants to do, in the majority's opinion, is keeping up with new technologies.
  - The majority of them concur that the end of the fiscal year and the deadline for filing tax returns are too chaotic for them.
  - The majority of them firmly concur that implementing modern technologies will reduce their workload.
  - Over 80% of people are familiar with artificial intelligence, and about 65% are aware of how it has changed the accounting industry. In their accounting positions, 35% of accountants' organisations employ AI; the remaining 35% don't; and the remaining 5% are unsure.

- 
- The majority of them concur that using AI will make their work easier than it was. About 50% are ambivalent about incorporating artificial intelligence into your employment function, and about 50% find it rather challenging.
  - About 99% of people think that organisations like the ICAI offer limited training about AI and its use in the accounting industry.
  - 50% of people believe AI will cause machines to take their jobs at work, while 50% don't. The likelihood that AI will increase unemployment is split 50/50. More than 60% of people think AI will make their accounting job less important.
  - 60% see AI as a help, whereas the other 40% see it as a challenge. To deal with the most modern innovations, different accountants employ various strategies. Since the younger generation is more technologically proficient, more than 50% believe they pose a threat.

### **CONCLUSION**

The majority of them concur that, given current trends, the role of accountants must evolve. They have stated that since AI was introduced to the accounting business, several new tasks have emerged. The majority of them are open to incorporating AI into their daily work as its significance increases in the future. In the majority of accounting-related domains, AI can be most useful.

**Furthermore, majority of them lack adequate preparation to employ AI in their accounting roles.**

### **RESOURCE LINKS**

1. [https://www.researchgate.net/publication/344225169\\_Automation\\_of\\_Accounting\\_Processes\\_Impact\\_of\\_Artificial\\_Intelligence](https://www.researchgate.net/publication/344225169_Automation_of_Accounting_Processes_Impact_of_Artificial_Intelligence)
2. [https://www.academia.edu/43494977/Role\\_of\\_Artificial\\_Intelligence\\_in\\_Accounting\\_System](https://www.academia.edu/43494977/Role_of_Artificial_Intelligence_in_Accounting_System)
3. [https://www.researchgate.net/publication/333728223\\_HOW\\_ARTIFICIAL\\_INTELLIGENCE\\_IS\\_CHALLENGING\\_ACCOUNTING\\_PROFESSION](https://www.researchgate.net/publication/333728223_HOW_ARTIFICIAL_INTELLIGENCE_IS_CHALLENGING_ACCOUNTING_PROFESSION)
4. [https://www.researchgate.net/publication/358198031\\_The\\_impact\\_of\\_the\\_Artificial\\_Intelligence\\_on\\_the\\_accounting\\_profession\\_a\\_literature's\\_assessment](https://www.researchgate.net/publication/358198031_The_impact_of_the_Artificial_Intelligence_on_the_accounting_profession_a_literature's_assessment)

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**ANALYZING THE IMPACT OF AI-POWERED FINANCIAL ADVICE ON INDIVIDUAL PERCEPTION AND DECISION-MAKING IN PERSONAL FINANCE**

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**Ms. Nidhi Hitendra Shah**

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**ABSTRACT**

*The emergence of artificial intelligence (AI) technology has had a significant impact on several industries, including personal finance. The purpose of this study is to examine how people's perceptions and financial decision-making are affected when they receive financial advice driven by artificial intelligence. It further purposes to study the insights into how users perceive the security of their financial and personal information to mitigate worries and create reliable systems.*

*This study examines how artificial intelligence (AI) impacts people's perceptions and decision-making in personal finance. It aims to understand how users view the security of their financial information and create reliable AI systems. Using quantitative methods, the study explores the reliability, trustworthiness, and effects of AI-powered financial advice on risk tolerance and financial literacy. The findings can inform the development of AI-powered financial products and help individuals decide between human or AI-based financial assistance.*

*Keywords: Artificial Intelligence (AI) powered financial advice, individual perception, decision making, personal finance.*

**INTRODUCTION**

Artificial intelligence (AI) has been an enormous revolution in several areas recently, including finance. Artificial intelligence-driven financial tools and robo-advisors have become increasingly popular, providing individuals with tailored suggestions and guidance on handling their accounts.

These technologies can analyze vast amounts of financial data, spot trends, and offer customized insights thanks to the application of AI algorithms and machine learning techniques. With the right use, this technology can help individuals become more financially literate, make better decisions, and eventually have the ability to make well-informed financial decisions.

Considering its potential to influence the direction of personal finance management, it is imperative to comprehend how AI-powered financial guidance affects people's perceptions and decision-making. To guarantee that new technologies are widely accepted and used, important issues like privacy, security, and trust must be taken care of. Additionally, this study investigates any possible drawbacks and issues related to financial advice driven by AI. It is feasible to evaluate the efficacy of AI-powered financial products and pinpoint possible areas for development by looking at users' experiences and satisfaction levels. Furthermore, examining the connection between people's perceptions of financial decision-making and AI-powered financial guidance can provide insight into how technology influences financial behaviour.

**Benefits of AI for Personal Finance**

- Many manual tasks can be mechanised which frees up time for people to concentrate on their financial lives.
- Various factors provide personalised financial recommendations and assistance as a result.
- AI may have an additional degree of security and safeguard against monetary loss.
- Close eye on portfolios, and help clients make timely modifications to achieve their investing goals.
- AI-powered financial advice reduces minimum investment requirements.

**Drawbacks of AI for Personal Finance**

- An individual's private financial data is required, which may lead to data security and privacy violations.
- AI lacks emotional intelligence, which may result in poor financial judgment and lost chances.
- AI may reduce a person's capacity for critical thinking, instead utilise it as a tool to augment their financial literacy.

**REVIEW OF LITERATURE**

Edouard Augustin Ribes (2023): This article is based on whether Artificial Intelligence is transforming personal finance, or is it a myth. Presently individuals must concentrate more on their finances due to societal

issues, This in turn necessitates a transformation of the related industry. There isn't much agreement, though, on whether those instruments are suitable given the difficulties that lie ahead. This article first shows that the stream related to investments is the one where change is more than necessary. Secondly, it further shows that currently, it is more motivated by basic digitalization concepts than by the application of artificial intelligence tools.

### STATEMENT OF THE PROBLEM

1. AI-powered financial advice influences individuals' perception of their financial knowledge and capabilities.
2. The impact of AI-powered financial advice on individuals' decision-making processes in personal finance.
3. Extent of individuals' trust and reliability in AI-powered financial advice in their financial decision-making.

### OBJECTIVES OF THE STUDY

1. To inquire on how effectively AI-powered financial advice might help with personal finance management.
2. To determine which factors affect individual decisions and acceptance of AI-powered financial instruments.
3. To assess users' perceptions of the reliability and degree of trust placed in AI-driven financial advice.

### HYPOTHESIS

- 1) **H0:** AI-powered financial advice does not enhance individual's ability to manage their finances or make better decisions.

**H1:** AI-powered financial guidance enhances individual's ability to manage their finances and make better decisions.

- 2) **H0:** Individuals' acceptance and implementation of AI-driven financial advice are not highly influenced by their perception of its reliability and level of trust.

**H1:** Individual's acceptance and implementation of AI-driven financial advice are highly influenced by their perception of its reliability and level of trust.

- 3) **H0:** Using AI-powered financial tools negatively impacts your financial management.

**H1:** Using AI-powered financial tools positively impacts your financial management.

- 4) **H0:** Individuals do not consult human advisors in addition to relying on AI-powered financial advice.

**H1:** Individuals consult human advisors in addition to relying on AI-powered financial advice.

### RESEARCH METHODOLOGY

The research makes use of both primary and secondary data.

**Primary Data:** Using simple random sampling, primary data was gathered in Mumbai at random using a structured questionnaire.

