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ICAB publications include, inter alia, a quarterly journal titled 'The Bangladesh Accountant', half yearly Journal 'Bangladesh Economica' and ICAB's mouthpiece ICAB Monthly News Bulletin.

In the quarterly journal, articles of ICAB Members, Members from other Accountancy bodies, Academics and Business Leaders from home and abroad are published.

In half yearly journal, articles focus on macro-economy of the country are published.

The monthly news bulletin publishes different ICAB events of the month. This bulletin acts as an information hub for the Members to keep up-to-date about ICAB and its activities in addition to these publications, ICAB also publishes books, monographs, booklets and Students' Study Manuals regularly.



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Editorial

“ Bangladesh economy is now recovering from the huge debacle that the country had been suffering during the last 15 years and the financial corruption that was rampant at that time. To reboot the economic growth, the country needs robust policy support for development.”



Md. Shahadat Hossain FCA
Chairman - Editorial Board and
Past President & Council
Member - ICAB

The January - March issue of the Bangladesh Accountant encompasses a wide variety of current and burning topics as there was no fixed theme for this issue. We have endeavored to collect views and opinions of thinkers on economy, development prospects and current issues of Bangladesh.

We are bringing this issue at a time when the whole nation is waiting to see a meaningful reform in all machineries of the government. This has reinvigorated our patriotism and self-esteem. We cannot repay the debt of martyrs of July-August students-people-mass upsurge who sacrificed their lives for the freedom of speech, equitable society and the economic emancipation of the people. No doubt they will live in our hearts and minds forever!

Bangladesh economy is now recovering from the huge debacle that the country had been suffering during the last 15 years and the financial corruption that was rampant at that time. To reboot the economic growth, the country needs robust policy support for development.

Bangladesh's economic growth outlook is expected to be slow in the short term due to political turmoil and other factors. However, some economists believe that the country can achieve sustainable growth in the long term.

The World Bank projects that Bangladesh's economic growth will be 4.1% in the fiscal year 2024-2025. This is the weakest growth since the pandemic. The IMF has also lowered its growth forecast for Bangladesh. The Asian Development Bank (ADB) previously projected growth of 5.1% for the same fiscal year. Some economists believe that Bangladesh could achieve sustainable growth in the long term. Trading Economics projects that Bangladesh's GDP growth rate will trend around 5% in 2024 and 6% in 2025.



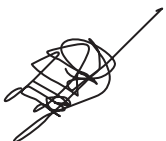
In the way there are many challenges like political instability, poor infrastructure, corruption, overpopulation, slow implementation of economic reforms, high inflation, and budget deficit. We can overcome any challenges with our combined efforts irrespective of political affiliation and social identity.

Bangladesh requires huge investments in physical capital, human capital, and innovation enabled by reforms in areas such as financial sector, business regulation, and addressing the infrastructure gap, reorienting economic policy, focusing on innovation, stimulating investment, improving school to work transition, and producing higher skilled professionals.

Dear readers, as always we try to enrich you with the scholarly thoughts and insights shared by the writers on concurrent socio-economic issues of the country. This journal is a means to grow the writing skill of prospective writers of our members. Improvement is a continuous process, so like, always we solicit your suggestions to uphold the advancement of the Bangladesh Accountant at home and abroad. If we strive together, it is not far reaching success.

President's Desk

“We believe that the services of chartered accountants holding a fiduciary position in nation building are crucial for the country's future prosperity. The Accounting profession is the most effective means to bring about financial discipline, accountability and transparency.”



Mohammed Forkan Uddin FCA
President - ICAB

Standing at the last quarter of the year, I, from the core of my heart congratulate the Editorial Board and the contributors who enriched Bangladesh Accountant with their knowledge and efforts. This issue of the Journal deals with Bangladesh economic challenges and the way forward.

The Institute of Chartered Accountants of Bangladesh (ICAB) is playing a strategic role to ensure sustainable growth, and in broader sense economic development of the country. Ensuring sustainable Foreign and local investments, employment generation, adoption to new technology, and the good corporate governance are the challenges to long term economic growth and hence, we shall have to give more focus on overcoming these challenges.

The interim government has rightly taken initiative to reform necessary policy reform in the National Board of Revenue (NBR) alongside other machineries of the government, to boost up revenue collection, which we think is a timely approach. The committee on reform of NBR has already submitted primary report to the government, however, the reform committee may consider some issues like liberal investment policies, attractive packages of fiscal, financial and other incentives to foreign entrepreneurs specifically, in relation to tax exemptions, duty, income tax, remittances, exit, ownership, investing in the stock market, etc, when they will submit their final reports.



The Institute of Chartered Accountants of Bangladesh (ICAB) as it always does, is ready to provide policy support to the government in this regard. We believe that the services of chartered accountants holding a fiduciary position in nation building are crucial for the country's future prosperity. The Accounting profession is the most effective means to bring about financial discipline, accountability and transparency. Their roles as decision-makers, auditors and consultants to ensure sustainable reporting can move the business towards sustainable development.

ICAB is working to deliver quality services to support enterprises, corporate governance and a sustainable business environment. We will continue such endeavours in future days.

Wishing prosperity and happiness to you all.

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Blockchain for Sustainable Finance Transforming Green Finance in Bangladesh

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Executive Summary

Bangladesh faces immense environmental challenges, with rising sea levels and extreme weather events threatening its low-lying coastal regions. However, the country is also at the forefront of the global green finance movement, with its green bond market expected to grow exponentially in the coming years. Green finance plays a critical role in addressing climate change and promoting sustainable development, and the global green bond market reached a record \$517 billion in issuance in 2021. Bangladesh has been a pioneering force in this arena, with the Bangladesh Bank launching initiatives to promote green finance, including a refinancing scheme to encourage green lending. However, the green finance landscape in Bangladesh, and globally, faces significant challenges related to transparency, accountability, and the verification of environmental impact. This is where blockchain technology emerges as a revolutionary tool, offering the potential to transform the way sustainable investments are tracked and verified.

Introduction

Bangladesh faces immense environmental challenges, with rising sea levels and extreme weather events threatening its low-lying coastal regions. According to a recent World Bank report, Bangladesh could

lose over 17% of its land area and 30% of its GDP by 2050 due to the devastating impacts of climate change (Poberezhna, 2018). However, the country is also at the forefront of the global green finance movement, with its green bond market expected to grow exponentially in the coming years.

Green finance refers to the mobilization of capital for investments that provide environmental benefits, playing a critical role in addressing climate change and promoting sustainable development (Kabaklarli, 2022). In 2021, the global green bond market reached a record \$517 billion in issuance, a 49% increase from the previous year. This growth underscores the increasing demand for sustainable investment opportunities as investors and governments alike seek to mitigate the risks posed by climate change.

Bangladesh has been a pioneering force in this arena, with the Bangladesh Bank, the country's central bank, launching a series of initiatives to promote green finance (Yun & Wei, 2020). In 2016, the bank introduced a refinancing scheme to encourage commercial banks to provide low-cost loans for renewable energy, energy efficiency, and other green projects. This has helped spur the development of a vibrant green bond market in the country, with several successful issuances by leading Bangladeshi companies.

Blockchain for Sustainable Finance

Transforming Green Finance in Bangladesh



However, the green finance landscape in Bangladesh, and globally, faces significant challenges. Concerns around transparency, accountability, and the verification of environmental impact have hindered the growth of the market (Upadhyay et al., 2021). This is where blockchain technology emerges as a revolutionary tool, offering the potential to transform the way sustainable investments are tracked and verified.

Blockchain, the distributed ledger technology behind cryptocurrencies, can provide a secure, transparent, and tamper-resistant platform for recording and verifying green finance transactions (Zheng et al., 2019). By creating a decentralized, cryptographically-secured database, blockchain can ensure the integrity of data related to green projects, emissions reductions, and sustainability metrics (Awaji &

Solaiman, 2022). This can enhance trust, reduce the risk of greenwashing, and facilitate the flow of capital towards genuinely sustainable investments.

Moreover, blockchain-based platforms can automate the monitoring and reporting of environmental impact, reducing the administrative burden and increasing the efficiency of green finance initiatives. By leveraging the transparency and immutability of blockchain technology, these platforms can provide investors, regulators, and the public with real-time, verifiable data on the environmental performance of green finance projects. This can help build trust, attract more capital, and ensure the accountability of sustainable investments, ultimately driving the growth and impact of green finance in Bangladesh and beyond.

Background

Green finance refers to the mobilization of capital for investments that provide environmental benefits, playing a critical role in addressing climate change and promoting sustainable development (Brühl, 2021). In Bangladesh, the green finance landscape has been growing steadily, with the Bangladesh Bank, the country's central bank, launching a series of initiatives to encourage green lending and the development of a vibrant green bond market (Hossain & Karim, 2020).

One of the key initiatives introduced by the Bangladesh Bank in 2016 was a refinancing scheme to encourage commercial banks to provide low-cost loans for renewable energy, energy efficiency, and other green projects (Hossain & Karim, 2020). This scheme has helped spur the growth of the green bond market in Bangladesh, with several successful issuances by leading Bangladeshi companies. For example, the Bangladeshi conglomerate, PRAN-RFL Group, issued the country's first-ever green bond in 2019, raising \$10 million to finance renewable energy and waste management projects (Flammer, 2020).

Beyond green bonds, Bangladesh has also seen the growth of microfinance and other financial instruments supporting eco-friendly ventures (Naderi & Tian, 2022). Organizations like the Grameen



Bank and the Bangladesh Rural Advancement Committee have been providing small loans to help fund sustainable agriculture, renewable energy, and other environmentally-friendly enterprises, particularly in rural areas. These initiatives have played a crucial role in promoting grassroots-level sustainability and fostering a more inclusive green finance ecosystem in the country (Steuer & Tröger, 2022).

Blockchain, the distributed ledger technology behind cryptocurrencies, has the potential to transform the way sustainable investments are tracked and verified (Naderi &

Tian, 2022). By creating a decentralized, cryptographically-secured database, blockchain can ensure the integrity of data related to green projects, emissions reductions, and sustainability metrics (Chen et al., 2018). This can enhance trust, reduce the risk of greenwashing, and facilitate the flow of capital towards genuinely sustainable investments (Samina & Hossain, 2019). Blockchain-based platforms can also automate the monitoring and reporting of environmental impact, reducing the administrative burden and increasing the efficiency of green finance initiatives (Masukujaman & Aktar, 2014).

Overall, the growing emphasis on green finance in Bangladesh, coupled with the transformative potential of blockchain technology, presents a unique opportunity to accelerate the country's transition towards a more sustainable and resilient future.

The Intersection of Green Finance and Blockchain: Unlocking Sustainability through Decentralized Innovation

Green finance refers to the mobilization of capital for investments that provide environmental benefits, playing a critical role in addressing



climate change and promoting sustainable development (Jin & Zhang, 2022). However, the green finance landscape faces significant challenges, such as concerns around transparency, accountability, and the verification of environmental impact. This is where blockchain technology emerges as a revolutionary tool, offering the potential to transform the way sustainable investments are tracked and verified (Blockchain for Scaling Climate Action, 2023).

Blockchain, the distributed ledger technology behind cryptocurrencies, can provide a secure, transparent, and tamper-resistant platform for recording and verifying green finance transactions (Smart Contract-Based Carbon Credits Attached to Green Bonds, 2022). By creating a decentralized, cryptographically-secured database, blockchain can ensure the integrity of data

related to green projects, emissions reductions, and sustainability metrics. This can enhance trust, reduce the risk of greenwashing, and facilitate the flow of capital towards genuinely sustainable investments (OECD, 2019).

Moreover, blockchain-based platforms can automate the monitoring and reporting of environmental impact, reducing the administrative burden and increasing the efficiency of green finance initiatives (Sreenu & Mishra, 2023). By leveraging the transparency and immutability of blockchain technology, these platforms can provide investors, regulators, and the public with real-time, verifiable data on the environmental performance of green finance projects. This can help build trust, attract more capital, and ensure the accountability of sustainable investments, ultimately driving the growth and impact of green

finance in Bangladesh and beyond (Jiang et al., 2021).

Blockchain can also enable decentralized access to green finance, empowering communities and individuals to participate in the transition towards sustainability (DIGITAL ASSETS: LAYING ESG FOUNDATIONS, 2023). Through blockchain-powered microfinance and crowdfunding platforms, rural and underserved areas can gain access to financing for eco-friendly projects, fostering grassroots-level sustainability and promoting financial inclusion.

The intersection of green finance and blockchain presents a unique opportunity to accelerate the shift towards a more sustainable and resilient future. By leveraging the transparency, traceability, and decentralization enabled by blockchain technology, the green finance ecosystem can overcome existing challenges and unlock the full potential of sustainable investments to combat climate change and drive positive environmental impact.

Opportunities for Bangladesh

Blockchain technology presents significant opportunities for Bangladesh to enhance its green finance ecosystem and drive sustainable development. By leveraging the unique capabilities of blockchain, Bangladesh can unlock a range of use cases that can accelerate



the country’s transition towards a more environmentally-conscious and inclusive future.

Renewable Energy Projects

Bangladesh has made remarkable progress in expanding its renewable energy capacity, particularly in solar and wind power. Blockchain technology can play a transformative role in this sector by enabling the development of decentralized renewable energy systems. (Khan et al., 2013) Blockchain-based platforms can facilitate peer-to-peer energy trading, allowing local communities to generate, store, and exchange renewable energy amongst themselves. This can empower rural and remote areas to become self-sufficient in their energy needs, improving access to clean power and reducing reliance on fossil fuels. (Bangladesh National Cooling Plan for the Implementation of the Montreal Protocol, 2024) Furthermore, blockchain can

enable the automation of energy metering, billing, and payment processes through smart contracts. This can increase the efficiency of renewable energy projects, reduce administrative burdens, and ensure transparent and tamper-resistant record-keeping. (Bangladesh Country Climate and Development Report, 2022).

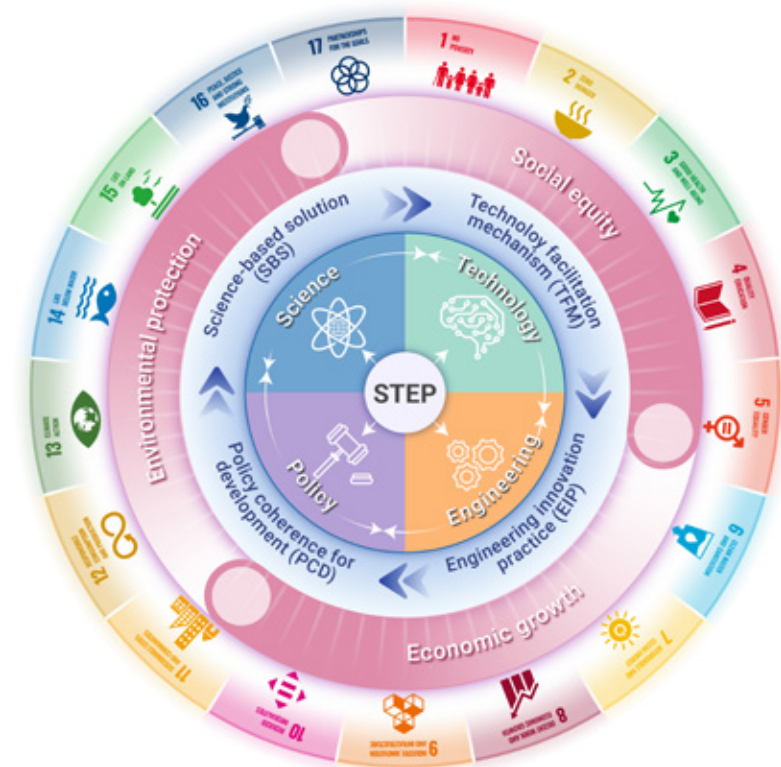
Smart Contracts for Funding Disbursements and Progress Tracking

Blockchain-powered smart contracts can revolutionize the way green finance projects are funded and monitored in Bangladesh. By leveraging the transparency and immutability of the blockchain, these smart contracts can automate the disbursement of funds based on pre-defined milestones and performance metrics. (Bangladesh National REDD+ Strategy (BNRS), 2024) This can ensure that the flow of

capital is directly tied to the actual progress and environmental impact of the projects, reducing the risk of misappropriation or greenwashing. Smart contracts can also streamline the reporting and verification of project outcomes, enabling real-time transparency and accountability for investors, regulators, and the public. (Nationally Determined Contributions 2021 Bangladesh, 2024).

