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Financial Literacy in the Era of Industry 5.0: Navigating Opportunities and Challenges

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ABSTRACT

As we all stand at the intersection of advanced technologies, human-centric approaches, and sustainability imperatives, financial literacy becomes crucial as people and organizations strive to make the most of the opportunities and mitigate the risks associated with this transformative, it extends beyond traditional concepts of budgeting and saving. It encompasses a dynamic understanding of emerging financial instruments, investment strategies, and risk management within a digitally driven and interconnected world. The evolving nature of work in Industry 5.0 necessitates a keen awareness of income diversity, freelance economics, and skill-based income streams, demanding adaptability in financial planning. On the business front, companies must navigate an intricate financial landscape, where sustainability practices and responsible investments are integral to success. Collaborative ecosystems and ethical Artificial intelligence financial leaders to make informed decisions that align with their organization's values while generating sustainable growth.

KEY WORDS

Financial Literacy, Industry, Opportunities and Challenges.

INTRODUCTION

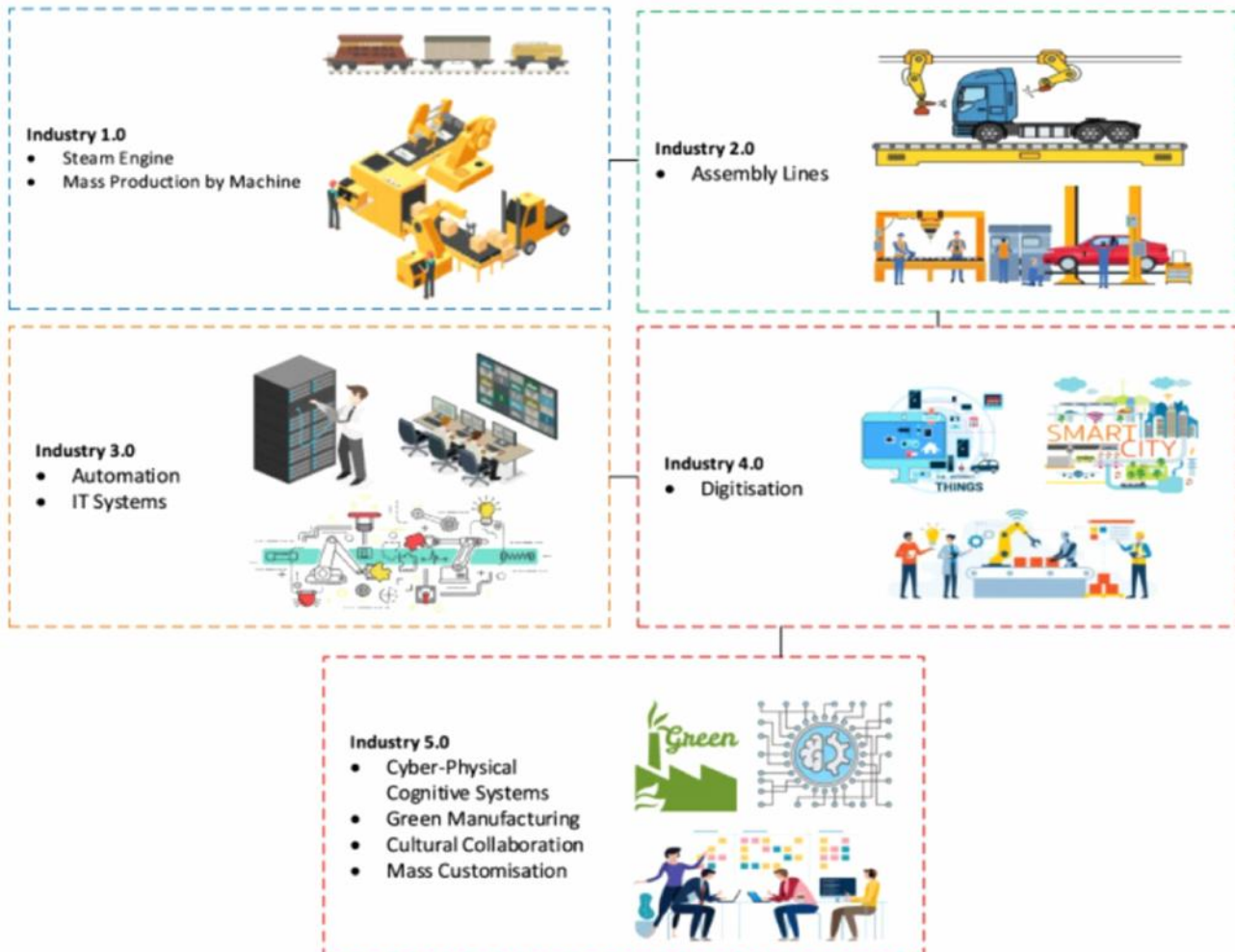
Industry 5.0 represents the convergence of advanced technologies like Artificial Intelligence, automation, the Internet of things, and data analysis to create a highly interconnected and intelligent system. Financial literacy will boost in the era of Industry 5.0