**Secondary Data:** Newspapers, websites, and research articles have all provided sources of secondary data.

### SCOPE

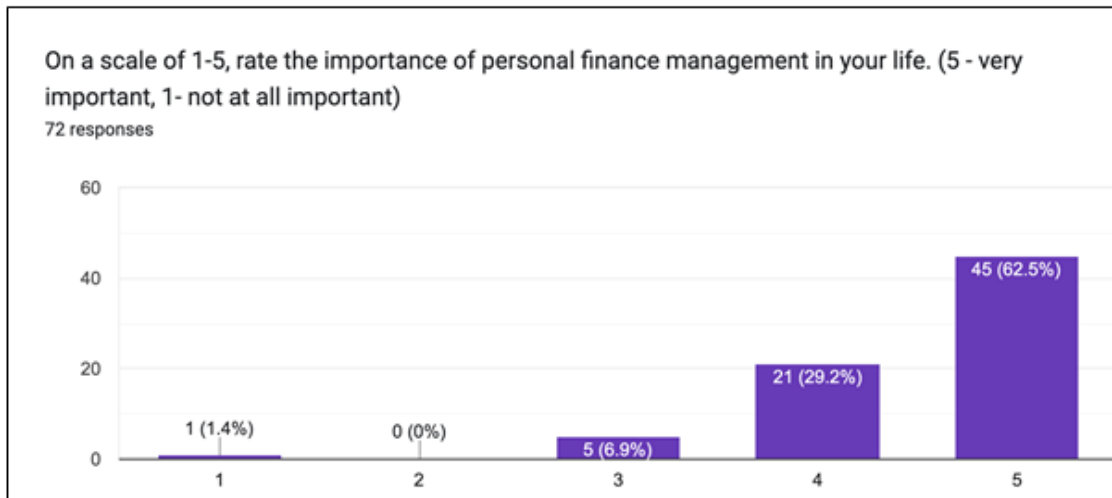
The scope of this research will be on evaluating how AI-powered financial advice affects individual opinions and personal finance decision-making. Examining variables including dependability, credibility, risk tolerance, and financial knowledge in connection to AI-powered financial advice will be a component of it. Using surveys to gather information from users of AI-powered financial advice services, the study will predominantly use a quantitative research methodology.

### LIMITATIONS

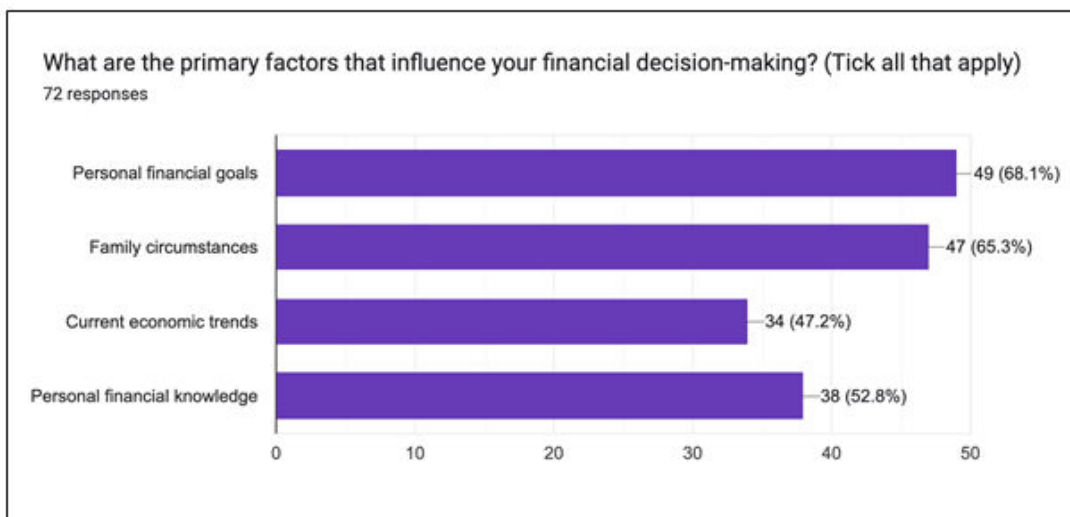
- More in-depth qualitative insights won't be examined because the study will only look at quantitative techniques.
- Additionally, the research may not cover every aspect of an individual's perception and decision-making process when it comes to their finances because of its special focus on AI-powered financial guidance.
- Cultural, societal, or demographic differences that might affect the effectiveness of AI-powered financial advice may not be taken into consideration in this research.

**DATA ANALYSIS AND INTERPRETATION**

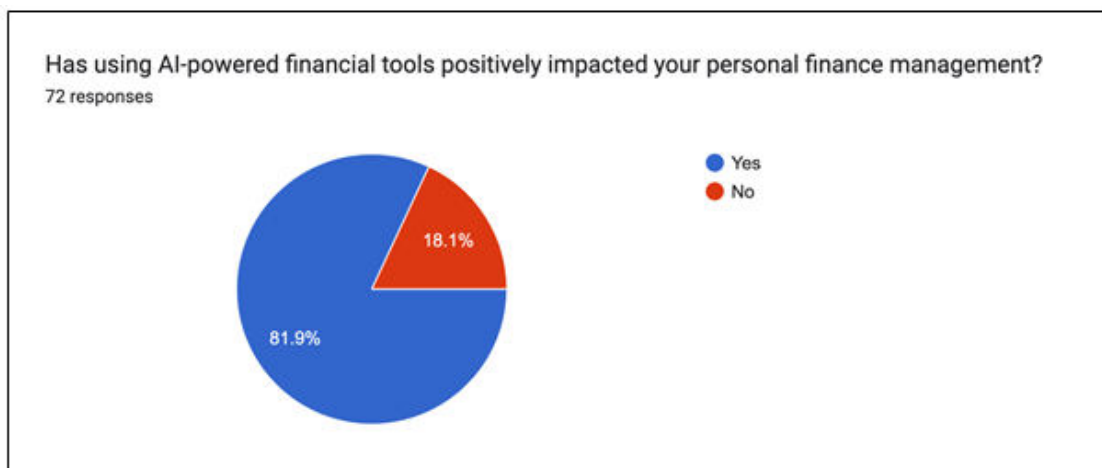
For data analysis, data is collected from individuals residing in Mumbai.



Based on the data collected it was analysed that personal finance management plays an important role in most of the respondents' lives.



According to the research, the primary factor that mostly influences financial decision-making is personal financial goals.



**H0:** Using AI-powered financial tools does not positively impact your personal finance management.

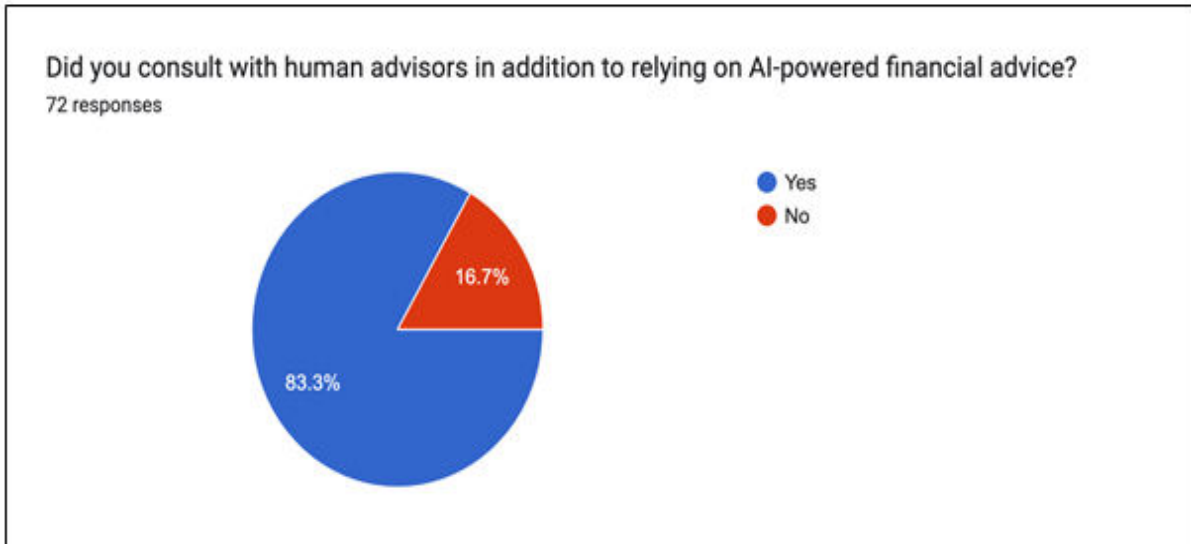
Above mentioned statement is Rejected.