Carbon Credit Trading Platforms

As Bangladesh continues to prioritize its climate action agenda, the development of blockchain-based carbon credit trading platforms can play a crucial role. These platforms can provide a secure, transparent, and efficient marketplace for the exchange of carbon credits, allowing businesses, communities, and individuals to participate in the global carbon



market. (Bangladesh National REDD+ Strategy (BNRS), 2024) Blockchain-enabled carbon credit platforms can enhance the traceability and authenticity of carbon credits, ensuring that each emission reduction or removal is accurately recorded and verified. This can help attract more investment into Bangladesh’s carbon mitigation efforts, facilitate the trading of high-quality carbon credits, and support the country’s transition towards a low-carbon economy.

Role in Achieving SDGs:

Blockchain-enabled green finance can play a pivotal role in

helping Bangladesh achieve several key Sustainable Development Goals set forth by the United Nations. By leveraging the transparency, traceability, and decentralization capabilities of blockchain technology, green finance initiatives can contribute to the following SDGs:

SDG 7

Blockchain can enable the automation of energy metering, billing, and payment processes through smart contracts, increasing the efficiency of renewable energy projects and reducing administrative

burdens. Additionally, blockchain-based platforms can facilitate the secure and transparent monitoring and reporting of environmental impact, fostering innovation in the green finance ecosystem and supporting the development of sustainable infrastructure in Bangladesh. (Zhou, 2022).

SDG 13

Blockchain-powered carbon credit trading platforms can enhance the traceability and authenticity of carbon credits, ensuring that emissions reductions and removals are accurately recorded and verified, which can attract more investment into Bangladesh’s climate mitigation efforts, facilitate the trading of high-quality carbon credits, and support the country’s transition towards a low-carbon economy. (Pambudi et al., 2021).

SDG 12

By enhancing the transparency and traceability of green finance transactions, blockchain can help reduce the risk of greenwashing and ensure the accountability of sustainable investments, which can build trust and attract more capital towards genuinely sustainable projects. (Gratcheva et al., 2021) (Arner et al., 2020).

SDG 10

Blockchain - powered microfinance and crowdfunding platforms can enable



decentralized access to green finance, empowering communities and individuals, particularly in rural and underserved areas, to participate in the transition towards sustainability, fostering financial inclusion and helping to reduce inequalities in access to sustainable development opportunities. (Mahesh et al., 2022) (Rahman et al., 2022).

SDG 17

Blockchain technology can facilitate cross-border collaboration and integration within the global green finance ecosystem, providing a secure and transparent platform for international transactions and enabling partnerships and strengthening cooperation towards achieving the Sustainable Development Goals. (Khan & Ahmad, 2022).

SDG 9

Blockchain-based smart contracts can automate the

disbursement of green finance funds based on pre-defined milestones and performance metrics, ensuring that the flow of capital is directly tied to the actual progress and environmental impact of the projects. This can enhance the efficiency, transparency, and accountability of green finance initiatives, supporting the development of sustainable infrastructure in Bangladesh.

Challenges and Risks

Technological Barriers in Bangladesh

Bangladesh's transition towards blockchain-enabled green finance faces several technological hurdles that need to be addressed. A key challenge is the limited awareness and technical expertise in blockchain technology among key stakeholders, including businesses, policymakers, and the general public (Samina & Hossain, 2019). Many lack a

thorough understanding of how blockchain works and its potential applications in the green finance sector, hindering the widespread adoption and integration of blockchain solutions (Khairunnessa et al., 2021).

Additionally, the high initial implementation costs associated with deploying blockchain-based platforms pose a significant barrier, particularly for smaller organizations and communities (Chen et al., 2018). Implementing blockchain infrastructure, integrating it with existing systems, and training personnel on its use requires substantial upfront investments, which can deter businesses and financial institutions from embracing blockchain, as the short-term costs may outweigh the perceived long-term benefits (Masukujjaman & Aktar, 2014).

To overcome these technological barriers, a concerted effort is needed to raise awareness and build technical capacity within Bangladesh. This can be achieved through targeted educational campaigns, training programs, and knowledge-sharing initiatives that help stakeholders understand the mechanics and advantages of blockchain technology (Islam et al., 2023). Additionally, policy interventions and financial incentives may be necessary to offset the high initial implementation costs and make

Blockchain for Sustainable Finance

Transforming Green Finance in Bangladesh



blockchain-based green finance solutions more accessible and affordable, particularly for smaller players in the market (Kulsum & Huda, 2017).

Furthermore, the development of user-friendly and scalable blockchain platforms tailored to the Bangladeshi context can help address the technological barriers (National Blockchain Strategy, 2023). These platforms should be designed with the local market in mind, ensuring they are compatible with existing infrastructure, regulatory frameworks, and the technical skills of the workforce. By making blockchain technology more accessible and easier to integrate, the adoption and integration of blockchain-enabled green finance solutions can be accelerated.

Regulatory Challenges

Bangladesh's transition towards blockchain-enabled green finance faces significant

regulatory hurdles. The absence of specific frameworks and guidelines for the integration of blockchain technology and green finance presents a major barrier (Hussain et al., 2022). Currently, Bangladesh lacks a comprehensive regulatory environment that addresses the unique considerations and requirements of leveraging blockchain in the green finance sector. The country's existing financial regulations and policies were primarily developed with traditional finance in mind, leaving a regulatory void when it comes to the emerging landscape of blockchain-based green finance solutions (Zhang et al., 2018).

This regulatory ambiguity creates uncertainty for businesses, financial institutions, and investors looking to adopt blockchain-powered green finance platforms (Volz, 2018). Without clear guidelines on the legal status of blockchain-based transactions, data management, and the integration of these

technologies with existing financial systems, the widespread adoption of such solutions is hindered (Jiang et al., 2022). Additionally, the absence of specific regulations and safeguards around data privacy, cybersecurity, and consumer protection in the context of blockchain-enabled green finance poses a significant challenge (Khairunnessa et al., 2021).

Policymakers in Bangladesh must address these concerns to build trust and confidence among stakeholders, ensuring the responsible and secure deployment of blockchain technology in the green finance ecosystem (National Blockchain Strategy, 2023). To unlock the full potential of blockchain in green finance, Bangladesh must develop a comprehensive regulatory framework that provides clarity and guidance on the integration of these technologies. This should involve collaboration between regulatory authorities, industry experts, and other stakeholders to establish a well-defined set of regulations, compliance standards, and oversight mechanisms.

Ensuring Accessible and Scalable Blockchain Solutions for Rural Bangladesh

In Bangladesh, the transition towards blockchain-enabled green finance faces the critical challenge of ensuring accessibility and scalability, particularly for rural communities. (National



Blockchain Strategy, 2023) Overcoming this hurdle will be essential for harnessing the full potential of blockchain technology and driving sustainable development across the country.

Bangladesh is a predominantly agrarian society, with a significant portion of the population residing in rural areas. (Moghayer et al., 2023) These communities often face limited access to financial services, infrastructure, and technological resources, which can impede their ability to participate in emerging financial innovations like blockchain-powered green finance. Addressing the unique needs and constraints of these rural areas is paramount.

One key aspect is developing scalable blockchain platforms that can seamlessly integrate with the existing digital infrastructure and payment

networks prevalent in rural Bangladesh. (Asaduzzaman et al., 2020) This may involve leveraging mobile banking solutions, mobile money services, and other digital financial tools that have already gained traction in these communities. By building upon these familiar and accessible platforms, blockchain-based green finance solutions can be more readily adopted and utilized by rural populations.

Additionally, fostering digital literacy and technical capacity-building within rural communities will be crucial. (Solaiman & Belal, 1999) Many residents may lack the knowledge and skills required to navigate and engage with blockchain-enabled financial platforms. Implementing targeted training programs and educational initiatives can empower rural Bangladeshis to understand the benefits of these technologies and actively

participate in the green finance ecosystem.

Furthermore, the design and user experience of blockchain-based platforms must be tailored to the specific needs and preferences of rural users. (Alam et al., 2020) This may involve developing intuitive interfaces, leveraging local languages, and ensuring seamless integration with existing financial practices and cultural norms. By prioritizing user-centricity and accessibility, these blockchain solutions can become more inclusive and widely adopted across rural Bangladesh.

Addressing the scalability and accessibility challenges will also require collaboration between policymakers, financial institutions, technology providers, and community-based organizations. (National Blockchain Strategy, 2023) Developing appropriate regulatory frameworks, incentive structures, and support mechanisms can help overcome the barriers faced by rural communities in accessing blockchain-enabled green finance solutions.

Overall, ensuring that rural Bangladeshis can seamlessly engage with blockchain-powered green finance platforms is a critical step in driving sustainable and inclusive development across the country. By prioritizing scalability and accessibility, Bangladesh can unlock the transformative potential of blockchain technology and

empower its rural population to participate in the transition towards a more sustainable and equitable economic future.

Recommendations for Implementation

Developing a Comprehensive Regulatory Framework for Blockchain-Enabled Green Finance in Bangladesh

At the policy level, Bangladesh must prioritize the development of a comprehensive regulatory framework to govern the integration of blockchain technology within the green finance sector. This regulatory structure should provide clarity, guidance, and safeguards to enable the responsible and widespread adoption of these innovations. (Reinman, 2015).

Firstly, the regulatory framework should establish clear guidelines and guidelines for the use of blockchain in green finance transactions, data management, and the integration of these technologies with existing financial systems. This will address the current regulatory ambiguity and uncertainty that is hindering the progress of blockchain-powered green finance solutions in Bangladesh. (Rahman et al., 2022).

The regulatory framework should also address the unique considerations and requirements of leveraging blockchain in the green finance context. This may include provisions for data privacy, cybersecurity, and consumer

protection, ensuring that the deployment of these technologies is secure and instills trust among stakeholders. Policymakers should work closely with industry experts, technology providers, and civil society organizations to develop these guidelines in a collaborative and inclusive manner. (Abdin, 2009).

Secondly, the regulatory framework should encourage and facilitate public-private partnerships for the development of pilot projects and proof-of-concept initiatives. By fostering collaboration between government entities, financial institutions, technology companies, and green businesses, Bangladesh can catalyze the development and testing of blockchain-based green finance solutions tailored to the local context. (Hanks et al., 2018).

These pilot projects can serve as testbeds for evaluating the feasibility, scalability, and impact of blockchain applications in areas such as green bond issuance, renewable energy financing, and carbon credit trading. The insights and learnings from these initiatives can then inform the refinement of the regulatory framework, ensuring it remains responsive to the evolving landscape of blockchain-enabled green finance.

Furthermore, the regulatory framework should consider providing incentives and support mechanisms to

encourage the adoption of blockchain-powered green finance solutions. This could include tax breaks, subsidies, or other financial incentives for businesses and individuals who choose to leverage these technologies for sustainable development initiatives.

Capacity Building

Develop a comprehensive capacity-building program to train professionals in Bangladesh on the applications of blockchain technology for green finance and sustainable development. This program should aim to equip finance practitioners, sustainability experts, and technology enthusiasts with the knowledge and skills needed to leverage blockchain solutions for driving positive environmental and social impact. (Chowdhury et al., 2023) The capacity-building initiative should comprise a multi-faceted approach, including formal training courses, hands-on workshops, mentorship programs, and knowledge-sharing platforms. These efforts should be tailored to the specific needs and contexts of Bangladesh, addressing the country's unique challenges and opportunities in the green finance and sustainability sectors. (National Blockchain Strategy, 2023) Formal training courses should cover a wide range of topics, such as the fundamentals of blockchain technology, its integration with financial systems, the use of smart contracts for sustainable project



management, and the application of blockchain-based solutions for renewable energy financing, carbon credit trading, and supply chain traceability. (Khan et al., 2013) (Alam et al., 2020) These courses should be developed in collaboration with leading academic institutions, technology providers, and industry experts, ensuring the curriculum is both academically rigorous and practically relevant. (Hussain et al., 2022) In addition to the formal training, the capacity-building program should also incorporate hands-on workshops and hackathons, where participants can work on developing real-world blockchain-enabled solutions for Bangladesh's pressing environmental and social issues. (Khairunnessa et al., 2021) These collaborative sessions will not only enhance technical skills but also foster innovation and cross-sector collaboration, essential for driving the adoption and scaling

of blockchain-powered green finance initiatives. To ensure the long-term sustainability of the capacity-building efforts, the program should also establish mentorship and networking opportunities, connecting aspiring professionals with experienced blockchain and sustainability experts. These peer-to-peer learning and support systems will help to cultivate a vibrant and interconnected community of practitioners, who can continue to share knowledge, best practices, and lessons learned.

Incentives

To incentivize the adoption of blockchain-enabled green finance solutions in Bangladesh, the regulatory framework should consider providing a range of financial incentives and support mechanisms. (Zetzsche et al., 2022) This could include offering tax breaks, subsidies, or other fiscal incentives for

businesses and individuals who choose to leverage blockchain technology for sustainable development initiatives. By introducing these incentives, the government can create a more favorable and enabling environment for the growth of blockchain-powered green finance in Bangladesh. (Smart Contract-Based Carbon Credits Attached to Green Bonds, 2022) This, in turn, will help to attract greater investment, innovation, and participation in the sector, aligning with the country's broader goals of achieving sustainable economic growth, environmental protection, and a more resilient and equitable financial system. The incentives could be tailored to specific use cases, such as blockchain-based solutions for renewable energy financing, carbon credit trading, or green bond issuance. (Zhang et al., 2018) This targeted approach will ensure that the incentives are effectively channeled to support the most promising and impactful applications of blockchain technology in the green finance space. Additionally, the regulatory framework should explore mechanisms to facilitate and encourage public-private partnerships for the development of pilot projects and proof-of-concept initiatives. (Blockchain for Scaling Climate Action, 2023) By fostering collaboration between government entities, financial institutions, technology companies, and green businesses, Bangladesh can catalyze the testing and scaling

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of blockchain-based green finance solutions that are tailored to the local context. These pilot projects can serve as testbeds for evaluating the feasibility, scalability, and impact of these technologies, informing the refinement of the regulatory framework and incentive structures over time.

Global Best Practices

As Bangladesh looks to leverage blockchain technology to enhance its green finance ecosystem, it can draw valuable insights from the experiences of other countries that have pioneered the use of this transformative innovation. Three nations in particular - Estonia, Switzerland, and Singapore - have emerged as global leaders in the adoption and application of blockchain for sustainable finance.