playing a crucial role with the help of which one can:

- Understand the complex financial products, Industry 5.0 is likely to bring about new financial products and services such as blockchain-based currencies, digital and decentralized finance platforms. Financial literacy will be essential for individuals and businesses to comprehend these products, make informed decisions, and avoid potential pitfalls.
- Manage the Investment Opportunities with Industry 5.0 there will be a proliferation of investment opportunities in technology-driven sectors. Financial literacy will enable investments, assess risks, and diversify their portfolios effectively, potentially increasing their wealth.
- Take Data-driven Decision-Making, in an Industry 5.0 environment, data is the lifeblood of operations. Financial literacy is essential for interpreting financial data and making strategic decisions.
- Will navigate Entrepreneurs and lead to innovation, Industry 5.0 encourages entrepreneurship and innovation. Financial literacy equips aspiring entrepreneurs with the knowledge to create and manage startups, secure funding, and navigate the complexities of scaling their businesses.

With the help of a diagram it clearly depicts the phases of technological change.

Industrial Evolution from Industry 1.0–5.0



(Source: www.ncbi.nlm.nih.gov)

- Helps in better Risk Management, the interconnected nature of industry 5.0 systems makes them vulnerable to various risks, including cyber threats and supply chain disruptions. Financial literacy helps

individuals and businesses develop risk management strategies, purchase appropriate insurance, and establish contingency plans.

- Boost Financial Inclusion, Industry 5.0 access to financial services through digitalization. Financial literacy ensures that all individuals, regardless of their background, participate in the digital economy, make informed decisions, and access banking and investment services.
- It also help in Retirement Planning, with shifting employment patterns and retirement structures, financial literacy is critical for planning and saving for retirement. People need to understand how to invest their savings wisely and ensure financial security in their later years.
- Consumers can protect themselves, as Industry 5.0 introduces new financial technologies and services there is a need for strong consumer protection measures. Financial literacy helps individuals recognize potential scams or fraudulent activities and protect themselves from financial harm.
- Boost in Sustainability and ESG Investments, Industry 5.0 emphasizes sustainability and environmental, social and governance (ESG) principles. Financial literacy will enable individuals and institutions to assess the impact of their investments on these factors and align their potential with their potential.

Literature Review

Financial Literacy in the Era of Industry 5.0 is a subject of concern in various studies:

1. Financial literacy and economic development in the industry 5.0 Era, researchers have emphasized financial literacy and economic development, particularly in the context of Industry 5.0. A study by Smith and Johnson (2022) highlights how nations with higher levels of financial literacy tend to adapt more effectively to the technological advancements of Industry 5.0 leveraging them for economic growth and prosperity.
2. Navigating the complex financial landscape of Industry 5.0, An industry 5.0 introduces complex financial products and services, a report by the World Economic Forum (2021) underscores the importance of financial literacy in helping individuals and organizations understand and engage with emerging technologies like blockchain, decentralized finance, and digital currencies. without financial literacy, individuals risk being left behind in the rapidly evolving financial landscape.
3. Financial literacy and entrepreneurship in the digital age, in a study published in the Journal of Entrepreneurship and Innovation (2020), researchers highlight the essential role of financial literacy in the rise of entrepreneurship in Industry 5.0. They argue that entrepreneurs must possess a deep understanding of financial concepts to secure funding, manage cash flow, and make strategic financial decisions in an environment characterized by rapid innovation and disruption.
4. Data-driven decision-making and financial literacy, the role of data-driven decision-making in industry 5.0 is widely recognized. A review by Anderson and Lee (2021) emphasizes that financial literacy is critical for interpreting financial data generated by advanced analytics and artificial intelligence systems. Without this literacy, organizations may struggle to harness the full potential of data-driven insights for financial optimization.
5. Financial Inclusion and Digitalization in Industry 5.0 is marked by the digitalization of financial services, but a paper by Jackson and Patel (2021) cautions that this digital divide may exacerbate financial exclusion if individuals lack basic financial literacy. The study suggests that policymakers and financial institutions need to prioritize education to ensure that the benefits of digital finance are accessible to all.
6. Sustainable Finance and ESG Investing as Industry 5.0 emphasizes sustainability, financial literacy becomes a key factor in aligning investments with environmental, social and governance principles. A report by the United Nations Principles for Responsible Banking (2022) highlights the importance of financial literacy in enabling individuals and institutions to make informed decisions about sustainable investments and impact-driven financial strategies.

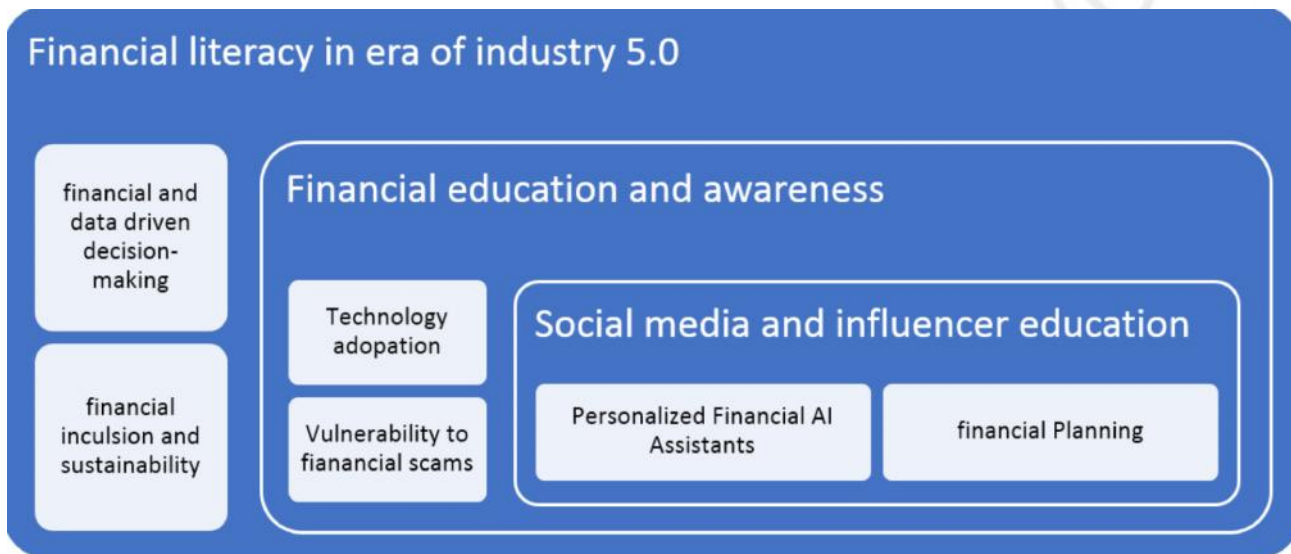
Objectives

The main objective of the study the financial literacy in the era of Industry 5.0:

1. To identify the Opportunities that will boost financial literacy in the era of Industry 5.0.
2. To pinpoint the challenges on steps that will affect financial literacy.
3. To understand the relationship between financial literacy with the era of Industry 5.0.