**H1:** Using AI-powered financial tools does positively impact your personal finance management.

Above mentioned statement is Accepted

Interpretation: 81.9 % of individuals who responded have a positive impact on their personal finance management, by using AI-powered financial tools. 18.1% of respondents have not been positively impacted.



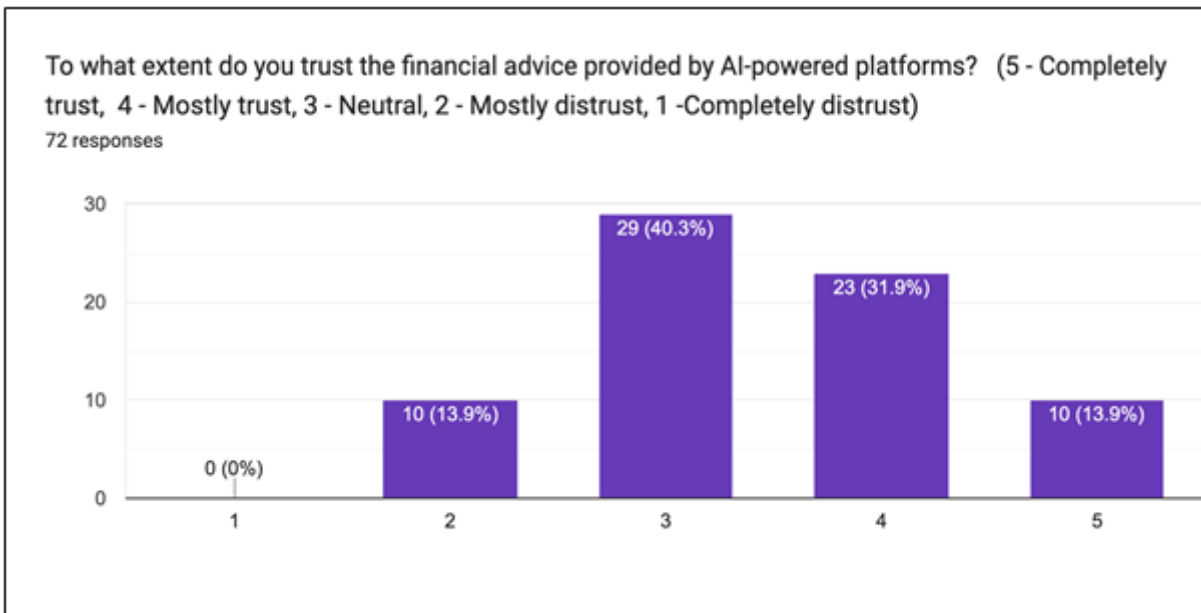
**H0:** Individuals do not consult human advisors in addition to relying on AI-powered financial advice.

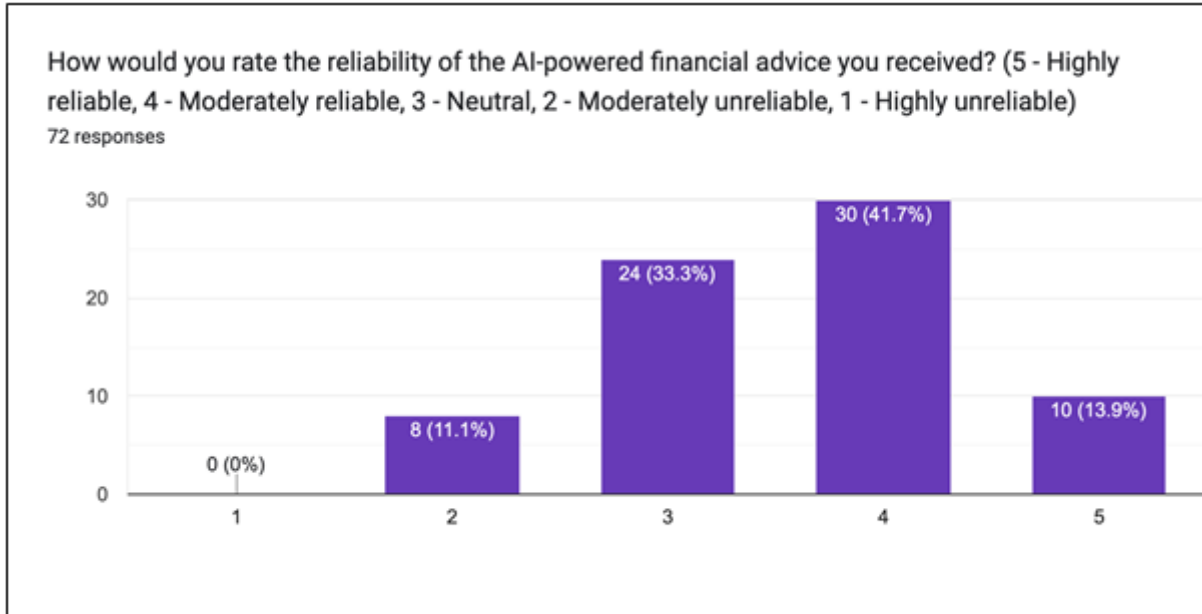
The above statement is Accepted

**H1:** Individuals consult human advisors in addition to relying on AI-powered financial advice.

The above statement is Rejected.

Accordingly, 83.3% of the respondents rely on human advisors in addition to AI-powered financial advice. 16.7% do not rely on human advisors.





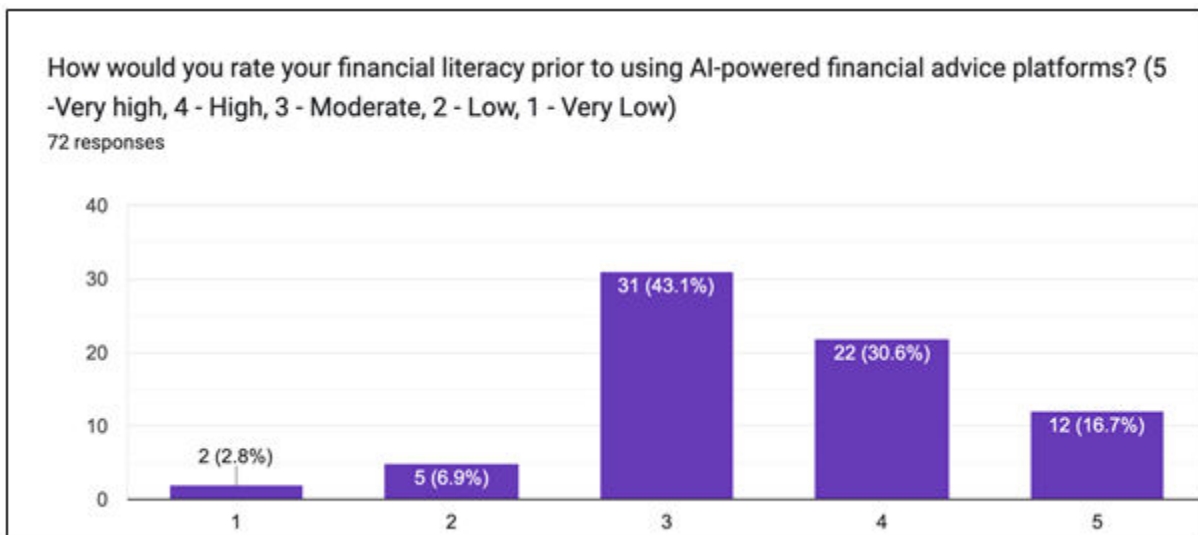
H0: Individuals' acceptance and implementation of AI-driven financial advice are not highly influenced by their perception of its reliability and level of trust.

The above statement is Rejected.