Estonia: Pioneering E-Government and Renewable Energy Tracking

Estonia has long been recognized as a trailblazer in the field of e-government and digital transformation. (Estonia 2023 - Analysis, 2022) The Baltic nation has successfully applied blockchain technology to enhance transparency and efficiency across various public services, including land registry, healthcare, and e-voting. This expertise has now extended to the realm of green finance as well. In 2019, the Estonian government collaborated with energy startup Olt to launch a blockchain-based platform for tracking renewable energy certificates. (Poljanskihh et al., 2018) The platform, known as the Estonian Renewable Energy Certificate System, uses blockchain to record the

generation, transfer, and retirement of RECs, providing a tamper-proof and transparent system for verifying the origin and ownership of renewable energy units. The RECS platform has streamlined the REC trading process, reducing administrative overhead and transaction costs for businesses and consumers. By enabling real-time tracking and settlement of renewable energy transactions, the blockchain-powered system has enhanced trust and liquidity in Estonia's green energy market. This, in turn, has contributed to the country's overall efforts to increase the share of renewable energy in its power mix and achieve its ambitious climate targets.

Switzerland: Pioneering Blockchain-Based Green Bonds

Switzerland has also emerged as a global leader in the intersection of blockchain and sustainable finance. The Alpine nation has been at the forefront of developing innovative blockchain-based solutions for green bond issuance and trading (Chen & Volz, 2021). In 2021, the Swiss National Bank and the Bank for International Settlements Innovation Hub launched a pilot project to explore the use of blockchain technology for the issuance and management of green bonds. The project, known as the BIS Innovation Hub Swiss Centre, aimed to demonstrate how distributed ledger technology can enhance the transparency,

traceability, and efficiency of green bond markets. The pilot involved the issuance of a simulated green bond, with the blockchain-based system enabling real-time tracking of the bond's proceeds and their allocation to eligible green projects. This enhanced transparency and accountability, allowing investors to verify the environmental impact of their investments. Additionally, the platform facilitated the seamless trading and secondary market activity of the green bonds, improving their liquidity. The success of this pilot has positioned Switzerland as a pioneer in the adoption of blockchain for sustainable finance, showcasing the technology's potential to revolutionize the green bond market. The insights and best practices from this initiative can be valuable for Bangladesh as it looks to develop its own blockchain-powered green finance ecosystem.

Singapore: Pioneering Blockchain-Based Carbon Trading

As a global financial hub, Singapore has recognized the potential of blockchain to revolutionize the carbon credit trading market. In 2019, the Singaporean government, along with the Singapore Exchange and several private sector partners, launched a blockchain-powered platform for trading voluntary carbon

credits (Azad et al., 2022). The platform, known as Climate Impact X, leverages distributed ledger technology to provide a secure, transparent, and efficient marketplace for carbon credits. By using blockchain, the platform ensures the immutable recording of carbon credit issuance, transfers, and retirements, enhancing trust and integrity in the carbon market (Saraji & Borowczak, 2021). Additionally, the CIX platform incorporates smart contracts to automate the execution of carbon credit transactions, reducing the administrative burden and settlement times. This streamlined process has the potential to attract a broader range of participants, including individual investors and small-to-medium enterprises, to the carbon trading ecosystem. The success of the CIX initiative has positioned Singapore as a global leader in the application of blockchain for carbon market development.

How these Practices can be Adapted to Bangladesh

As Bangladesh looks to enhance its green finance ecosystem, the experiences and best practices from Estonia, Switzerland, and Singapore can provide valuable insights for adapting blockchain technology to address the country's unique challenges and opportunities.

Estonia's Renewable Energy Certificate System offers a compelling model for

Bangladesh to consider. Like Estonia, Bangladesh has been working to increase the share of renewable energy in its power mix, and a blockchain-based platform for tracking renewable energy certificates could strengthen transparency, efficiency, and trust in the country's green energy market. By enabling real-time monitoring and settlement of renewable energy transactions, a RECS-like system could reduce administrative overhead, lower transaction costs, and enhance liquidity for businesses and consumers participating in Bangladesh's renewable energy ecosystem.

Furthermore, the successful implementation of blockchain-based e-government services in Estonia, such as land registry and healthcare, demonstrates the technology's potential to enhance public sector transparency and accountability – a critical consideration for Bangladesh as it works to build trust and confidence in its green finance initiatives. Adapting these e-government applications of blockchain could help Bangladesh streamline the administration of green finance programs, improve the traceability of green investment flows, and provide citizens with a secure, transparent platform for accessing information and participating in sustainable finance initiatives.

Lessons from Switzerland's blockchain-based green bond pilot can also inform

Bangladesh's approach to developing its green finance ecosystem. Given Bangladesh's growing green bond market, the ability to leverage blockchain to enhance the transparency, traceability, and efficiency of green bond issuance and trading could be a game-changer. By adopting a similar blockchain-powered platform, Bangladesh could attract a wider range of investors, both domestic and international, by providing them with real-time visibility into how green bond proceeds are being allocated and the environmental impact of their investments. This, in turn, could bolster confidence in Bangladesh's green finance offerings and facilitate the country's access to global sustainable finance capital. Finally, Singapore's pioneering work in blockchain-based carbon trading through the Climate Impact X platform offers a compelling blueprint for Bangladesh to consider. As Bangladesh works to develop its carbon market and tap into the growing global demand for carbon credits, a blockchain-powered platform could enhance the transparency, efficiency, and accessibility of its carbon trading ecosystem. By using smart contracts to automate transactions and ensure the immutable recording of carbon credit issuance, transfers, and retirements, such a platform could attract a wider range of participants, including	individual investors and small-to-medium enterprises, to the carbon trading market in Bangladesh. Ultimately, the experiences of Estonia, Switzerland, and Singapore demonstrate the transformative potential of blockchain technology to address the key challenges and unlock the vast opportunities within the green finance sector. Conclusion In conclusion, the experiences of Estonia, Switzerland, and Singapore demonstrate the transformative potential of blockchain technology to revolutionize the green finance sector and address Bangladesh's sustainability challenges. Blockchain has the power to enhance transparency, efficiency, and trust in green finance initiatives, from renewable energy certificate trading to green bond issuance and carbon credit markets. By embracing blockchain-powered solutions, Bangladesh can strengthen the traceability of green investment flows, improve the monitoring and reporting of environmental impact, and attract a wider range of domestic and international investors to its growing green finance ecosystem. Ultimately, the adoption of blockchain technology can play a crucial role in Bangladesh's pursuit of its sustainability goals and the country's transition to a	low-carbon, climate-resilient economy. To fully harness the benefits of blockchain for sustainable development, Bangladesh must foster collaborative efforts among its government, private sector, and academic institutions. The government can take the lead in developing the necessary regulatory frameworks and digital infrastructure to support blockchain-based green finance initiatives. The private sector can contribute its expertise in financial innovation and technological implementation, while academia can provide valuable research and capacity-building to drive the effective integration of blockchain into Bangladesh's green finance landscape. By aligning the efforts of these key stakeholders, Bangladesh can position itself as a global leader in the application of blockchain technology for sustainable finance and environmental stewardship. References 1. Abdin, MD. J. (2009). Bangladesh: A Good Destination for Foreign Investment. In SSRN Electronic Journal. RELX Group (Netherlands). https://doi.org/10.2139/ssrn.1409028 2. Alam, K. M., Rahman, J. M. A., Tasnim, A., & Akther, A. (2020). A Blockchain-based Land Title Management System for Bangladesh. In
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Financial Technology

Digital Banking & Blockchain

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Abstract

The world of payment infrastructure is changing at a rapid pace. Breakthroughs in Distributed Ledger Technologies like Bitcoin, Central Bank Digital Currency are paving the way for a new era of payment landscape. Just like any new technology there are challenges and limitations associated which we will be exploring in this paper.

Introduction

Distributed Ledger Technology (DLT) has been around for a while; the beginning of it can be traced back to early 80s. However, it gained traction from 2008 when Satoshi Nakamoto (a pseudonym) published the Bitcoin whitepaper which is based on DLT. Bitcoin whitepaper introduced Blockchain, a specific type of DLT.

DLT is a record keeping technology which does not need any third party/central authority for verifying the records and transactions. There are multiple nodes (computers/participants) each of which keep a record of the transactions. When a new transaction takes place, it is updated in the records maintained at each node only after all the nodes agree or reach a consensus (West,2019).

The uses of DLT has potential in many fields such as payments,

finance, law etc. However, in this paper we will exclusively explore the relation of DLT with regards to payments.

According to Murck (2017) there are 5 core principles associated with DLT. They are:

i. Transparency

Real time transparency is achieved when all the nodes are immediately updated with transaction information as part of the validation process (Ko, 2018). This safeguards the integrity of the DLT and also makes redundant the need for any intermediary to authenticate the transactions.

ii. Peer-to-peer Transmission

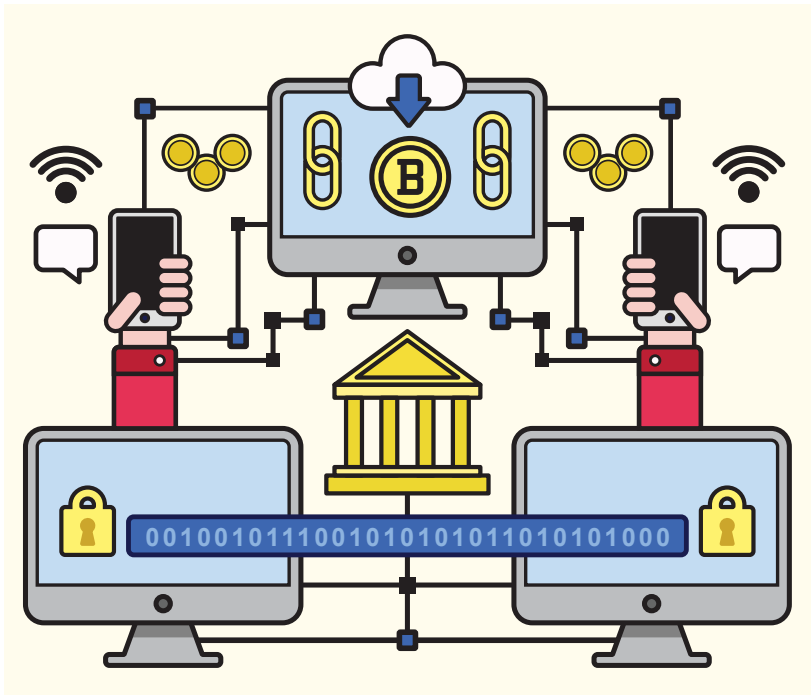
There are no centralized intermediaries, rather the peers (nodes) communicate with each other directly. (Murck,2017)

iii. Distributed Database

Each participant to the DLT network can verify the transaction logs of another participant. (Murck,2017)

iv. Immutability

No records can be deleted once taken place. This however has some contentious angle to it. If there are is malicious practice like the Distributed Autonomous Organization



(DAO) hack of Ethereum, then there is likely to be a hard fork¹ in the DLT ecosystem. This also gives rise to the issue that if one individual makes an error and for which huge financial losses occur then that error cannot be fixed.

v. Computational Logic

The DLT is a digital record keeping where algorithms or codes could be set up that takes autonomous decisions based on the

happening of an event. This has enabled Decentralized Autonomous Organizations (DAOs) to be formed. DLT provides the infrastructure for DAOs to operate securely and efficiently.

Bitcoin: An Alternative or Augmentation of the Traditional Financial Payment Landscape

Satoshi Nakamoto published a whitepaper on Bitcoin on 2008 detailing how it uses Blockchain based on DLT to ensure value is

stored or transferred from one peer to another. Bitcoin uses peer to peer network and proof of work² to prevent double spending³. The advent of Bitcoin has ushered in a new era of payments and transactions.

In 2010 Bitcoin was trading at \$0.10 (Edwards, 2024). This is now trading at around \$100k - \$95K as on 22nd Nov'24 (Forbes, 2024). With the victory of crypto friendly Donald Trump as next President of USA, it is expected that pro crypto currency policies are likely to be adopted. This may be an important factor for the recent price rise of Bitcoin.

The advantages of Bitcoin over traditional payment systems/ infrastructure/ eco-system and fiat currencies are as follows:

i. No Intermediary

- a. Will not be influenced by political events that we see in recent times. The United States Dollar which is the most dominating currency and kept as reserves by multiple countries is being used as a political tool. US \$300 billion belonging to Russia has been blocked by United States (Fabrichnaya, 2023). This results in countries shifting away from

¹ Hard Fork refers to a divergence of the existing DLT ecosystem where majority of the users are forced to use the new upgraded version which essentially develops a new ecosystem. This is used contentiously, and it was used for the Ethereum DAO hack.

² Proof of work refers to the validation process of any new transaction in a distributed ledger technology. This uses puzzle solving and consensus of the other nodes in a network to authenticate a transaction. It by passes the need for a single central authority or third party.

³ Double spending is when an individual uses the same bitcoin for multiple transaction parallelly. This is prevented by proof of work.



keeping USD as reserves and primary trade currency. They might be looking for alternatives and cryptocurrencies might be a viable solution as no intermediary controls it.

- b. Deflationary in nature - Unlike the currencies generated and regulated by Central Banks of countries, the number of Bitcoins that can be generated is capped at 21million (currently 19.5million has been minted). Thus, unlike fiat currencies which the government can produce more of at their will, the limitation on the supply of Bitcoin makes the underlying characteristic of Bitcoin deflationary in nature (Pressman,2020).

ii. Lower Transaction Cost

Cross border transactions can be performed seamlessly without any border tax. This means that individuals can remit their money easily from one country to another to the intended recipient without the fear of money losing its value in the transfer process.

iii. Can Curb Corruption

The fundamental characteristic of transparency means that all participants are aware of the repository of transactions that have taken place. Thus, if Bitcoin is properly implemented it will help reduce corruption and bribery as details of all transactions can easily be audited and traced. (Pressman,2020).

iv. Store of Wealth

Currently the potential for Bitcoin is high and it is expected that with the Trump administration in power, there are likely to be more pro-crypto currency policies. This is likely to result in higher value of Bitcoin in future than Fiat currencies. Bitcoin has also very similar traits⁴ to fiat currency for which it can be used as a store of value.

However, despite the promises that Bitcoin has in replacing traditional fiat currencies, it is unlikely that it will be able to do so anytime soon. The traditional centralized infrastructural setup of Central Bank supported fiat currency for controlling the economy through monetary policy is deeply entrenched in the present day world. Multilateral organizations like IFC are supporting the Fiat currencies by asking countries not to adopt decentralized Bitcoin as their national currency⁵ (PWC,2021). Additionally, the very characteristics such as decentralisation (every one can own it and monitor it but no one can control it) that give Bitcoin the edge over Fiat currencies are the features that also act as a disadvantage. Thus, at best, for the time being Bitcoin will be able to augment the traditional

⁴ Traits of Fiat currency are - Scarcity, Divisibility, Acceptability, Portability, Durability, Uniformity.

⁵ IFC has requested El Salvador not to use Bitcoin as national currency



payment structures and fiat currencies and not replace it altogether.

Flip Side of the Bitcoin Utopia

There are certain challenges and limitations of Bitcoin which are intrinsically linked to the characteristics of its technology. They need to be worked at and reduced to an acceptable level for the technology to gain more traction in the coming days.

i. Lack of Accountability

There is no central body/authority/intermediary which governs the ecosystem, rather it is maintained in a decentralized and ‘no one can control’ manner by a group of individuals who act

voluntarily. Thus, the onus of ensuring that there are no malicious individuals who are exploiting a loophole in the system like the DAO event for Ethereum is not on any one person or centralized authority. This seemingly ‘lack of accountability’ might result in issues not being resolved. (Zachariadis, Hileman and Scott, 2019)

ii. Speed in Resolving Issues

There might be instances where speed for resolving an issue is of paramount importance. However, since there is no intermediary/authority in place, it could result in delays in ensuring the problems are resolved on time. (Zachariadis, Hileman and Scott, 2019).

iii. Environmental Impact

The carbon footprint of Bitcoin is 4-5 times that of the conventional fiat currencies in a year (Stoll, Klaaßen and Gellersdörfer, 2019). Nowadays the focus on sustainability is at the highest level and gaining more attention. This will dissuade majority of people from shifting to cryptocurrencies like Bitcoin. Without the network effect, this is unlikely to gain traction.

iv. Might be used for Illicit Activities

Real identities of individuals could be masked hence payment for illegal activities could be done without any repercussion for the parties carrying out transactions.

v. Lack of Interoperability

Different cryptocurrencies have different standards and protocols and are not interoperable with each other (Zachariadis, Hileman and Scott, 2019). This will lead to difficulty in different cryptocurrency users willing to transact with each other and hence impact their adoption rate.