Study-Driven based Data

The key points of the study which cover financial literacy in the era of Industry 5.0 of the individual comprise financial literacy, Financial decision-making and investment, Data-driven decision-making, Financial inclusion, and sustainability financial education and awareness, Technology adoption, Vulnerability to financial scams and social media and influencer Education, based on the data available it is found that environmental, social, and governance (ESG) principles in Industry 5.0 reflected through diagrammatical representation.



Hypothesis Based Study

Studies have shown that in the era of Industry 5.0, upgrading the level of financial literacy can boost the economy and help individuals make informed decisions through different Artificial tools and techniques.

H_0 : The use of emerging technologies in Industry 5.0 has no effect on individuals' financial literacy levels.

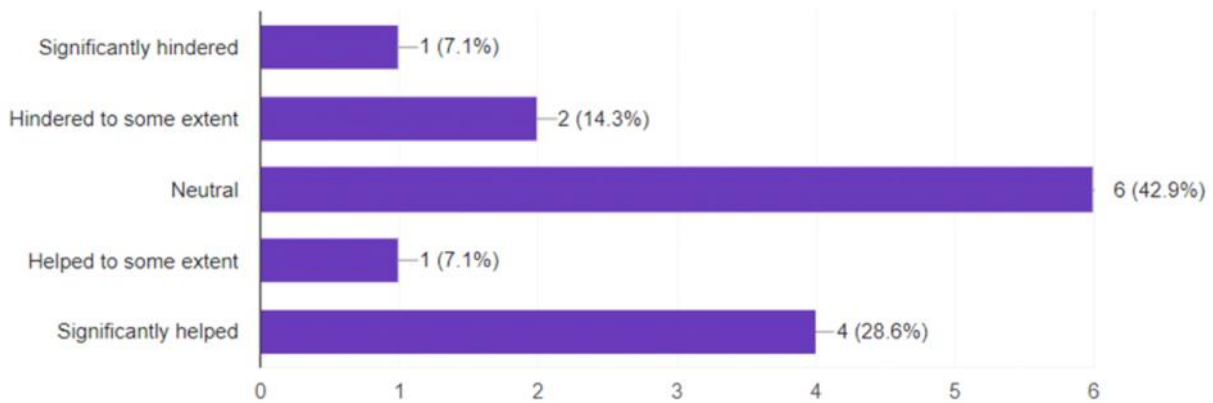
H_1 : The use of emerging technologies in Industry 5.0 significantly impacts individuals' financial literacy levels.

Primary Data

On the basis of data obtained for the Google form responses, most of the category of people have knowledge of financial literacy but are not able to connect with Industry 5.0, people are lost in past trends of Industry 4.0, and according to the data, AI or Internet of things may or may not effect on individual financial literacy but the data shows that when it comes upon the questions to the high-class individual about the literacy and adoption of technology to enhance their learning about finance technology adoption plays a comprehensive role.

The data reveals that 42.9% are neutral about the effect of Industry 5.0 on individuals' financial literacy while 28.6% of the individual suggests that Industry 5.0 will have significantly helped the level of financial literacy to grow and impact technology reliance for any part of finance this shows that the use of emerging technologies in Industry 5.0 has no effect on individuals' financial literacy levels and hence hypothesis 1 is true and hypothesis 2 is false.