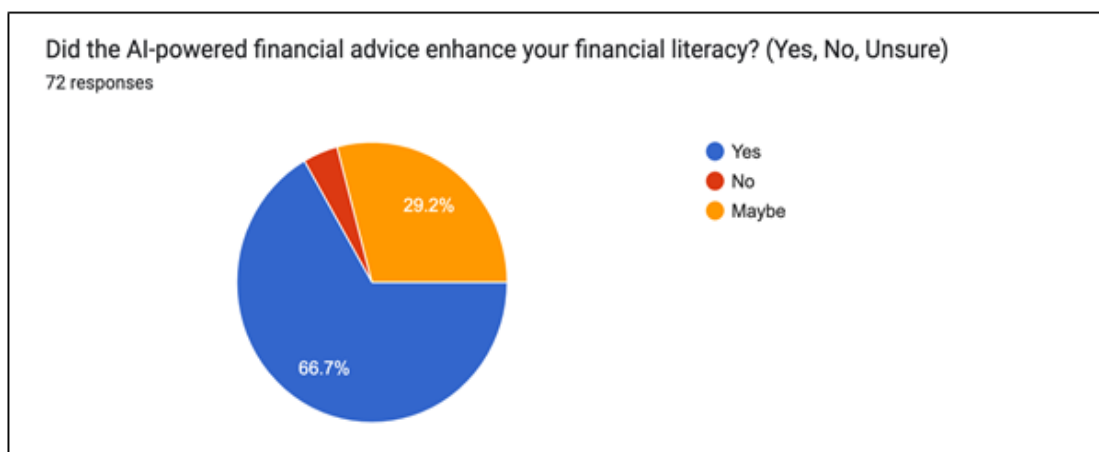
H1: Individual's acceptance and implementation of AI-driven financial advice are highly influenced by their perception of its reliability and level of trust.

The above statement is Accepted

Accordingly, 40.3% of respondents have neutral trust, 31.9% and 13.9% of respondents mostly trust and completely trust financial advice provided. Further 41.7% have moderate reliability of the AI-powered financial advice received.



According to the observation, Using AI-powered financial advice platforms moderately (43.1%) enhances the financial literacy of the individuals.



**H0:** AI-powered financial advice does not enhance people's ability to manage their finances or make better decisions.

The above statement is Rejected

**H1:** AI-powered financial guidance enhances people's ability to manage their finances and make better decisions.

The above statement is Accepted.

Accordingly, it is observed that 66.7% of individuals who responded have enhanced their financial literacy, and 41.7% of respondents have a moderate influence on risk tolerance level. 36.1% of respondents have slightly enhanced their risk tolerance level.

### CONCLUSIONS

The results of the study indicate that financial advice driven by artificial intelligence (AI) may improve people's understanding of financial concerns and how they make decisions. AI has the potential to improve access to high-quality financial advice, raise financial literacy, and offer personalised suggestions.

Furthermore, by taking into account a variety of variables, including risk tolerance, financial literacy, financial goals, and changes in the market, AI-powered financial guidance systems may be able to optimise financial decision-making. Ultimately, this can improve the financial security of individuals by enabling them to make more intelligent and effective financial decisions.

However, several issues and problems related to algorithmic biases, data security, privacy, and the requirement for open disclosure of the recommendation-generating process of AI systems should be addressed. This field necessitates ongoing study and development to optimise the advantages and reduce any potential risks related to this new technology.

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**SUGGESTIONS**

- To determine the long-term effects, a long-term study would be beneficial. This would shed light on whether people's opinions and ways of making decisions evolve as they get more accustomed to AI systems.
- Qualitative research techniques can offer a more comprehensive comprehension of people's viewpoints and encounters with AI-driven financial guidance.
- Comparative studies on cultural and demographic variations.
- To create ethical and responsible rules for the application and use of AI technology in the financial sector, researchers and industry stakeholders must work together.

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**CHALLENGES BEFORE COMMERCE AND MANAGEMENT IN 21<sup>ST</sup> CENTURY WITH SPECIAL REFERENCE TO INDIAN BUSINESS ENVIRONMENT, AI AND LLM**

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**Dr. Sunil Joshi.**

**Executive Summary**

Commerce and management discipline has observed sea changes. There is development in form of organizational changes, management style, cultural change and attitude. The change in business, market area and technology change the commerce. In recent year advertisements, marketing, insurance, banking, ware housing and packaging changes rapidly. Changes are having positive and negative impact. It brings challenges to achieve sustainable growth. Recent world economic slow down may have hit hard to the world India is also suffered from world recession. Agriculture, industry and service sector are important for growth but growth in service sector depends in growth in industry and agriculture sector. Quality aspect becomes very important in modern world. Commerce and management are essential for survival. The common man depends on commerce and management. E-commerce digitalization of transactions application of fin technology changes the function and operations. The challenges are to meet to achieve socio economic objective. Apart from this the environmental issues are also to be considered. Effective efficient and ethical practices are possible through adoption of correct policies of running business organization. AI is the word which is taking place in all forums of industry education and other commercial services. This revolution brings challenges before commerce and management.

*Keywords: management, commerce, challenges consequence of changes, AI, LLM*

**1) INTRODUCTION**

Change is the only permanent factor in today's modern world. The industrial revolution was regarded as a major change in the industrial world. It changes life style, method of production quality and change in quantity of production. After the said change, labour intensive business, industry, commerce becomes capital and high tech intensive. There is change in technology, method of production and services. The information technology and development in computer is also regarded as revolution. It brings several challenges before us. All changes are not positive there is negativity associated with some changes. Apart from the structural changes there is change in trade commerce and services after 1991. It brings changes in rules and regulation, procedures methods of business commerce industry knowledge and other such factors. After 1991 different policies such as banking, labor, industrial import and export, the licensing changes. The policies are changed to acquire the advantage of new economic global order. New economic order brings positive as well as negative aspect. Agriculture driven country like India cannot ignore rural India with this change. From 2022 the introduction of technology of AI, Artificial Intelligence and LLM, Large Language Models are discussed in IT (Information Technology) sector and other customer related and client-based services.

**2) OBJECT OF PAPER: -**

- 2.1) To consider various changes in commerce and management.
- 2.2) To analyze the consequence and changes.
- 2.3) To study the challenges of changes put before us due to AI and LLM.

**3) LIMITATIONS**

Since the subject is very vast the paper considers the management and commerce aspect. It will cover the aspect of GenAI- Generative Artificial Intelligence and Large language Models.

**4) CONCEPT: - MANAGEMENT**

- 4.1 Management is the co-ordination of all resources through the process of planning, organizing, directing and controlling in order to attain stated objectives. -Henry L. Sisk
- 4.2 Management is the art of knowing what you want to do and then seeing that it is done in the best and cheapest way. - F.W. Taylor

**Commerce**

- 4.3 Commerce is that aspect of business which is engaged in distribution of goods and services produced by industry.
- 4.4 Commerce includes buying and selling of goods and services as well as it removes all the hindrances in the process of distribution of goods and services.

**5) CHANGES: -**

The change in area of commerce and management is classified as basic change and change after 1991 i.e. New Economic Order. The management discipline changes as per the change in organization structure. Moreover, we can say that it is change as per change in life. The sole proprietor was considering as oldest and traditional form of organization. But after development especially after industrial revolution the management is separated from ownership. In modern form of organization, company form of organization management part lies with managers and ownership lies with shareholders. Instead of management as an employment in today’s modern worlds it is regarded as profession. The concept of management was use in business traditionally but know a days there is change in the applicability. It is also applied to human resource, hospitality travel tourism, disaster, emotion and so on.

There is tremendous change in commerce field. There is development of new area of commerce which is e-commerce. The old and traditional commerce was associated with advertisement of firm on radio and newspaper. Marketing was carried out with dealers and middlemen. The warehousing facilities were not in existence. The insurance sector was not much developed. But know a days the advertisement can be done through internet. There is network marketing and e-marketing. The insurance is also developed as per need. The new and high-tech methods are used for packing, branding and transportation. In service sector there is change in providing services . Gen AI and new technologies will change manufacturing operations data processing and recording,

**6) NATURE OF CHANGE IN COMMERCE MANAGEMENT AND BUSINESS.**

After adoption of new economic policies there are several changes in business. It leads to automatic change in commerce and management. It can be mentioned as follows.