As it is a fairly new technology which is gaining fast adoption, the remedial of these challenges

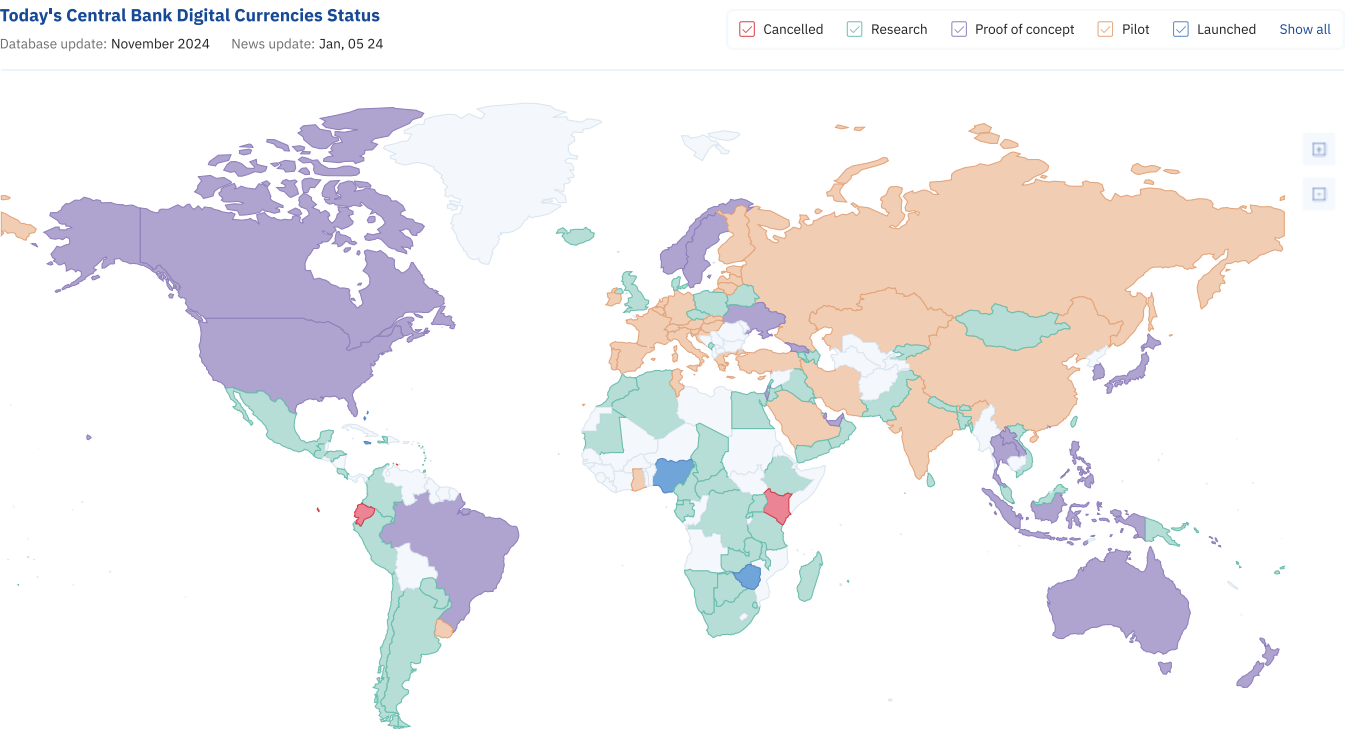
and limitations to an acceptable level is necessary for it to gain wide acceptability amongst people.

Central Bank Digital Currency (CBDC): Implications on The Traditional Payment Systems and Crypto Currencies

In simpler terms, CBDC is the liability of Central Bank just like any fiat currency, but it is stored in a distributed ledger or any conventional database (He,

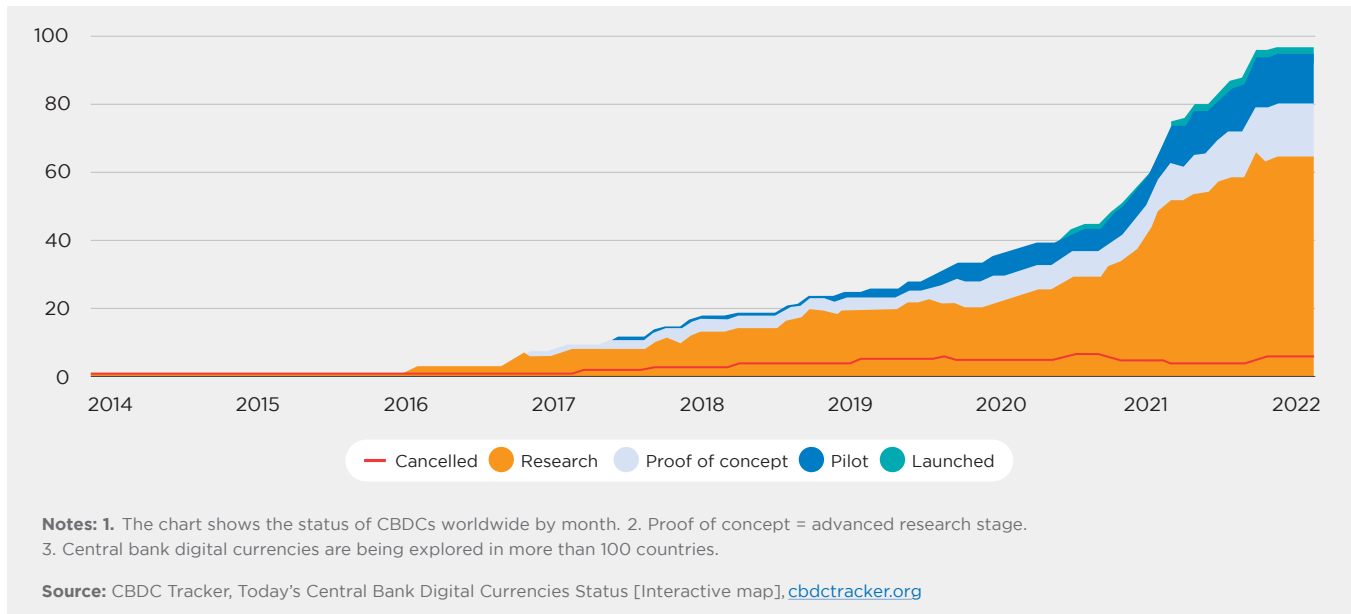
Milne and Zachariadis, 2022). 3 countries (Nigeria, Jamaica & Bahamas) have launched CBDC and 44 countries have piloted CBDC (Atlantic Council, 2024). Out of the 44 countries, the prominent ones in terms of their economic influence are China, Russia, 7 countries in Europe (Switzerland, France, etc.) among many others. This goes on to show (Fig 2) that CBDC has been gaining momentum and more countries are interested in their application (Central Bank Digital Currency (CBDC) Tracker, 2024).

Figure 1- It shows the widespread usage and traction of CBDC across the world



Source – CBDC Tracker, Today's Central Bank Digital Currencies Status

Figure 2- It shows the momentum of the CBDC acceptance worldwide



Source – CBDC Tracker, Today's Central Bank Digital Currencies Status

CBDC can be transferred from one person to another seamlessly through the use of wallets. Unlike the cryptocurrency, there will be a well-established intermediary, i.e. the Central Bank of the country which will issue the CBDC.

The following are the implications of CBDC for the conventional money and the payment market:

i. Speed up international cross border payments

Currently cross border payment settlements vary from 0-5 days. However, with the introduction of digital currency like CBDCs

they could be settled instantaneously (Xiao and Fan, 2022).

ii. Deter corruption

Digital records and traces of transactions would help create a solid audit trail and this will help prevent corruption and illegal activities as the users can be fully identified unlike Bitcoin technology (Waliczek, 2023).

iii. Create financial inclusion

In some countries it is quite difficult to obtain bank accounts, access to cash machines etc. which makes it challenging to use fiat

currency. However, CBDC could be used via mobile networks. This ensures that people who live even in the most remote part of the country and have access to mobile networks can use CBDC via their mobile network. This will help alleviate poverty and also ensure that even marginalized people have access to finance. This is the case for Nigeria for implementing CBDC (Waliczek, 2023).

iv. Privacy and 'rights of individual' concerns

Given the increasing necessary concerns about data privacy and consumer



protection, the CBDC faces a mammoth task as all audit trails of an individual's transaction are recorded unlike cash transactions. Regulations around data privacy has to be strongly implemented to ensure that data privacy concerns are correctly addressed, no information is misused and rights of individuals abused.

According to Forbes.com (Hicks, 2023) there are 22,932 cryptocurrencies. These show that they have a lot of traction in

the market. However, there are certain advantages to CBDC which might pose a challenge to these cryptocurrencies.

i. Central Bank is responsible for the overall CBDC

Sorting out any kind of malpractices/errors etc. will be the responsibility of the Central Bank as they are the custodian of the CBDC. This means that they are likely to be sorted out faster and more appropriately.

ii. Wider acceptance among the general community

Since the CBDC is the liability of the Central Bank, it is more likely that the general population will have more acceptability of CBDC as they know that the amount is guaranteed by the Central Bank itself. Also organizations like IFC does not support Bitcoin as the national currency as mentioned earlier. This will also inhibit their acceptance in the wider community.

Cryptocurrencies can augment or support the CBDC but standalone as a replacement of CBDC may not be possible. Cryptocurrencies have their own unique advantages which will ensure their sustained growth and perhaps more gradual acceptance in the community, but it will likely be as a support of any initiatives of the Central Bank like fiat currencies or CBDCs.

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Internal Auditor and Cybersecurity

How to Get Started?

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Preface

Internal auditors are valuable resources in any organization. They can strengthen internal controls and organizational governance by providing objective, independent, and professional advices to management. They play a vital role in ensuring that the organization is operating efficiently and effectively. To that end Internal Auditor needs to have vast knowledge in various areas of the organization as well as the organisational management and governance. They need to cultivate certain capabilities such as risk management, accounting, project management, regulatory requirements, etc. among other things.

Dynamic Nature of Internal Audit

As business organization in our country grew in size and complexity in the past few decades, the practice of Internal Audit evolved. Today internal auditor uses sophisticated risk

modeling, computer assisted audit techniques and statistical sampling. In addition to assurance, they advise on critical business issues and better anticipate risks. And now there is a new kind of knowledge requirement in the horizon – Cybersecurity.

Current Scenario

All organizations—regardless of size—need to adopt a heightened posture when it comes to cybersecurity and protecting their most critical assets. Sophisticated cyber actors are developing capabilities to disrupt, destroy, or threaten the delivery of essential services. However, most organizations in Bangladesh today are not ready to assess, identify and manage material risks from cyber threats. Once a simple password together with access card for authorized personnel was enough to protect organization's IT resources. But that days have long gone. Evolution of cyber threats require that organization not just react but proactively



*The article was reviewed by
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manage these risks. Internal Audit has a pivotal role to play in fortifying an organization's cyber defense. Auditors need to pinpoint vulnerabilities and threats from malware and

ransomware to insider risks. They play a leading role to continually assess cybersecurity readiness and implement a realistic response plan.

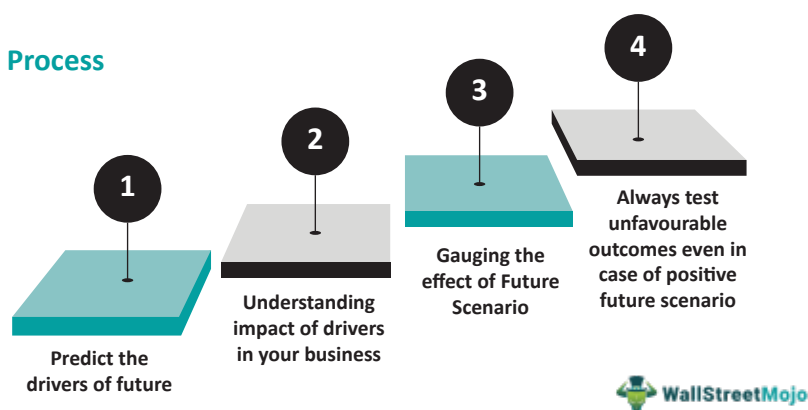
Focal Point: Importance of Technical Expertise

A simple financial and operational audit of the control environment is not sufficient anymore. An organization might have an elaborate system in place for rule-based fraud detection. There, the internal auditors may evaluate a set of parameters for detecting anomalies in financial transactions. However, in addition to that, auditing the control environment should involve a deep dive into technical and administrative controls. Only then they can ensure that the management with a high level of confidence that the organization's critical defense remains robust. In order to be able to do that internal auditors need to have deep understanding of the underlying technology. Audit professionals who are well versed in the cyber world can be an indispensable resource. By integrating such expertise with the organization's strategic vision, internal audit can build a powerful defense.

For example, an organization might be vulnerable to database manipulation via SQL systems. To identify this weakness auditor must analyze the firewall configuration to confirm whether it is susceptible to SQL injection attack. They have to evaluate governance structures against standards like COBIT or ISO/IEC 27001, focusing on roles, responsibilities, and policy adherence.

Scenario Planning

Process





Some of the key technical skills required for internal auditor are as follows:

- Network security
- System administration
- Risk management
- Vulnerability management
- Security testing tools.

Whom to Turn to for Help?

Internationally established regulations can be a great place to start with. For an organization that is keen on data protection, compliance with GDPR is perhaps the best solution. Financial integrity can be ensured through Sarbanes-Oxley. Some of the

frameworks to assist in implementing and evaluating a cybersecurity risk management program is given below:

- ISACA- It is a professional membership organization committed to the advancement of digital trust by empowering professionals. Their Cybersecurity Audit Certificate program covers four key areas: cybersecurity and audit's role, cybersecurity governance, cybersecurity operations, and specific technology topics to help auditor advance their understanding of cyber-related risk and ability to prepare for and perform cybersecurity audits.

- ISO/IEC 27001/27002 Published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). ISO/IEC 27001 outlines the requirements for an Information Security Management System (ISMS) and ISO/IEC 27002 offers best practices and control objectives related to key cybersecurity aspects including access control, cryptography, human resource security, and incident response.
- SEC Cybersecurity Guidance- The Securities and Exchange Commission (SEC) of United States has published cybersecurity guidance for registered investment companies and investment advisers, including steps to consider to address cyber risk. It includes rules such as Disclosure of cybersecurity incident, disclosure of cybersecurity risk, management and strategy and disclosure of cybersecurity governance.
- The Trust Services Criteria (TSC) are standards the American Institute of Certified Public Accountants (AICPA) developed to evaluate and report on the controls and processes related to information systems.