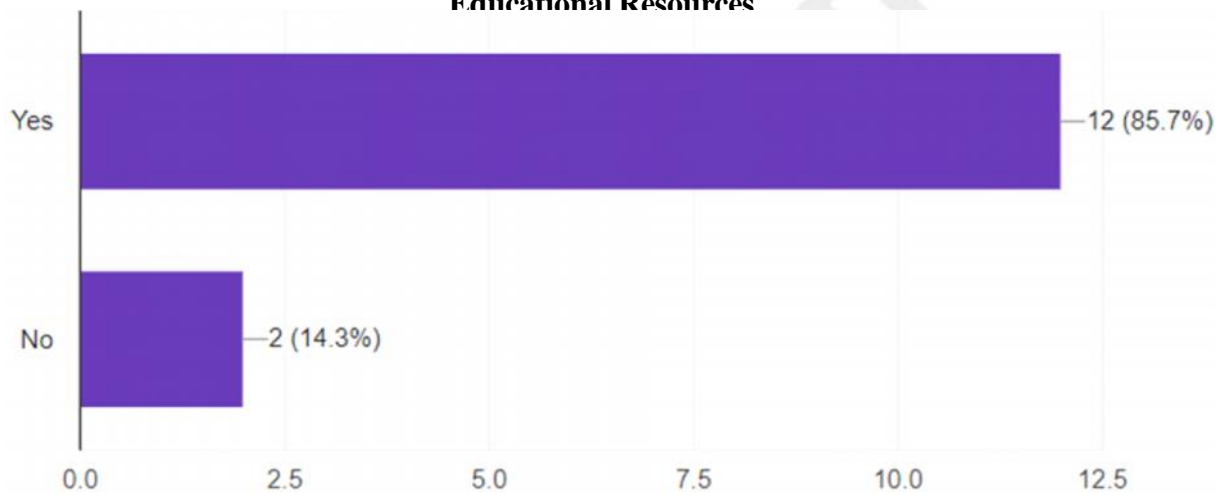
Industry 5.0 and level of financial literacy influenced



(Source: Primary Data)

But at the same time when the respondent was questioned about the awareness tools implementation of policies or regulations to ensure that financial institutions and fintech companies offer educational resources to their customers related to Industry 5.0 financial products and services, the response varied to 85.7%, with lowest to 14.3% which contradicts the above result, it means technology adoption has no doubt impacts the individual’s financial literacy and way of thinking while investing in any of the portfolio available which rejects the hypothesis 1 and accepts hypothesis 2. As the data reveals.

Policies or Regulations to Ensure that Financial Institutions and Fintech Companies Offer Educational Resources



(Source: Primary Data)

The respondents have suggested the best way of depicting the era of Industry 5.0 in relation to boosting up or navigating both the opportunities and the challenges of financial literacy with the help of workshops that about 21.4% suggest that education to work with technology will grade up the financial literacy which clearly shows that industry 5.0 will definitely navigate the opportunities for the investor to invest smartly with the application of AI and internet of things, once the proper guidelines or financial trinks of investment are facilitated to the individual through different ways of adopting the educational tools and techniques which clearly states that hypothesis 1 is rejected as to use of emerging technologies in Industry 5.0 has no effect on individuals’ financial literacy levels, as individuals are willing to learn how industry 5.0 can navigate the impacts on financial literacy this shows they are less aware of burning tools of technology, hence hypothesis 2 is accepted.

Tools Most Effective in Improving Financial Literacy in the Context of Industry 5.0



(Source: Primary Data)

Secondary Data

The data obtained from various sources that is from various research papers, Magazines, Newspaper, and websites available like NCBI and Government sites shows that Research mainly focuses on both the opportunities and challenges available in the era of industry 5.0 which navigates financial literacy as references number 138 shows that the researchers highly focus on blockchain technology based on DApp smart contract which magnifies that the need of digital apps to correctly monitor the true fluctuations or a real time data driven facts that is internets of things, which signifies there is a high need and a crucial impact of industry 5.0 on understanding better the role and implications of financial literacy to avoid future scams and cyberattacks, Hence such facts relates to the acceptance of hypothesis 2 and rejection hypothesis 1.