**Change in Business Environment.**

<b>FACTOR OF COMMERCE AND MANAGEMENT</b>	<b>BEFORE INDUSTRIAL REVOLUTION</b>	<b>AFTER INDUSTRIAL REVOLUTION</b>	<b>BEFORE IT REVOLUTION</b>	<b>AFTER IT REVOLUTION</b>	<b>BEFORE GEN AI AND LLM</b>
Production	Low	Mass	Manual	Computer aided technology	Machine Language Robotic Method
Efficiency	Low	High	High	Full Extent	Much Potential to Increase
Time of operation	Huge	Less	Minimum	Minimum	Zero time
Record	Manual	Machine and tools	File and other devises	Computerizes soft copy and other	Gen AI with huge capacity
Productivity and Capacity	Low	Increase	Improved	Good	Best
Marketing	Manual	Increase Area	Machines	E- marketing	Aggressive and effective
Services -Time and quality	More time and less quality	Improved the time	Better	Less time and correct	Very less time and best quality

Above mention changes are basic and structural in nature. It is due to change in policy of government. The opening up of economy, change in import duty, disinvestment policy, and arrival of Multi-National Corporation changes the business scenarios of India as well as changes the commerce and management. Taking over, merger and acquisition, changes, the ownership which brings change in style philosophy and culture of management. The reforms in banking policies change the style working. The place of person and books of accounts is taken by computes and pen drive.

The reforms in legal sector also invite change. Foreign Exchange Regulation Act (FERA) becomes Foreign Exchange Management Act. Monopoly Restrictive Trade Practices Act (MRTP) change to Competition Act. Companies Act 1956 has amended several times. There are independent directors on the board of director of the company. Labor laws, banking regulation, information technology act research development and other laws are

changed. The drives of the change are open economy, banking policy, disinvestment policy, FDI policy, legal administrative and tax reforms.

### 7) CONSEQUENCES OF CHANGE

Due to recent changes in policies practices rules and regulation following aspect are possible.

- World become a complete market.
- Simple to enter into international market.
- Global competition.
- World standard quality norms.
- World standard technology.
- Quality matters everywhere.
- International technology put to us.

Let us analyze the change, since India is agriculture country it is necessary to analyze the position of agriculture sector. The agriculture sector is not benefited with the change there is reduction in growth rate. We can observe the change in food grains. Because there is increase in production and food grain but overall, the picture is not satisfactory.

**7.1) Disinvestment-** Disinvestment policy is adapted by Government to collect the blocked revenue from public sector units and to utilize it for social welfare schemes. The strategic units are retained by government. This is major policy decision in Industrial Sector. But in most of the cases the ownership is retained by Government. It is subject of further research that change in ownership leads to change in performance. The object of the policy is to enhance the performance of individual units with change in ownership.

**7.2) Small and Medium Scale Industries-** The regulation of small and medium scale industries are changed. Startup changes the nature of business. New credit policies and facilities are introduced by government. In future these aspects will invite more technological requirement and facilities. The entrepreneurship education is necessary for further growth. Establishment of Mudra Bank and Women Bank is major step in this area. It is to be changed with import export policies.

### 7.3) Foreign Direct Investment

There is contribution on account of Foreign Direct Investment Telecommunication Computer services constructions and hospital services. Computer and travel services are contributing more in form of export services. There is increasing scope in post, travel, media entertainment and construction or real estate under service sector.

To attract the customers the policy of Foreign Direct Investment is announced. It is expected that the policy will provide employment opportunity in the country. We can use the resources of production up to fullest extent.

### 8) Challenges in 21<sup>st</sup> century

- The challenges before 21<sup>st</sup> century is to sustain in completion with excellent quality by protecting environment. A challenge of green clean environment is to be faced with education awareness and change in mindset of society.
- The change is to be adjusted and directed towards welfare of masses. The e-commerce digitalization smart policies and must be framed considering the last person of society at receiving end. The AI will play role in this area.
- There will be development in information technology devises communication devices and development of new business models.
- Innovation becomes necessary. It is a source of development.
- Ethical issues changed workforce and transnational issues are to be dealt with.
- Change in management and change in leadership will invite the challenges of new procedure operation and policies. There will be change in vision and mission of organization. Change in technology will change in production process and workforce required.
- AI can change the quality of work force. But skill full workforce is necessary.

- 
- The education teaching learning training will content AL and LLM which will help to supply more appropriate work force.
  - In next 5 years there will be new market new business and new business practices.

**FEAR OF AI AND LLM-**

The fear of loosing jobs and closing the unprofessional firms is there. The business units and services providers who are not able to change will the change will lose the market and business. The sophisticated forms business man and professionals who can change and adopt the change quickly can play positive role in market.

**CONCLUSION**

The change has invited the challenges to force world recession. Agriculture driven country like Indian must concentrate an agriculture sector reform. For challenges ahead the education reform is necessary which can provide quality human resource to nation.

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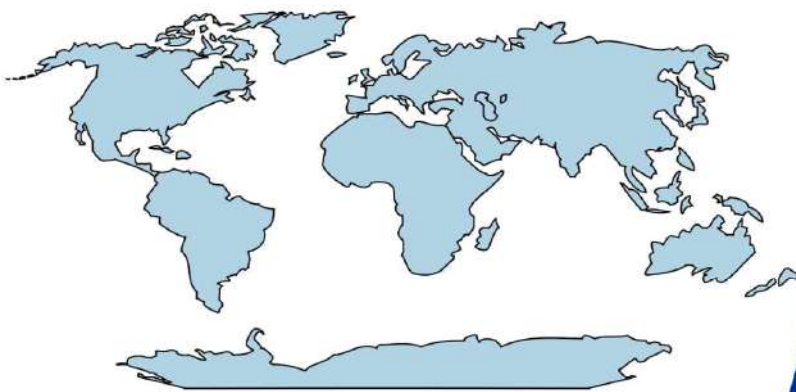
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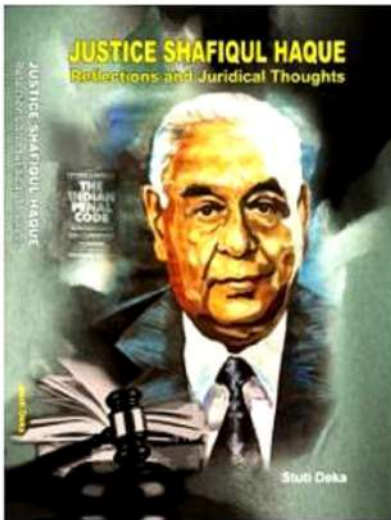