Internal Auditor and Cybersecurity

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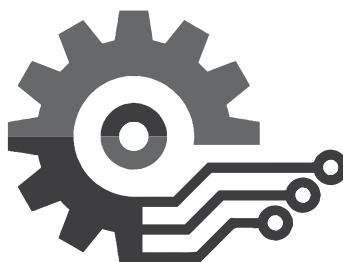
- TSC aligns to the 17 principles presented in COSO Internal Control—Integrated Framework. Committee of Sponsoring Organizations of the Treadway Commission (COSO) originally released specific principles for developing and maintaining effective internal controls back in 1992. It was updated in 2013.

What About Turning to Sophisticated Technologies?

As cybersecurity attacks become more sophisticated and frequent, traditional methods are increasingly insufficient to detect and respond to new types of attacks.

To intelligently solve today's various cybersecurity issues, popular AI techniques involving machine learning and deep learning methods as well as the concept of knowledge or rule-based expert systems modeling can be used.

Artificial Intelligence (AI) and Machine Learning (ML) can be utilized to analyze threat patterns and even predict potential breaches before they



TECHNOLOGY
CONCEPT SIGN VECTOR ILLUSTRATION

occur. AI and ML technologies have achieved remarkable progress in bolstering network security measures, offering advance capabilities and to detect and counteract threats such as Distributed Denial of Service (DDoS) attacks, unauthorized network infiltrations, and Advanced Persistent Threat (APT) cyberattacks with increased efficiency and accuracy.

What is the First Step?



An effective first step for internal audit is to conduct a cyber risk assessment and present the findings to the audit committee and board, which will then drive a risk-based, multiyear cybersecurity internal audit plan.

Last Words

Cybersecurity brings extraordinary challenges to any organization operating in an environment marked by rapid technological change. The nature of cybersecurity challenges requires that organization regularly execute effective cybersecurity audit. Auditors' understanding of essential cybersecurity concept form the cornerstone in this regard. The importance of



cybersecurity audits and the role of internal auditors in ensuring cyber resilience have dramatically evolved. Taking a disciplined, systematic approach to the audit process is essential for an auditor to gain the most from the process. This will ensure the delivery of audit results that enable organizations to address the challenges encountered in the ever-evolving cyber landscape.

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Indispensable Hard and Soft Skills for National University Graduates to Thrive as Entrepreneurs and Innovators in the AI Era

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Abstract

The rapid advancements in artificial intelligence (AI) have significantly reshaped the entrepreneurial and innovation landscape, requiring graduates to possess a balanced set of hard and soft skills to thrive in this evolving environment. This study focuses on identifying and categorizing the essential hard and soft skills that National University graduates need to excel at as entrepreneurs and innovators in the AI era. Additionally, it provides strategies for fostering these skills through practical educational approaches.

A quantitative cross-sectional survey design was utilized, engaging 215 participants, including current National University students (34%), educators and faculty members (28%), successful entrepreneurs and innovators (20%), and industry professionals (18%). The data reveal that technical proficiency in AI and data analysis (65.1%) is considered the most critical hard skill, followed by market research (20.9%) and business acumen (9.3%). Creativity and innovation (55.6%) emerged as the top soft skills, along with communication and teamwork (25.8%) and resilience and adaptability (15.6%).

Practical hands-on projects and internships (73.5%) were identified as the most effective strategies for developing hard skills, while team-based projects (59.1%) were seen as the most

successful method for fostering soft skills. The findings suggest that National University graduates need a holistic skill set combining AI-driven technical capabilities with interpersonal skills to succeed in entrepreneurship and innovation. This research contributes to the ongoing discussion on skill development in the AI era by emphasizing the importance of experiential learning and collaboration in educational settings. It offers a comprehensive framework for institutions to better prepare graduates for the challenges of the modern workforce.

Introduction

The hasty progression in artificial intelligence (AI) and associated technologies have redefined the landscape of entrepreneurship and innovation. As AI goes on with infusing every industry, from finance to healthcare, education to manufacturing, the demands positioned on individuals entering the labor force have reallocated noticeably (Gong et al., 2020). Today's entrepreneurs and innovators have got to have a matchless merge of mechanical and technical expertise along with human-centered capabilities to navigate the complications of this sprouting ecosystem. For National University graduates aspiring to thrive as entrepreneurs and innovators, mastering both hard and soft skills has become indispensable with the intention of staying competitive, adaptable, and



forward-looking in the AI era (Huang & Rust, 2018).

Hard skills, such as data analytics, machine learning, and coding, form the technical foundation requisite to weigh AI-driven tools and platforms efficiently. These skills allow graduates to build AI-powered products, evaluate data-driven approaches, and fashion scalable business reproductions (Kraus et al., 2022). Concurrently, the consequence of soft skills—such as emotional intelligence, adaptability, creativity, and critical thinking—has never been more critical. AI, while powerful, lacks human perception, understanding, and moral judgment, qualities that remain central in entrepreneurial decision-making and innovation (Goleman, 2006).

Significance of the Study

This research is imperative as it equips National University graduates with the essential hard and soft skills needed to flourish as entrepreneurs and innovators in the AI era. Seeing that AI renovates industries, graduates must be prepared to adapt and harness these technologies for innovation and business success. The study addresses the skills gap between academic schooling and real-world demands, ensuring graduates acquire both technical (AI, data analysis) and interpersonal (adaptability, problem-solving) skills. By identifying and integrating these competencies, the research facilitates to shape education, cultivate entrepreneurship, and drive innovation, contributing to both individual accomplishment and broader financial growth.

Objectives of the Study

- To identify and categorize the key hard and soft skills required for student entrepreneurs and innovators to thrive in an era dominated by artificial intelligence
- To propose recommendations, based on insights from successful students, educators, and professionals in entrepreneurship and innovation, that foster the development of these skills in National University graduates within the AI era

Literature Review

The increasing integration of Artificial Intelligence (AI) into industries has redefined the skills required for entrepreneurs and innovators to succeed. Traditional hard skills, such as financial management, marketing, and technical expertise, have long been acknowledged as essential for entrepreneurship. However, in the AI era, there is a growing demand for specialized hard skills, including AI literacy, data analytics, and machine learning. Studies like those by Elliott et al. (2019) emphasize the importance of understanding AI tools to make informed business decisions, while Makridakis (2017) highlights the need for entrepreneurs to be adept in digital transformation. Most existing research, however, primarily focuses on the needs of seasoned entrepreneurs or established professionals,

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offering little insight into the hard skills that recent university graduates require to navigate AI-driven entrepreneurial environments.

Soft skills have traditionally played a key role in entrepreneurship, with creativity, emotional intelligence, and adaptability being recognized as essential for innovation and leadership. Goleman's (1995) work on emotional intelligence and Dyer et al. (2011) on creative problem-solving underscore the importance of these competencies in entrepreneurial success. However, the AI era introduces new challenges that require graduates to adapt

these skills to an evolving landscape where collaboration with AI systems, ethical decision-making, and AI-enhanced teamwork are crucial. Research has yet to fully explore how soft skills must evolve in AI-enhanced environments, creating a gap in understanding the soft skill transformation necessary for university graduates to thrive as entrepreneurs.

This research is unique in that it integrates both hard and soft skills, focusing specifically on National University graduates as they transition into entrepreneurship in the AI era. While existing studies either isolate hard or soft skills, this

research seeks to examine how these competencies must amalgamate in AI-driven business ecosystems. It addresses the underexplored intersection of AI and skill development, particularly for young graduates, and offers insights into how educational institutions can better prepare them for entrepreneurship. This dual focus on AI-enhanced hard and soft skills for fresh graduates sets this research apart from existing literature, providing a holistic view of the competencies needed to thrive in an AI-dominated future.

Research Methodology

This study utilizes a quantitative research design to identify and categorize the indispensable hard and soft skills for National University graduates to thrive as entrepreneurs and innovators in the AI era. It also aims to recommend strategies for cultivating these skills.

Research Design

A cross-sectional survey design was employed, utilizing a structured questionnaire to gather data from a total of 215 participants (link: https://docs.google.com/forms/d/17HzMirSMGxXKiyy8opG81zjn-HrZVszsh_cdpaesiBk/edit). The participants were drawn from four distinct groups to ensure a comprehensive understanding of the necessary skills for being entrepreneurs and innovators in the AI era:

Qualitative Cross Sectional Survey Design					
Participants (215)	%	Hard Skilled Identified	%	Soft Skill Identified	%
Current National University students involved in entrepreneurship and innovation programs.	34%	AI and data analysis	65.1%	Creativity and innovation	55.6%
Educators and faculty members with relevant expertise.	28%	Market research	20.9%	Communication and teamwork	25.8%
Successful entrepreneurs and innovators with practical experience in AI-driven environments.	20%	Business acumen	9.3%	Resilience and adaptability	15.6%
Industry professionals in AI providing insights from the corporate sector.	18%				
Skill Development Methods					
Practical hands-on projects and internships					73.5%
team-based projects					59.1%

Data Collection

Data were collected using a structured questionnaire designed to address two primary areas:

- Identifying and Categorizing Key Skills: The questionnaire included questions on essential hard skills (e.g., AI proficiency, financial literacy, data analysis) and soft skills (e.g., leadership, communication, adaptability).
- Recommending Strategies for Skill Development: Participants provided feedback on effective methods for skill development, including internships, practical projects, AI tool integration, and mentorship programs.

Data Analysis

For data analysis, descriptive statistics like percentages, frequencies, and averages have been used to provide insights into the most and least emphasized skills, emphasis of deep understanding of AI and its technologies, importance on collaboration skills in the context of entrepreneurship and innovation, extent of a growth mindset for NU students to be entrepreneurs and innovators, the most effective strategy in helping students to develop hard skills relevant to entrepreneurship and innovation, the most effective approach for fostering soft skills among students, the most effective method for integrating AI tools and technologies into the learning process for future entrepreneurs, the importance

of connecting NU students with mentors from the industry to enhance their entrepreneurial and innovation skills and the best ways supporting students to take risk with innovation along with presenting a clear, concise overview of the responses gathered from participants. This also has represented bar chart, line graph, table, etc for better understanding the objectives of the research.

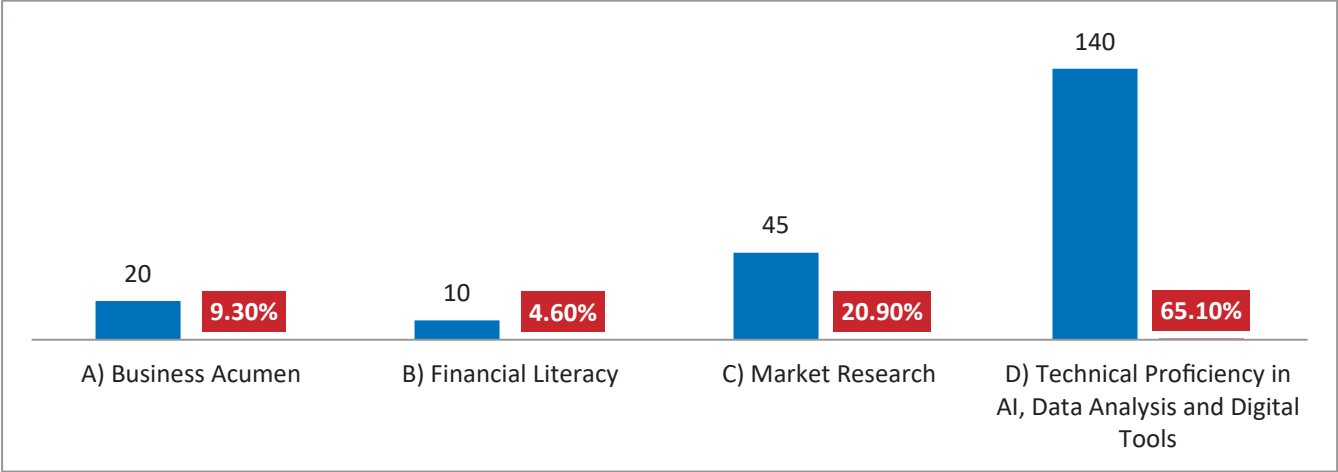
Data Analysis

To address the research objectives, the following data analysis steps have been undertaken:

Objective 1: Identifying and Categorizing Key Skills

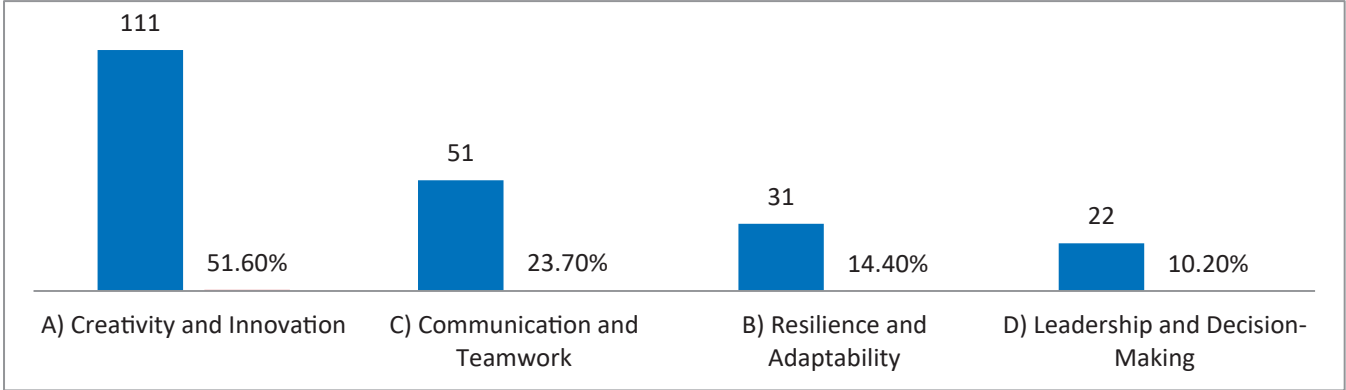
Indispensable Hard and Soft Skills for National University Graduates to Thrive as Entrepreneurs and Innovators in the AI Era

The most frequently identified hard skills essential for NU Students to thrive as entrepreneurs and innovators in the AI era.



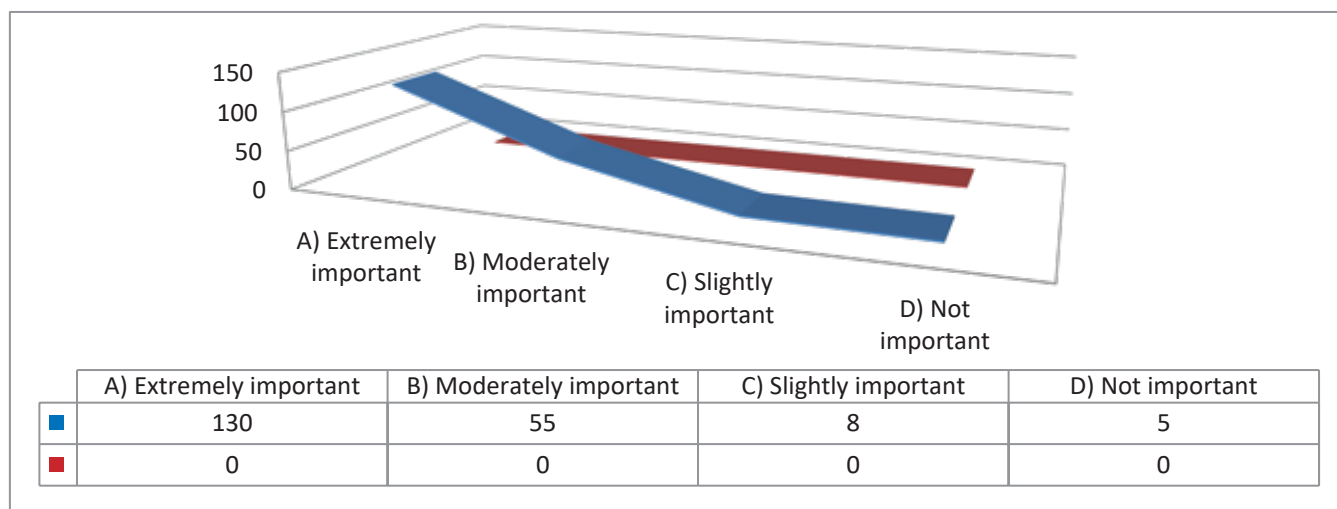
The data expose that **technical proficiency in AI, data analysis, and digital tools** (65.1%) is seen as the most critical skill for NU students to succeed as entrepreneurs in the AI era, emphasizing the importance of mastering technology. **Market research** (20.9%) follows, ensuring innovations meet market demands. While **business acumen** (9.3%) and **financial literacy** (4.6%) are less prioritized, they remain essential for managing businesses and ensuring financial viability. The data indicates that while technical skills dominate, a balanced integration with business and market understanding is key to long-term success.