Ref. No.	Industry 5.0 Apps	Prerequisites and Concept	Adopted Technologies	Limitations	Future Research	Research Main Focus
[1]	N/A	M	H	L	L	Main focus is on managing the barriers of Industry 4.0 adoption and implementation in textile and clothing industry.
[4]	M	M	M	H	H	Main focus is on Value-oriented and ethical technology engineering in industry 5.0.
[6]	N/A	H	H	L	H	Main focus is on blockchain for big data: approaches, opportunities, and future directions.
[30]	H	M	H	M	N/A	Main focus is on Industry 5.0—A human-centric solution.
[35]	M	M	H	H	H	Main focus is on Industry 4.0 and Society 5.0: opportunities and threats.
[61]	N/A	M	H	H	H	Main focus is on Tackling faults in the industry 4.0 era—a survey of machine-learning solutions and key aspects.
[67]	H	M	M	H	H	Main focus is on Green IoT and edge AI as key technological enablers for a sustainable digital transition towards a smart circular economy: An industry 5.0 use case.
[73]	N/A	L	H	H	L	Main focus is on technologies, applications and open research issues I industry 4.0.
[74]	N/A	M	H	H	L	Main Focus is on industry 4.0: Adoption challenges and benefits for SMEs.
[75]	N/A	M	H	L	L	Main focus is on a framework to achieve sustainability in manufacturing organizations of developing economies using industry 4.0 technologies’ enablers.

[98]	N/A	M	H	H	H	Main focus is on investigation into emerging industry 4.0 technologies as drivers of supply chain innovation in Australia.
[122]	M	M	H	H	M	Main focus is on critical components of Industry 5.0 towards a successful adoption in the field of manufacturing
[128]	M	M	M	L	M	Main focus is on an exploratory bibliometric analysis of the birth and emergence of industry 5.0.
[132]	L	L	M	M	M	Main focus is on the birth of industry 5.0: Making sense of big data with artificial intelligence.
[138]	H	M	H	N/A	N/A	Main focus is on industry 5.0: Ethereum blockchain technology based DApp smart contract.
[156]	N/A	H	H	L	M	Main focus is on an approach and decision support tool for forming Industry 4.0 supply chain collaborations.

H	High Focus	M	Medium Focus	L	Low Focus	N/A	Not Applicable
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(Source: References within the table [1, 5–19])

Financial literacy in the era of Industry 5.0 faces unique challenges due to the rapidly evolving technological landscape and the changing nature of work and finance. Here are some key challenges that may affect financial literacy in this era:

- Digital Divide:** As Industry 5.0 relies heavily on advanced technologies like artificial intelligence, blockchain, and the Internet of Things, there is a risk of a growing digital divide. People who lack access to these technologies or are not comfortable using them may struggle to understand and manage their finances effectively.
- Complex Financial Products:** With the increasing complexity of financial products and services, individuals need a higher level of financial literacy to make informed decisions. Understanding cryptocurrency, decentralized finance (DeFi), and other emerging financial instruments can be challenging.
- Cybersecurity Risks:** As more financial transactions occur online, the risk of cyberattacks and fraud increases. Financially literate individuals need to be aware of cybersecurity best practices to protect their assets and personal information.
- Data Privacy Concerns:** Industry 5.0 relies on vast amounts of data. People must be aware of how their financial data is collected, used, and protected. Understanding data privacy regulations and taking steps to safeguard personal information is crucial.
- Job Instability:** The gig economy and automation can lead to job instability. Financial literacy should include knowledge of how to navigate income volatility, plan for career changes, and save for retirement without traditional employer-sponsored benefits.
- Evolving Retirement Landscape:** Traditional pension plans are becoming less common, and individuals are increasingly responsible for their retirement savings. Understanding retirement investment options and strategies is essential.
- Financial Education Accessibility:** Access to quality financial education varies widely. People in underserved communities or with limited resources may have less access to financial literacy programs and resources, exacerbating financial inequalities.
- Behavioural Biases:** Understanding financial concepts is one thing, but overcoming behavioural biases that affect financial decision-making (e.g., overconfidence, loss aversion, and impulsivity) is another challenge in the era of Industry 5.0.