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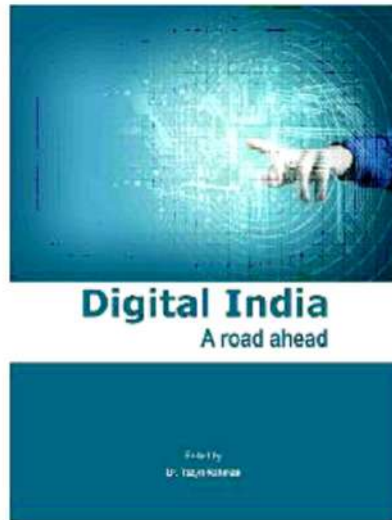
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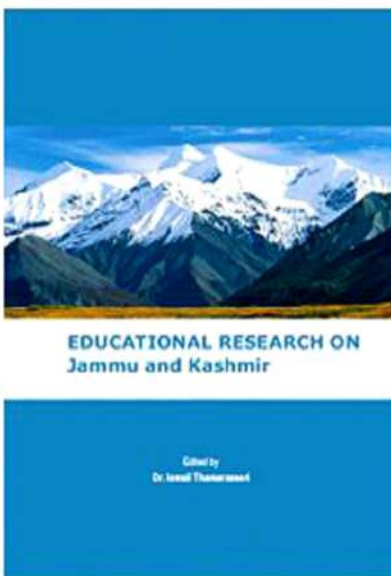
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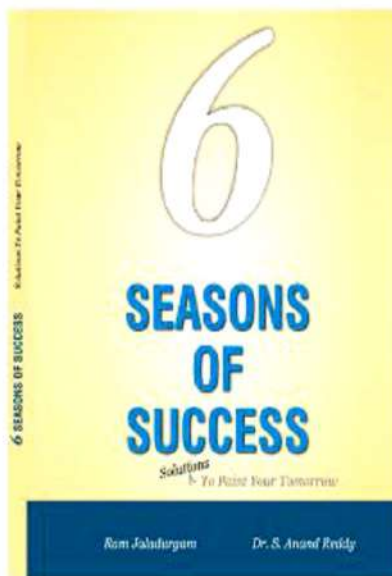
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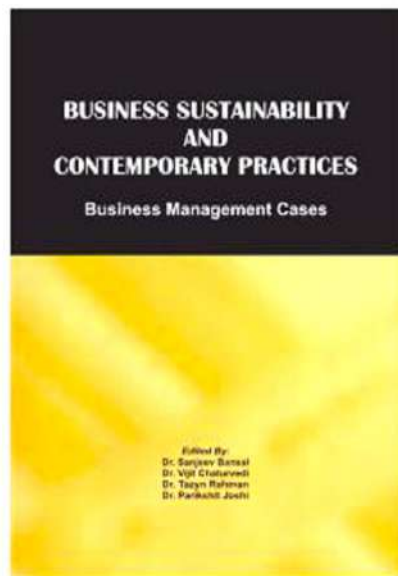
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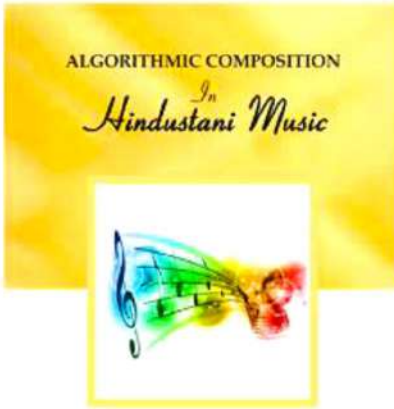
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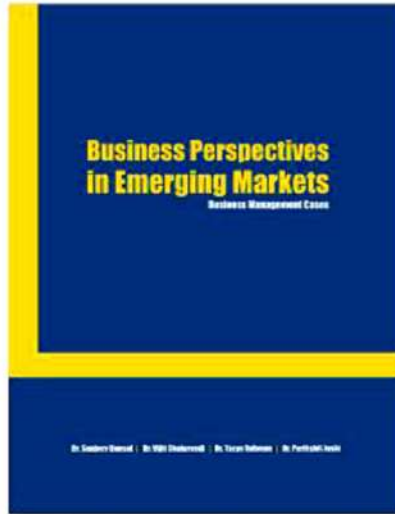
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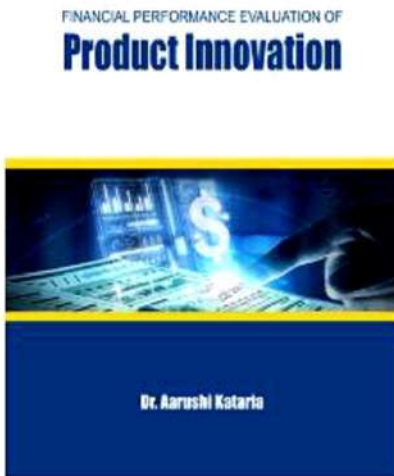


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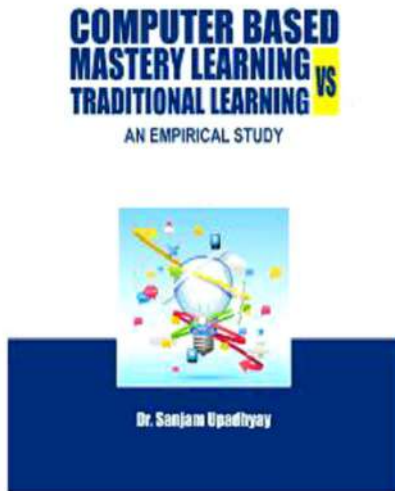
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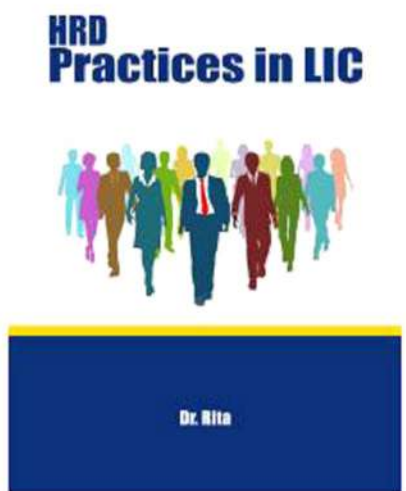
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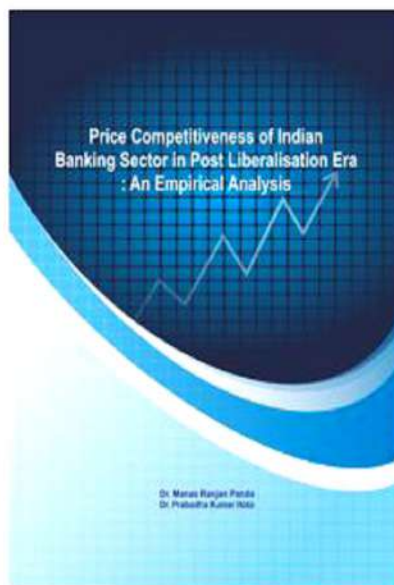
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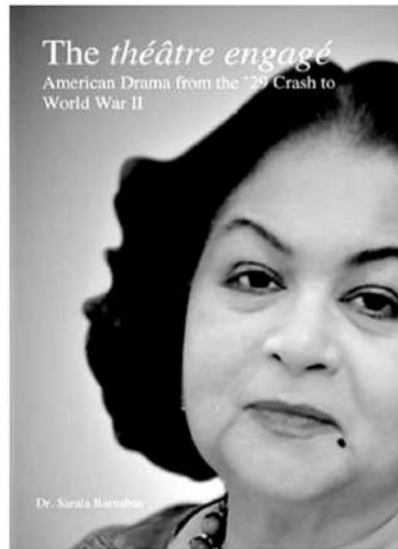
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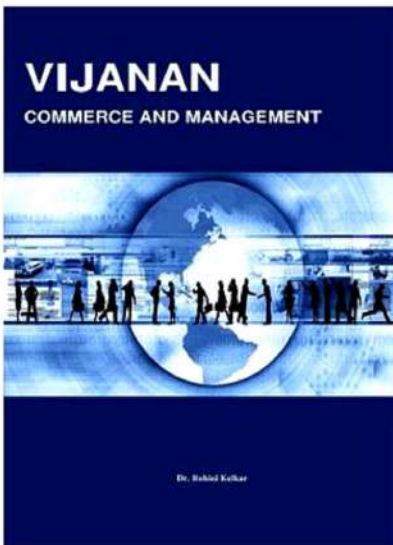
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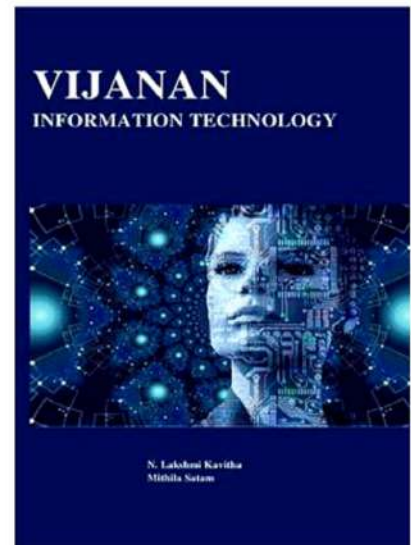
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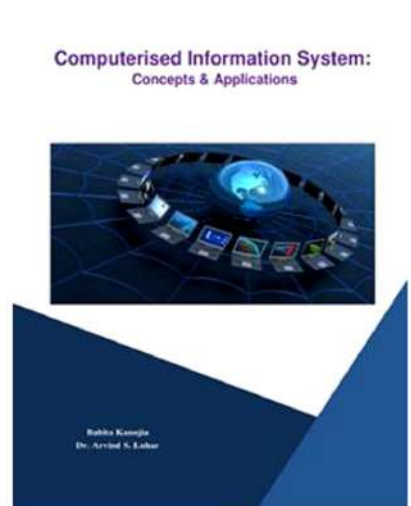
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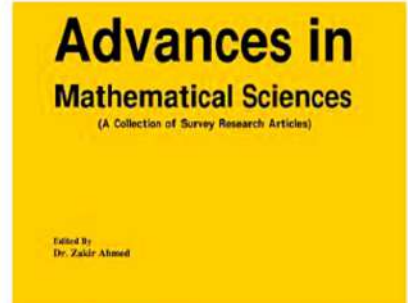
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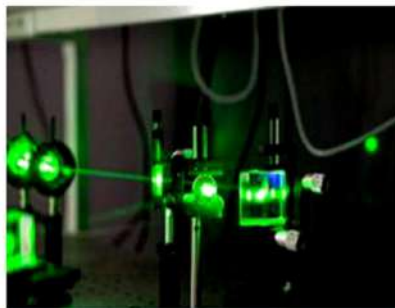