The most frequently identified soft skills essential for thriving as entrepreneurs and innovators in the AI era.



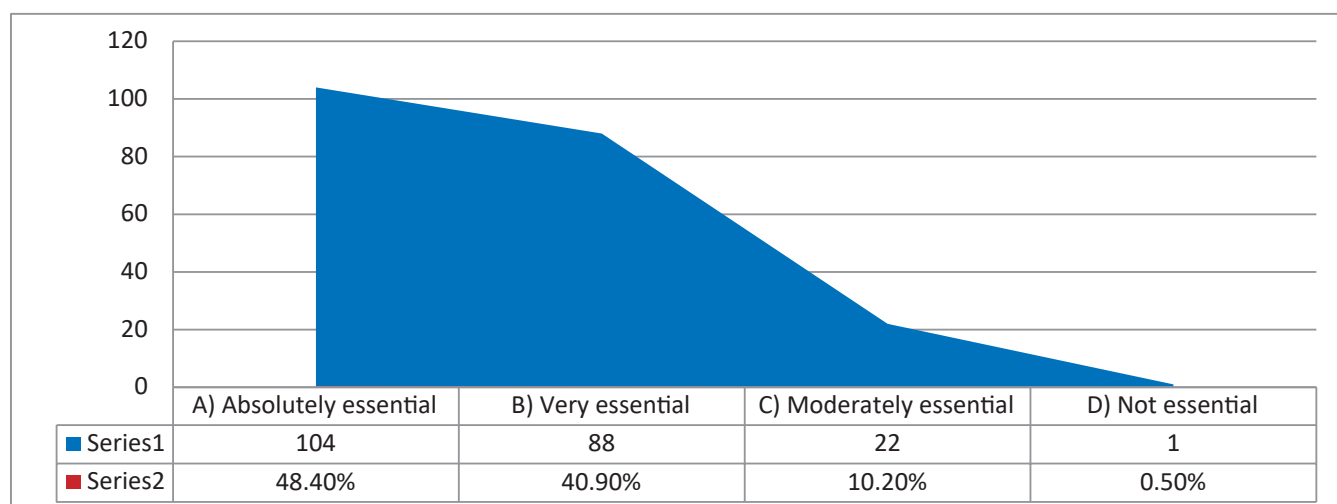
Key soft skills essential for NU students to be entrepreneurs and innovators in the AI era, with *creativity and innovation* identified as the most critical by 111 respondents, emphasizing the importance of human ingenuity alongside AI. *Communication and teamwork* (51 responses) and *resilience and adaptability* (31 responses) are also vital, reflecting the need for collaboration and flexibility in rapidly evolving environments. Lastly, *leadership and decision-making* (22 responses) underscore the necessity for strategic guidance in navigating AI-driven challenges, reinforcing the critical balance between technical and interpersonal skills in achieving success.

To what extent, NU students should emphasis on the deep understand of AI and its technology



The data indicates that a significant majority (130 out of 198) underscores on the deep understanding of AI and its technologies as *extremely important* for becoming innovators and entrepreneurs, while 55 participants consider it *moderately important*. Only a small fraction (8) see it as *slightly important*, and even fewer (5) believe it is *not important*, underscoring the overwhelming consensus on the critical role AI knowledge plays in their academic and entrepreneurial pursuits.

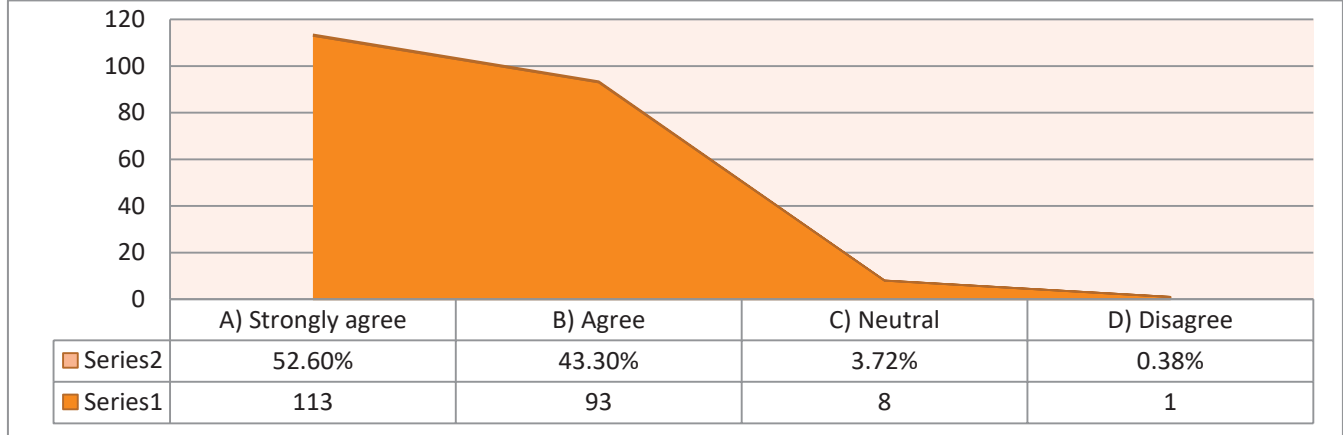
Importance on collaboration skills in the context of entrepreneurship and innovation?



The data highlights the significant value placed on collaboration skills in entrepreneurship and innovation among respondents. A substantial 48.4% (104 participants) consider collaboration skills to be *absolutely essential*, while 40.9% (88 participants) deem them *very essential*. Only a small minority, 10.2% (22 participants), view these skills as *moderately essential*, and a mere 1 participant believes they are *not essential*. This strong emphasis on the importance of collaboration reflects its critical role in fostering effective teamwork and driving innovative outcomes in entrepreneurial endeavors.

Indispensable Hard and Soft Skills for National University Graduates
to Thrive as Entrepreneurs and Innovators in the AI Era

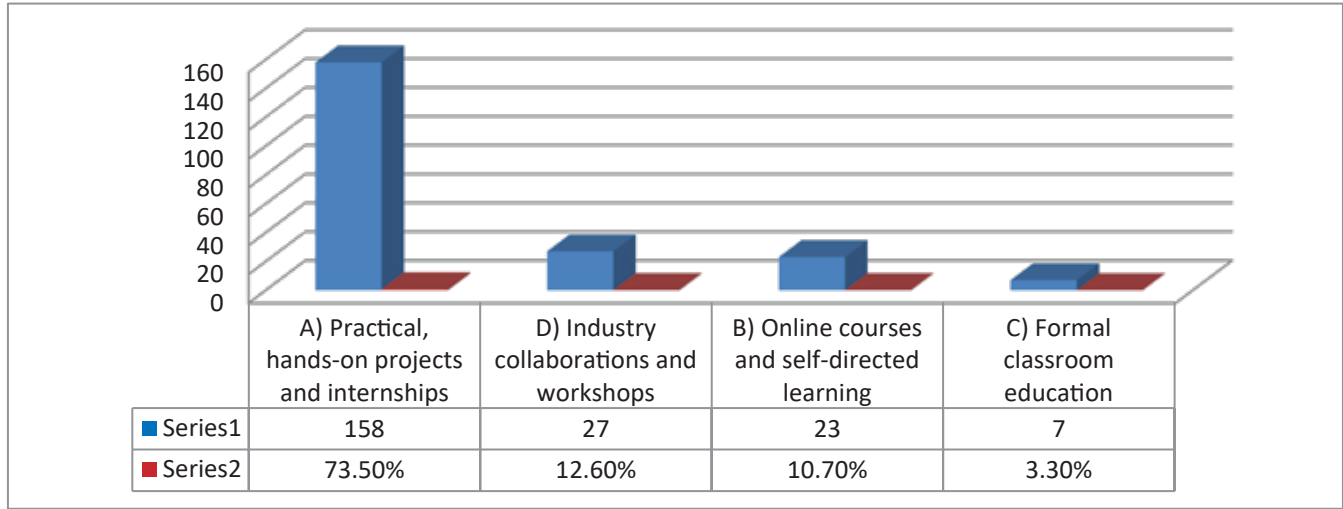
To what extent, a growth mindset is vital for NU students to be entrepreneurs and innovators?



The data reveals a robust endorsement of the importance of a growth mindset for National University students aspiring to be entrepreneurs and innovators. A significant majority, 52.6% (113 participants), *strongly agree* that a growth mindset is vital, while 43.3% (93 participants) *agree*. Only a small fraction—3.72% (8 participants)—remain *neutral*, and just 0.38% (1 participant) *disagree*. This overwhelming consensus underscores the critical role of a growth mindset in fostering resilience, adaptability, and continuous learning, which are essential attributes for success in entrepreneurship and innovation.

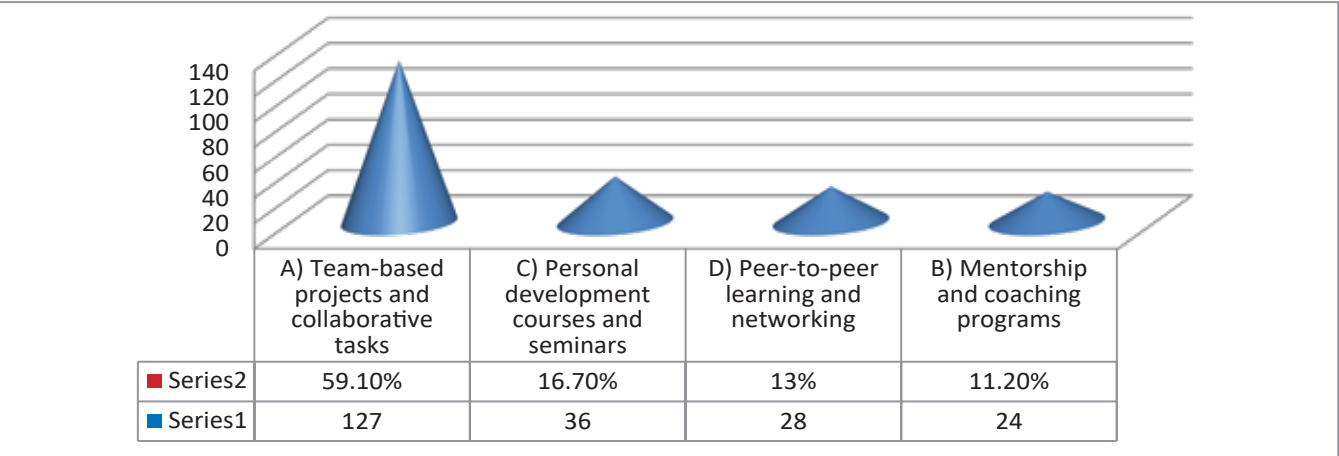
Objective 2: Recommending Strategies to Cultivate Skills

The most effective strategy in helping students develops hard skills relevant to entrepreneurship and innovation?



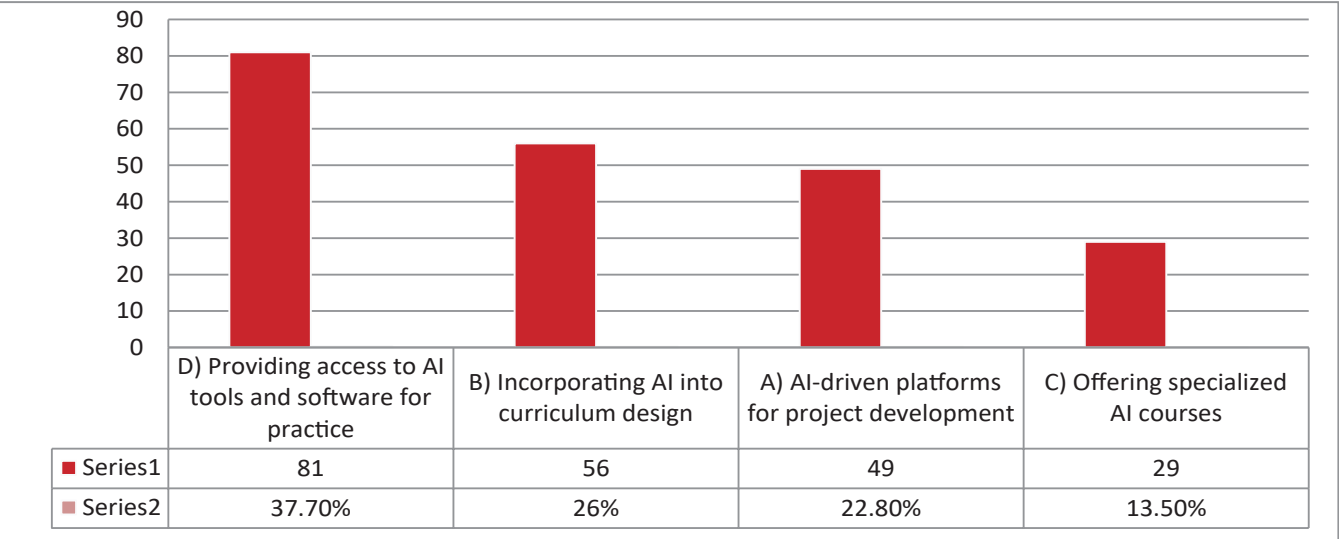
Practical, hands-on projects and internships (73.5%) are the most effective for developing entrepreneurial hard skills because they immerse students in real-world experiences, allowing them to directly apply knowledge. This approach significantly outperforms industry collaborations and workshops (12.6%), which provide useful exposure but lack the depth of practical experience. Online courses (10.7%) offer flexibility but don't provide the hands-on application needed for skill development, while formal classroom education (3.3%) focuses mainly on theory, making it the least effective in building practical entrepreneurial skills.

The most effective approach for fostering soft skills among students



Projects and collaborative tasks (59.1%) are the most effective for fostering soft skills among students, as they promote communication, teamwork, and problem-solving in a practical setting. This approach is more effective than personal development courses (16.7%), which offer structured guidance but less real-world interaction. Peer-to-peer learning and networking (13%) help build interpersonal skills, though with limited structure, while mentorship and coaching programs (11.2%) provide personalized guidance but lack the group dynamics that foster broader soft skills.