9. **Regulatory Changes:** The financial industry is subject to evolving regulations, especially in response to new technologies and market dynamics. Staying informed about regulatory changes and their implications is vital for financial literacy.
10. **Globalization:** Industry 5.0 is marked by increased globalization, which means individuals may have financial assets and obligations in multiple countries. Understanding international taxation, currency exchange, and cross-border financial planning is important.
11. **Climate and Sustainability:** Financial literacy should also encompass an understanding of the financial implications of climate change and sustainability. This includes knowledge of green investments, carbon offsetting, and the impact of environmental factors on financial markets.
12. **Financial Inclusion:** Ensuring that all segments of the population, including marginalized communities, have access to financial education and services is critical in the era of Industry 5.0. Bridging the financial inclusion gap is a significant challenge.

Opportunities that will boost financial literacy in the era of Industry 5.0

Boosting Financial literacy in the era of Industry 5.0, characterized by advanced technology and connectivity, requires innovative approaches. Here are some opportunities to consider:

- **Digital Learning Platforms:** Create interactive online courses and mobile apps that use gamification and AI to make financial education engaging and accessible.
- **Personalized Financial AI Assistants:** Develop AI-powered virtual assistants that provide personalized financial advice and recommendations based on individual financial situations.
- **Blockchain and Cryptocurrency Education:** Offer courses and resources to help people understand blockchain technology and cryptocurrencies, as they become increasingly relevant in the financial world.
- **Virtual Reality and Augmented Reality Simulations:** Use VR and AR to create immersive financial simulations, allowing individuals to practice making financial decisions in a risk-free environment.
- **Peer-to-Peer Learning Communities:** Facilitate online communities where individuals can share their financial knowledge and experiences, fostering peer-to-peer learning and support.
- **Financial Wellness Programs at work:** Encourage employers to provide financial wellness programs as part of employee benefits, helping employees better manage their finances.
- **Financial Literacy Games to Children:** Develop educational games that teach financial concepts to children, starting early to build a strong foundation of financial literacy.
- **Data Analytics Tools:** Create tools that analyse users' financial data to provide insights and recommendations for saving, investing, and budgeting.
- **Social media and Influencer Education:** Leverage social media and influencers to promote financial literacy through informative content and live question-and-answer sessions.
- **Government Initiatives:** Advocate for Government policies and programs that promote financial education in schools and communities.
- **Financial Literacy Challenges and Competitions:** Organise competitions and challenges that encourage people to improve their financial knowledge and skills.
- **Integration with banking Services:** Collaborate with banks to integrate financial education resources directly into their mobile apps and online banking platforms.
- **Accessible Content for Diverse Audiences:** Ensure that financial education materials are available in multiple languages and tailored to diverse cultural and demographic groups.
- **Continuous Learning Modules:** Offer ongoing Learning modules and updates to keep individuals informed about evolving financial technologies and trends.

By embracing these opportunities, we can empower individuals to navigate the complex financial landscape of Industry 5.0 successfully.

CONCLUSION

In the era of Industry 5.0, financial literacy takes on a paramount role. This period of rapid technological advancement offers immense opportunities but also presents unique challenges. Individuals must equip themselves with the knowledge and skills to navigate this digital landscape effectively. Being financially literate empowers people to harness the benefits of emerging technologies, adapt to the ever-evolving financial tools and products, and protect their financial interests. It is not just about understanding investments; it is also about staying informed on cybersecurity, data privacy, global financial dynamics, and the influence of sustainability on financial decisions. Moreover, addressing behavioral biases and ensuring financial education accessibility for all segments of the population are critical components of fostering financial well-being in Industry 5.0. Collaboration among Governments, financial institutions, educational institutions, and individuals is key to building a financially savvy society ready to thrive in this transformative era.

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