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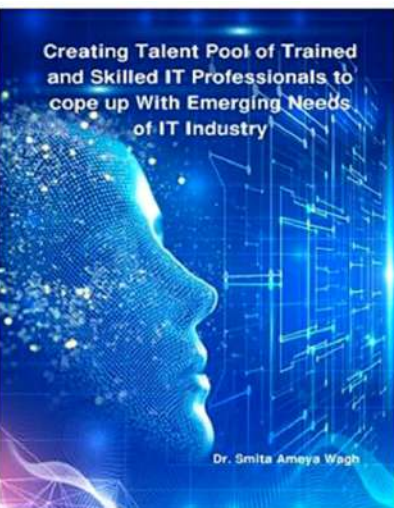
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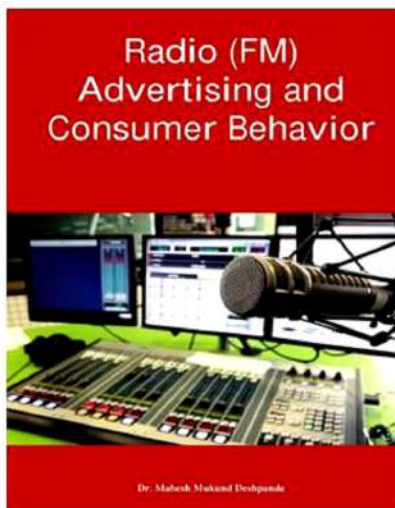
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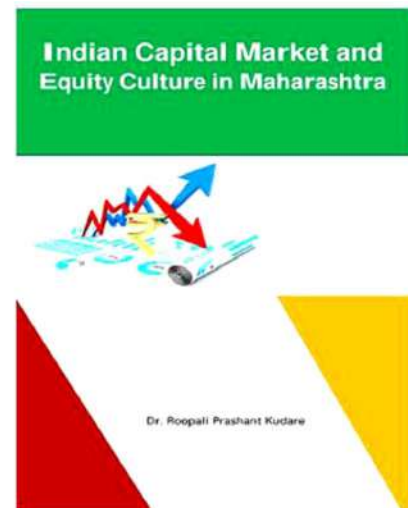
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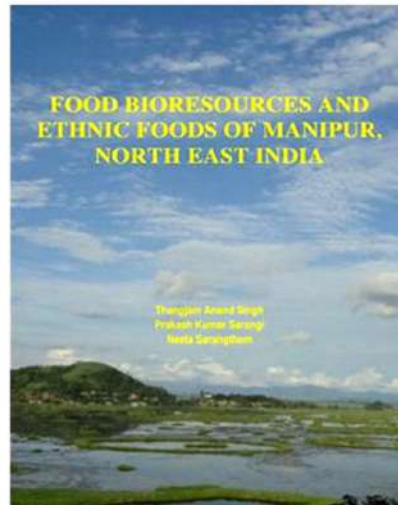
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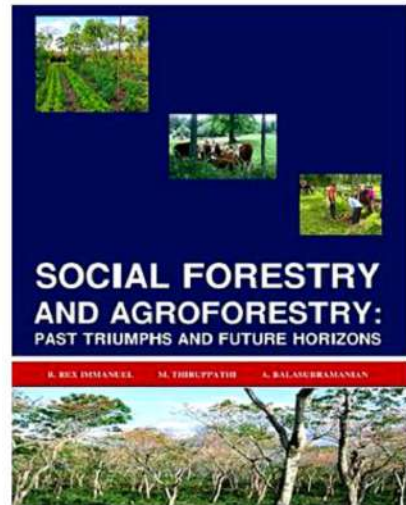
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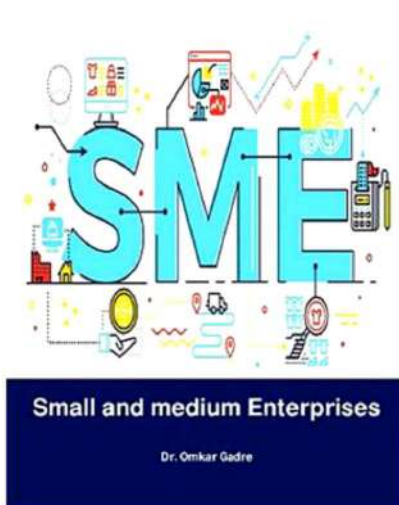
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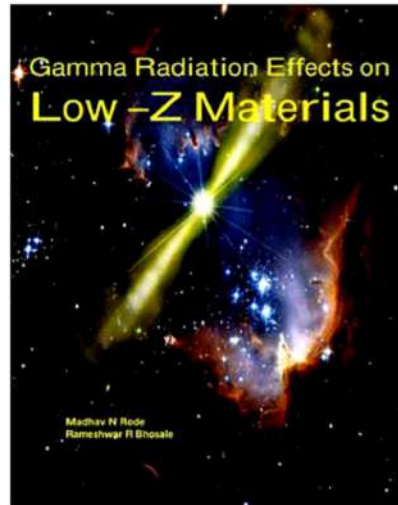
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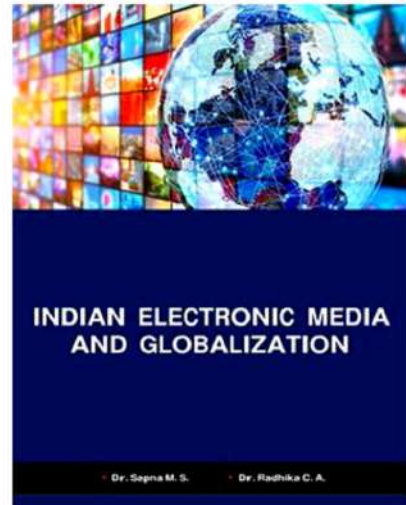
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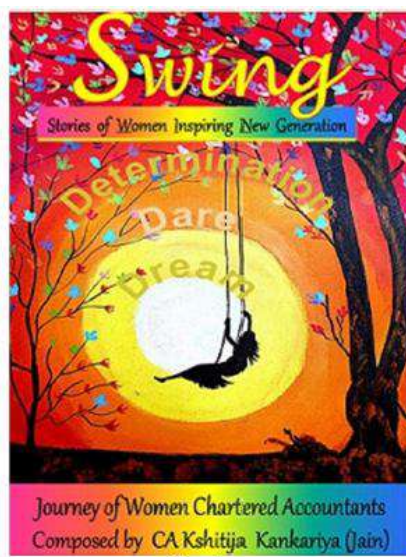
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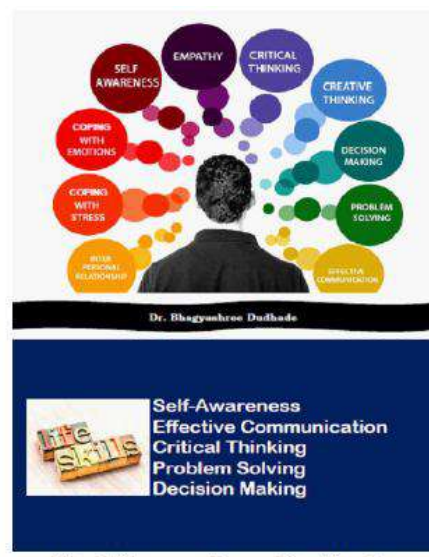
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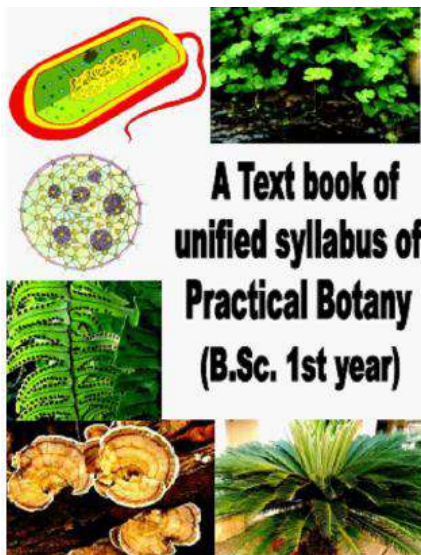
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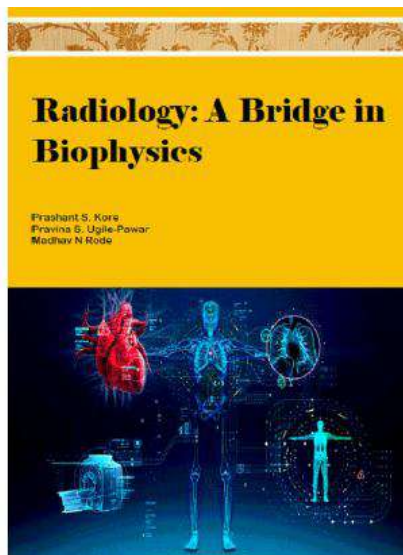