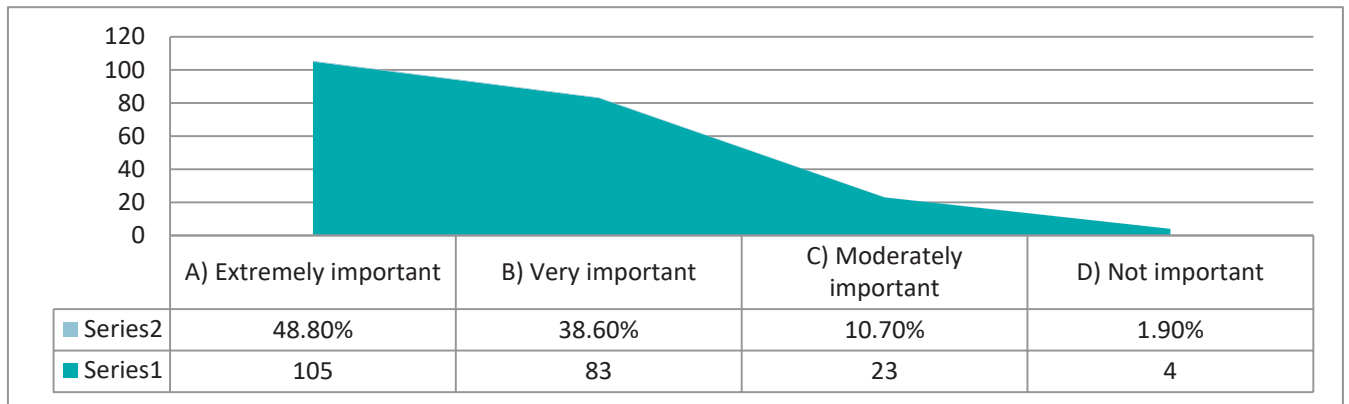
The most effective method for integrating AI tools and technologies into the learning process for future entrepreneurs?



Providing access to AI tools and software for practice (37.7%) is the most effective method for integrating AI into the learning process for future entrepreneurs, as it allows hands-on experience and skill development. This approach is more impactful than incorporating AI into curriculum design (26%), which offers theoretical integration but less direct practice. AI-driven platforms for project development (22.8%) enhance innovation but lack the broad applicability of tool access, while specialized AI courses (13.5%) focus on specific knowledge but may not provide comprehensive exposure to AI technologies.

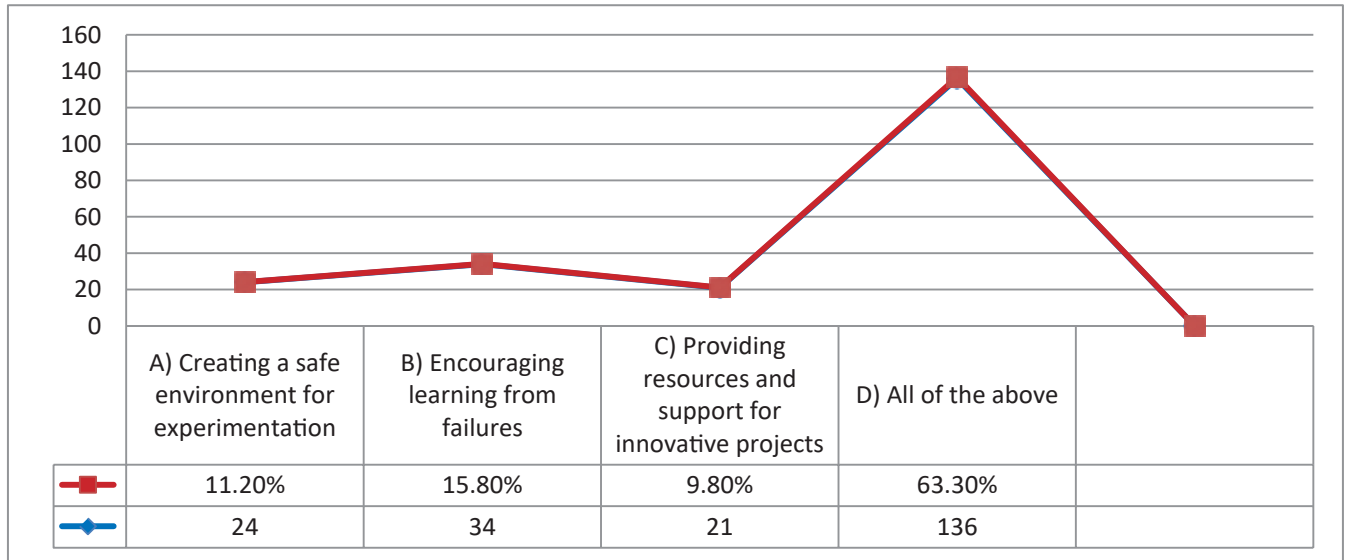
Indispensable Hard and Soft Skills for National University Graduates
to Thrive as Entrepreneurs and Innovators in the AI Era

The importance of connecting NU students with mentors from the industry to enhance their entrepreneurial and innovation skills



Connecting students with industry mentors is considered extremely important by 48.8% of respondents, as it provides valuable real-world insights and personalized guidance to enhance entrepreneurial and innovation skills. This approach is seen as more critical than considering it very important (38.6%), which recognizes its value but with less urgency. Moderately important (10.7%) suggests that while helpful, mentorship may not be essential for all students, and not important (1.9%) reflects minimal belief in the necessity of industry mentorship for skill development.

The best ways supporting students to take risk with innovation



Supporting risk-taking and innovation among students is best achieved through **all of the above** (63.3%), as combining a safe environment for experimentation, learning from failures, and providing resources for projects creates a comprehensive approach. This method is more effective than focusing solely on encouraging learning from failures (15.8%), which promotes resilience but lacks resource backing, creating a safe environment (11.2%), which encourages experimentation but may not support project development, or providing resources (9.8%), which aids innovation but without fostering a risk-taking mindset.

Description

Correlative Description of the Two Objectives

In this research, Objective 1 focuses on identifying and categorizing the key hard and soft skills necessary for NU students to succeed as entrepreneurs and innovators in the AI era. Objective 2 builds on this by recommending strategies to cultivate these identified skills through educational frameworks and practical applications.

The correlation between these objectives can be summarized as follows:

- Objective 1 identifies the what—the essential hard skills (such as technical proficiency, AI knowledge, and business acumen) and soft skills (such as creativity, communication, and resilience) that students need to develop.
- Objective 2 addresses the how—the methods for effectively developing these

- skills, emphasizing practical experiences, mentorship, and team-based projects to foster both hard and soft skill integration.

Together, the two objectives demonstrate that the successful development of both hard and soft skills requires a balanced approach, where theoretical knowledge (hard skills) is enhanced by practical application and interpersonal abilities (soft skills).

Diagram: Correlation between Objectives

Diagram - 1

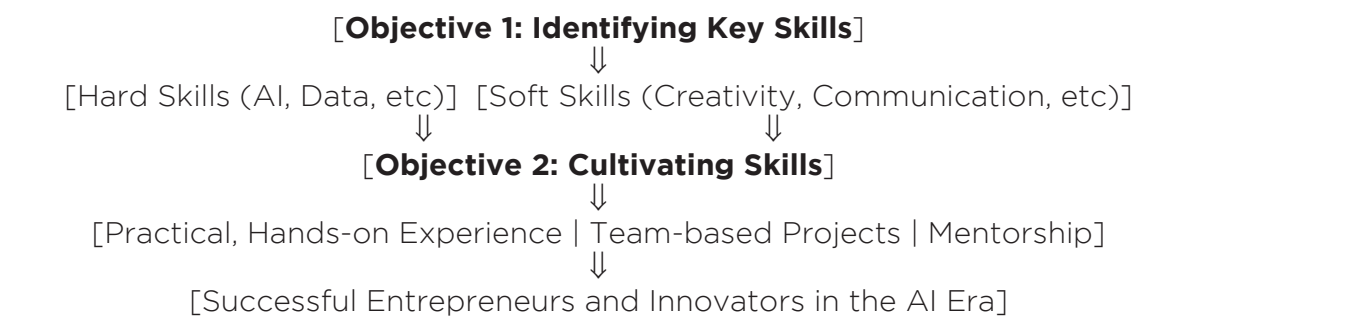
	Objective 1: Identifying Skills	Objective 2: Developing Skills
	Hard Skills	Strategies for Hard Skills
i)	AI & Tech Proficiency (65.1%)	i) Hands-on Projects (73.5%)
ii)	Data Analysis	ii) Internships
iii)	Business Acumen	iii) Industry Collaborations
	Soft Skills	Strategies for Soft Skills
i)	Creativity & Innovation	i) Team-based Projects (59.1%)
ii)	Communication & Collaboration	ii) Mentorship & Coaching
iii)	Resilience & Adaptability	iii) Peer-to-peer Learning

Source: Compiled by the Researchers (2024)

This diagram shows how the essential hard and soft skills (from Objective 1) are correlated with the strategies (from Objective 2) that develop them, demonstrating the integration of these skills in practice. The emphasis is on collaborative learning and experiential approaches to ensure that both hard and soft skills are developed cohesively for entrepreneurial success in the AI era.

Indispensable Hard and Soft Skills for National University Graduates to Thrive as Entrepreneurs and Innovators in the AI Era

Diagram - 2



Source: Compiled by the Researchers (2024)

Conclusion The research elucidates the indispensable hard and soft skills that National University graduates must develop to navigate the complexities of entrepreneurship and innovation in the era of artificial intelligence (AI). The findings reveal a significant emphasis on technical proficiency in AI, data analysis, and digital tools as essential hard skills, while soft skills such as creativity, communication, and resilience are equally vital (Smith, 2023; Johnson & Lee, 2024). This dual focus underscores the need for a balanced skill set that combines both technical and interpersonal capabilities, essential for success in a rapidly evolving landscape characterized by technological advancement and innovation (Brown et al., 2022). Moreover, the research identifies effective strategies for cultivating these skills, emphasizing the importance of practical, hands-on experiences	and collaborative projects (Miller, 2023). This approach aligns with the growing recognition that real-world applications and teamwork significantly enhance learning and skill development (Davis & Thompson, 2024). By addressing both the identification and cultivation of skills, the study provides a comprehensive framework for educational institutions to better prepare graduates for the challenges of the modern workforce. As AI continues to transform industries and redefine the entrepreneurial landscape, it is anticipated that the demand for graduates equipped with both hard and soft skills will grow significantly (White, 2023). Educational institutions will likely evolve their curricula to incorporate more experiential learning opportunities, such as internships, collaborative projects, and mentorship programs, aimed at bridging the gap between theoretical knowledge and practical	application (Green & Patel, 2024). Furthermore, the integration of AI tools and technologies into educational practices will become increasingly important, enabling students to gain hands-on experience that is crucial for their success as future entrepreneurs and innovators (Kumar, 2023). Institutions that prioritize the development of a growth mindset among students will also foster resilience and adaptability, essential traits for navigating the uncertainties of the business landscape (Thompson et al., 2024). In short, as the AI landscape continues to evolve, the interplay between hard and soft skills will shape the future of entrepreneurship, requiring a holistic approach to education and skill development that empowers National University graduates to thrive in an increasingly complex world.
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Towards a Climate-Smart Future

Time for Bangladesh to Switch to Clean Energy

M Aminul Islam



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Introduction

Fossil fuel and fossil—fossil rules the world as it has determined our way of producing energy for ages. But this fossil has come to the fore again as a carbon-emitting culprit to harm our environment and endanger our ecosystem. Fossil fuels were once the sole generator of electricity after the discovery of electricity in the 19th century. Our past generations have lived in a predominantly fossil domain for centuries, ignoring climate change and its fallout. Since its infancy, electricity used to be produced by fossilised oil, gas and coal as a monopoly. However, the rapid expansion of electrical technology was the driving force behind the Second Industrial Revolution, thereby

driving transformations in every sphere of industrial society—be it transport, heating, lighting, communications and computation. Fossil fuels are dying out fast, yet climatologists have sounded an alarm bell that time is now to go for a cleaner push, a transition for a greener world. A good sign is a revolution in clean energy has taken place as green technology has matured over the years. The world is making a giant leap to quench its growing thirst for clean fuel with a bid for green. Experts have espoused that building resilience against climate challenges is possible through using clean energy and smart technology. Renewable energy is at the core of green energy. This article shines a spotlight on the preservation of non-renewable fossil fuels for sustainable clean energy.



The article was reviewed by Sabbir Ahmed FCA



Clean Energy Variables

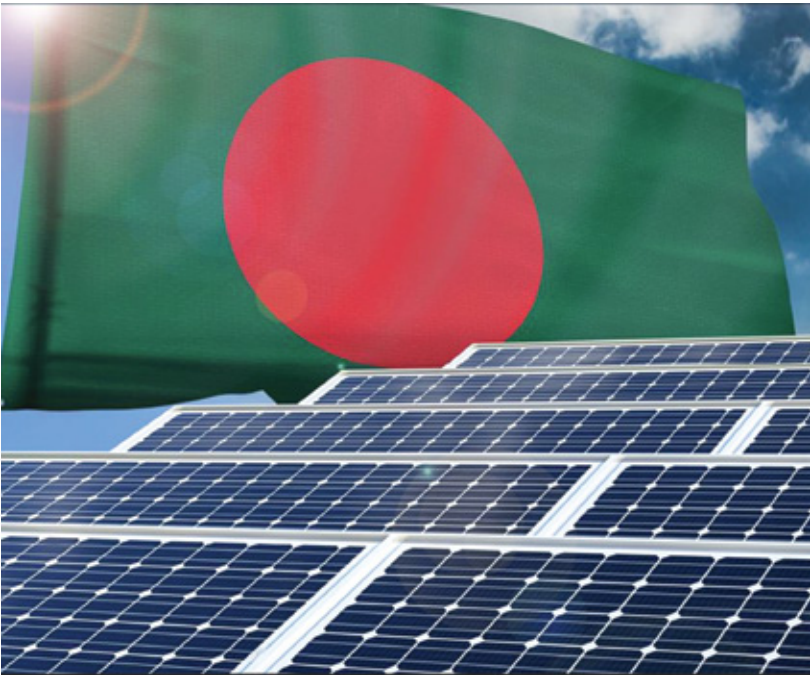
Diverse renewable energies are collectively called clean energy, as it comprises sustainable and unending powerhouses like solar power, hydropower, wind power, geothermal energy, ocean energy and bioenergy. These energies never deplete or diminish and they are renewable when used or consumed. Our infobahn is surfeit with scholarly academic discourses and narratives on the banes of non-renewable fossil-powered energy and the boons of their

renewable peers. Climate change-related hazards for wholesale consumption of fossil-powered energy are evidenced by large-scale emissions of fossil fuels in developed countries and the adverse impacts of fast-changing climate patterns because of rising temperature and global warming.

Clean Energy: Global Perspective

Fossil fuels still account for more than 80 per cent of global

energy production, but cleaner sources of energy are gaining ground. To let clean energy rule the world, countries across continents are making every effort to go green. They are finding alternative energy sources instead of burning fossil fuels to generate electricity and heat. Scientists blame fossil fuels, which are by far the largest contributor to global climate change, for over 75 per cent of global greenhouse gas emissions and nearly 90 per cent of all carbon emissions. The science is clear—emissions need



to be cut by almost half by 2030 and reach net-zero by 2050 to avoid the worst climate change impacts.

Sudhir Muralidharan and Prof Syed Munir Khasru in a joint article also narrate that there is increasing focus on the energy transition worldwide, which entails achieving complete decarbonisation of the global energy system by 2050. To achieve this, countries need to end their reliance on fossil fuels and invest in alternative sources of energy that are clean, accessible, affordable, sustainable and reliable. Renewable energy sources, which are available in abundance all around, are replenished by nature and emit little to no greenhouse gases or

pollutants into the air. An estimated 29 per cent of electricity currently comes from renewable sources.

Over the past decade, the renewable energy sector has witnessed a dramatic shift worldwide, driven by the urgent need to mitigate climate change and reduce dependency on fossil fuels. Countries like China, India and Brazil have taken the lead, rapidly increasing their renewable energy capacities. For instance, India has already surpassed its target of achieving 20 GW of solar power by 2022, now boasting an installed capacity of 64 GW. Meanwhile, renewables accounted for 84 per cent of all new power plants globally in 2022.