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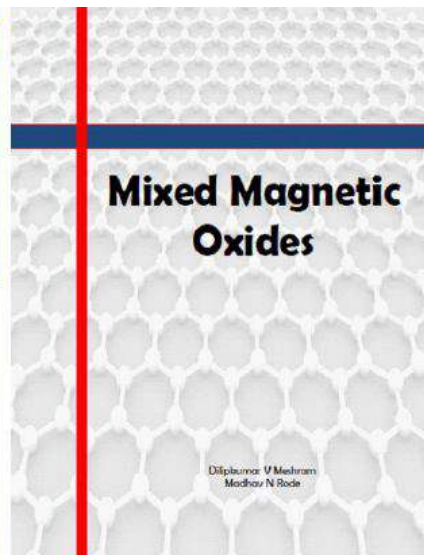
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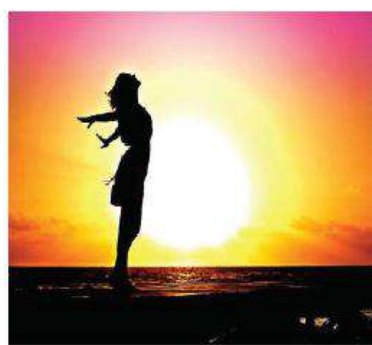
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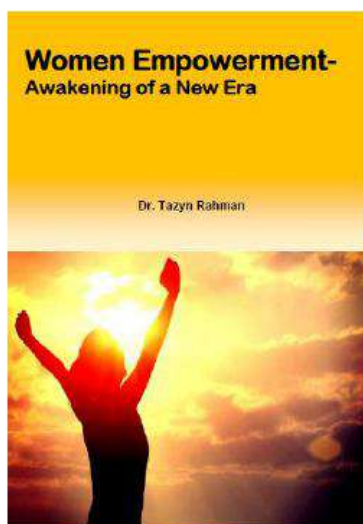
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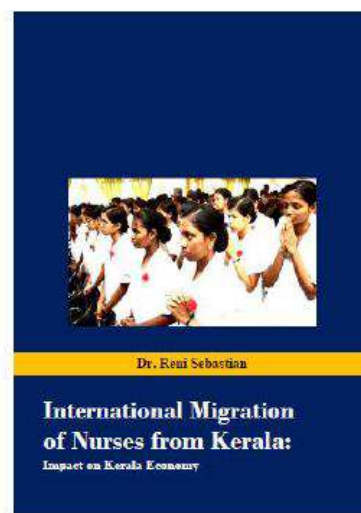
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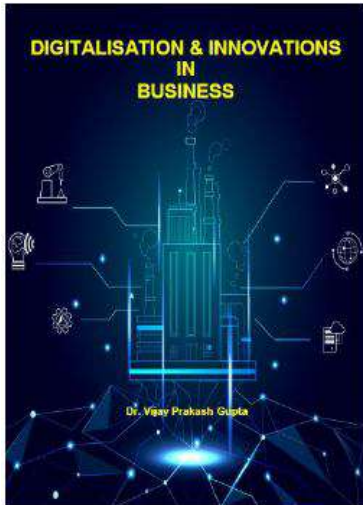


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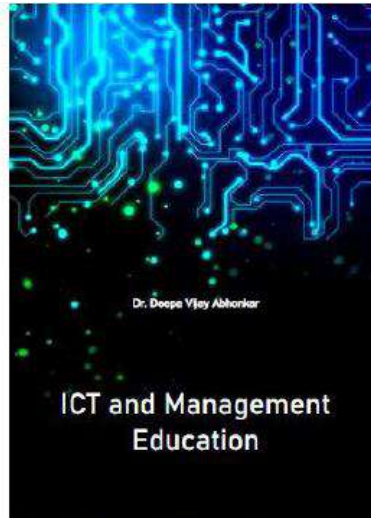
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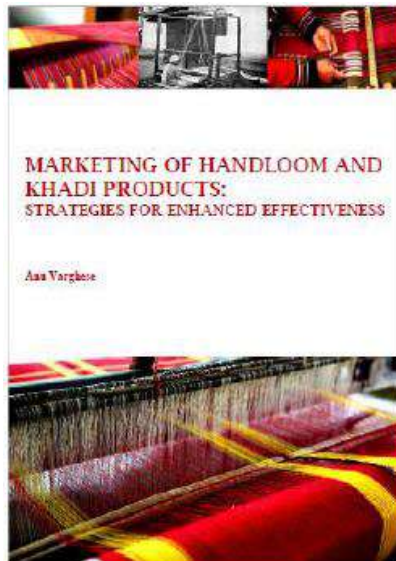
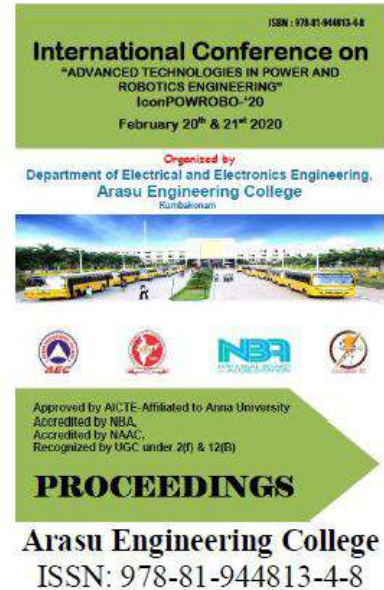




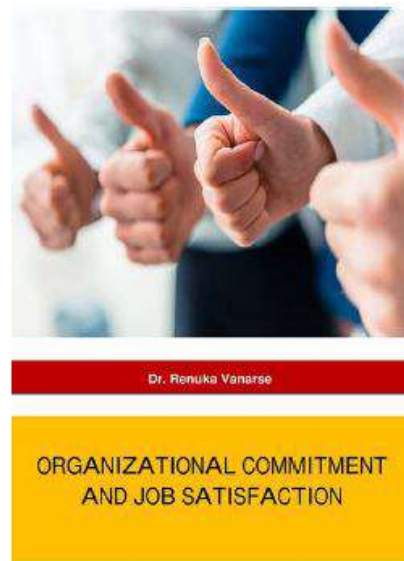
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