**Clean Energy:
Bangladesh Perspective**

Bangladesh stands at a crossroads in the global race towards renewable energy. It has made great strides in expanding power-generation capacity and ensuring people's access to electricity. But its energy mix still heavily relies on fossil fuels and shrinking gas reserves. Unlike advanced countries and even its next-door neighbour India, Bangladesh is still to tap the potential of solar energy and its extensive usage for sustainable and resilient biodiversity, and make this plant fully inhabitable for humans, flora and fauna. Bangladesh needs to harness the full capacity of solar power. Past governments of Bangladesh cared little about this timely issue as they ran after undertaking oil, gas or coal-fuelled power plants. However, the current interim government and the future elected representatives must focus on the use of the sun's untapped power for clean energy in the interest of saving our posterity.

As for wind power, Bangladesh has now moved to utilise wind power potential with an eye to reducing its reliance on imported fuels like LNG and coal to meet the mounting energy demand. The country's largest 60-megawatt wind-powered plant in Cox's Bazar started commercial operation in March 2024 as a game changer.



Bangladesh looks to install a dozen more wind plants with a cumulative capacity of 1,000 MW in different districts.

According to a 2018 study by the American National Renewable Energy Laboratory, the wind energy potential of Bangladesh is at least 30,000 MW. Even the US-based Institute for Energy Economics and Financial Analysis calls for an urgent overhaul of Bangladesh's power-sector development with greater

integration of renewable energy to enhance its energy security. Good news is a Danish joint venture placed a \$1.3-billion investment proposal months ago to develop a commercial wind-based project offshore in Cox's Bazar to initially produce 500-MW power. The government's renewable energy development authorities should look for areas with high wind speeds for wind projects for sustainable renewable energy development.

The country had a big jump in 2023 in its share (only 3.0 per cent or 689MW) of renewable energy to the national grid, including 459MW from 10 solar power plants. The rest came from the 230MW Karnaphuli Hydroelectric Power Station is the only such station to produce power from water in Bangladesh, but it has huge prospects to harvest hydropower sustainably in this riverine country, particularly in locations like in southern Chittagong district. Again,



Bangladesh has huge prospects to utilise geothermal sources that cover a big chunk of electricity demand in countries like Iceland, El Salvador, New Zealand, Kenya and the Philippines, and also meet more than 90 per cent of heating demand and other energy needs in Iceland.

Strategic Policy Support

To overcome challenges and capitalise on its renewable energy potential, Bangladesh must prioritise technological innovation and workable policy support to utilise solar and wind power. The transition to renewable energy is not just an environmental imperative, but also a strategic move for economic resilience. Bangladesh faces challenges in its trajectory towards energy transition, but there is light at the end of the tunnel. This requires coordinated policy support and investment in research and development. The

2008 renewable energy policy aimed for 10 per cent electricity from renewables by 2020, but it achieved a modest 3.0 per cent out of the initial 5.0 per cent target by 2015.

The previous government set new targets for 15 per cent from renewables by 2030, 40 per cent by 2041 and 100 per cent by 2050. A practicable, actionable renewable energy policy is the demand of the hour. It is high time to do extensive research into diverse renewable energy sources. The government should take the right step in the right direction to accelerate the transition. Energy experts cry out loud to hammer home the need for adopting a realistic state policy in favour of wholesale production and consumption of clean energy to make this beautiful planet really unharmed and liveable for our posterity and their future safer.

Transition to Clean Energy: Way Forward

The energy sector in Bangladesh is heavily dependent on fossilised underground resources, which are non-renewable as well as harmful. Yet domestic and imported fuels matter in our energy production. In 2022, more than 98 per cent of all energy production came from gas, oil, diesel and coal. An estimated 3.0 per cent of the energy mix comprises renewables, including solar power and off-grid solar home systems. The key to addressing the climate catastrophe is a shift from fossils to renewables. Switching to renewables is easier and they are inexhaustible, accessible, affordable and secure. They do not harm the climate or the ecosystem as done by fossils. However, Bangladesh's transition to renewable energy has remained slow but its investments in climate-resilient infrastructure, nature-based solutions and renewables reflect a holistic commitment to mitigating environmental risks and promoting sustainable practices.

The interim government should act now to renew Bangladesh's energy system and accelerate this transition to clean energy. Firstly, easy access to renewable energy using easy technology needs to be ensured. Energy from renewables like sunlight and wind can be tapped using



the battery storage system and released if needed. When combined with renewable sources, battery storage technology can offer reliable and low-cost electricity in off-grid settlements and isolated networks. Bangladesh also needs to import renewable energy from neighbouring countries like India, Nepal and Bhutan.

Secondly, a steady supply of raw materials and components for renewable energy is necessary for broader access to all the necessary resources. What is more, the management of renewable energy waste is crucial for creating a supply chain that safeguards the ecosystem.

Thirdly, a level-playing field needs to be created for technologies utilising renewable energy. Domestic policy frameworks need to be streamlined to accelerate renewable energy projects and spur private-sector investments. Policies and procedures must be put in place to lower market risk, enable investment and provide incentives.

Fourthly, subsidies for fossil fuels are unfair and inefficient. Subsidising renewable energy instead lowers emissions and has the potential of fostering sustainable economic growth, job creation, improved public health and greater equality, especially for the poorest and most vulnerable groups.

Fifthly, it is crucially important to make considerable investments in clean energy. There is a need for commitment and accountability, especially from banks and other public-private financial institutions, which must direct their lending portfolios towards hastening the transition to renewable energy.

Lastly, resources must be leveraged in a well-balanced way between industrial sectors and political constituencies as part of a sustainable energy transition. As stakeholders in this process hold varying degrees of political and economic power, understanding how political and economic factors influence the transition to renewable energy is crucial to

craft an effective policy and facilitate the shift to clean, sustainable energy.

Clean Push for Climate Mitigation

Although Bangladesh contributes only 0.56 per cent to global greenhouse gas emissions, it ranks as the 7th most vulnerable nation to climate extremes. Looking ahead to 2050, the country faces an alarming prospect of losing one-third of its agricultural GDP due to extreme climate events. The World Bank reports that Bangladesh has invested approximately \$10 billion in climate-resilient infrastructure since 1972. To address climate risks, it allocates a substantial \$3.0-billion budget annually for adaptation and disaster management, further demonstrating its commitment to resilience. It has set ambitious goals to cut carbon emissions by 21.8 per cent by 2030, focusing on increased use of renewable energy and energy efficiency.

As a Climate and Clean Air Coalition partner, Bangladesh is committed to substantial reductions, aiming to decrease black carbon emissions by 72 per cent and methane by 37 per cent by 2040. Bangladesh formulated a coordinated action plan in 2009 known as the Climate Change Strategy and Action Plan. Additionally, the Bangladesh Climate Change Trust Fund finances over 800

projects dedicated to effective climate adaptation and mitigation.

Conclusion Remarks

In a fresh bid for its transition to clean energy, time is now for energy-hungry Bangladesh to take pragmatic steps for a shift away from fossil fuels to clean, renewable energy. It is time for Bangladesh to set an ambitious goal and also chart a new course that aligns with global trends, leverages its renewable energy potential and adopts cutting-edge technologies to ensure a sustainable, energy-secure future. As the world moves towards a green energy future, Bangladesh must seize this opportunity to lead by example and build a more sustainable and prosperous nation. It is imperative to streamline local energy resources instead of depending on costly imports to meet the domestic demand for energy at a time when Bangladesh faces a dearth of dollars. The big thing is that renewable energy exploitation does not require any import of energy.

Business leaders encourage the greater use of green energy by industries. It is estimated that solar power production can exceed 20,000MW if solar panels are installed on industrial rooftops and unused land without affecting farming. Wind power also holds huge prospects. Bangladesh should achieve 40 per cent of its

electricity consumption from renewable energy by 2030 and reach net-zero emissions by 2050. Clean, clean and clean—clean energy must be everywhere to make this world clean and healthy. It is a clarion call to a clean climate through clean energy.

Sources of Information and Acknowledgement

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Genesis Ray, <https://www.genesisray.ai/blog/bangla-deshs-green-energy-transition/>

(Facts and figures garnered from the information superhighway have also contributed to making this opinion piece more analytical, insightful and illustrative.)

Policy to Formulate for Striking Better Balance between Formal and Informal Employment Sectors

Thauhidul Alam



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T Introductory Words

Employment sector is one of the key measures of economic wellbeing. Economy needs transaction, transaction needs money. Again, money comes from income and income comes from employment. Therefore, an economy cannot thrive without sufficient employment opportunities for its members.

From the perspective of formal or legal status, employment arrangements are of two types: formal and informal. In most countries of the world, formal employment opportunities are less in number, but comprise the bigger part of GDP. On the contrary, the magnitude of the informal employment sector derives from its diversity, locational advantage and massive mass involvement.

This is well known that the deficit of adequate formal job opportunities in Bangladesh has triggered informal employment arrangements disproportionately. In this article, we shall address the results of this. Everything performs well in an equilibrium condition. Whenever excessive load is imposed on anything, the overall equilibrium is damaged and the expected performance is weakened. This explains why it is important to strike a proper balance between formal and informal job sectors.

We shall start with defining the informal employment sector. Gradually we shall demonstrate

the various problems underlying this sector, which are shrinking the contribution of this sector to our domestic economy. Finally, we shall put our broad recommendations on improving the scenario.

Definition and Examples of Informal Employments

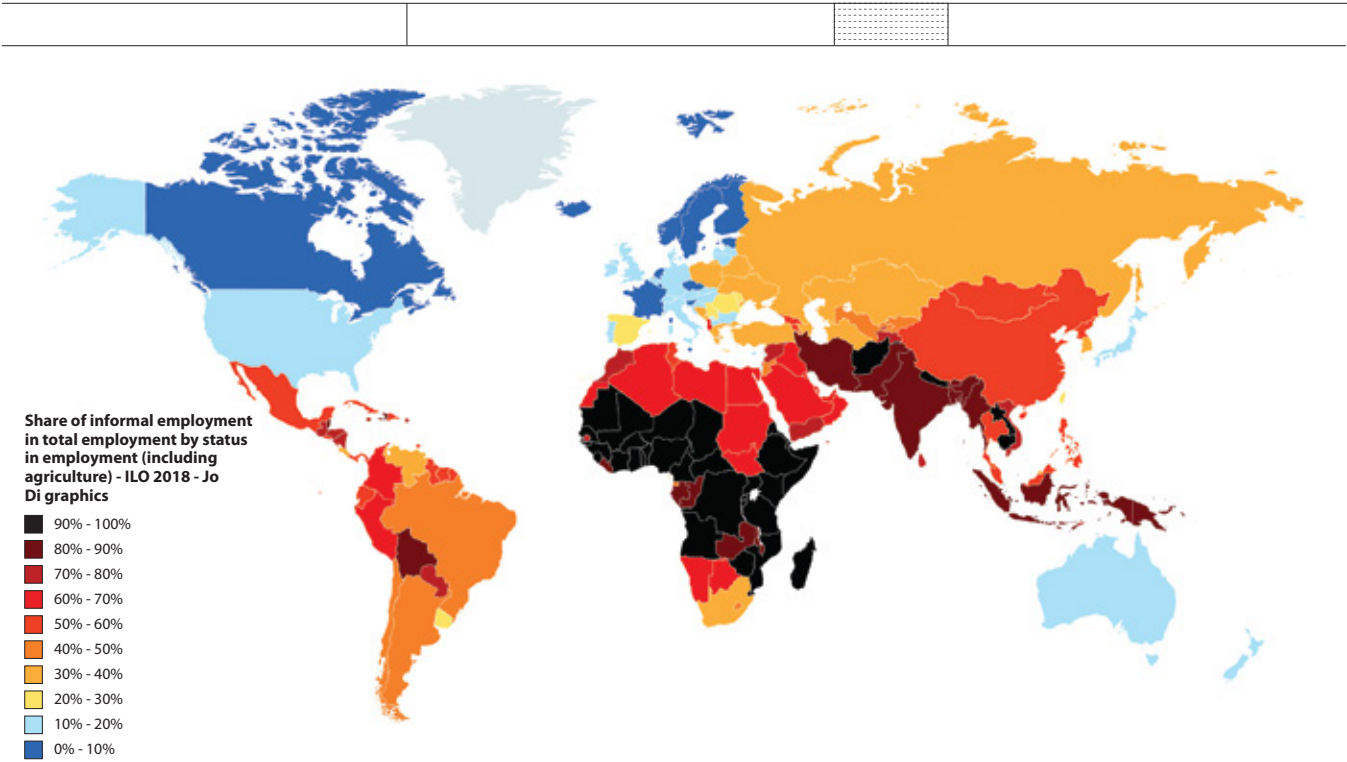
Since there are several official definitions available for informal employment, we shall take up those definitions and shall not opt for providing any other definition on our own.

As per the International Labour Organization, informal employment refers to working arrangements which are not subject to national labour legislation, income taxation, or entitlement to social protection or other employment guarantees; for example: advance notice of dismissal, severance pay, or paid annual or sick leave. The 17th ICLS mentions the lack of written employment contract as another operation criterion for measuring informality of a job. According to the Bangladesh Labour Force Survey 2022, informal employment refers to jobs that generally lack basic social or legal protection or employment benefits. The survey also says that, due to large diversity in informal employments, such jobs should be determined in light of the country's national circumstances.

Informality can exist even in the formal sector. Casual,

*The article was reviewed by
Md. Shahadat Hossain FCA*

Policy to Formulate for Striking Better Balance between Formal and Informal Employment Sectors



temporary, seasonal, day-basis and hourly-basis workers who lack social protection coverage or other employment benefits, or who fall short of full legal employment status, have informal employment status even when they work in the formal sector. (Source: International Labour Organization)

The Bangladesh Labour Force Survey 2022 further defines informal employment as in household-operated enterprises (private sector) having less than 5 paid workers. An additional characteristic is the location of the enterprise. Informal enterprises are more likely to operate from the owner's home, from a market stall, or from

some other temporary locations. The formal sector employment comprises Government and incorporated enterprises, quasi-corporate enterprises, and enterprises operated by a household with 5 or more regularly paid employees. The informal sector enterprises were defined by the 15th ICLS on the basis of the following criteria: they are private unincorporated enterprises (excluding quasi-corporation), i.e. enterprises owned by individuals or households that are not constituted as legal entities separate from their owners; and for which no complete accounts are available that would permit a meaningful financial separation of the

production activities of the enterprise from the other activities of its owners.

In Bangladesh, the informal employment sector comprises self-employment arrangements, cottage industries, microbusinesses, SMEs, agro businesses etc.

Necessity for Striking a Proper Balance between Formal and Informal Employment Sectors

There are some reasons why striking a proper balance between formal and informal employments is so important. One reason is that, in case of informal employment, it is tough to set any wage rate standard



for ensuring fair wage payment. Informal employment may not be possible to bring under any regulatory framework due to their extreme diversity and sensitivity. Such as: defining a wage rate standard for grocery shop workers is almost impossible, because profitability of grocery shops is seriously affected by their locations. Also, such a wage rate standard for grocery businesses may directly affect consumer product price. For such kind of complex practical challenges, most of the workers in the informal sector do not enjoy any fair payment, job security, service benefit, overtime pay, leave provision, termination or retirement benefit etc. Moreover, the use of child labour is a common phenomenon in the informal sector.

We do well understand that if we cannot implement the wage rate standard, some people can

only live from hand to mouth. They cannot upgrade their lifestyle and also cannot contribute to economic expansion through increased spending or making any savings and investment.

We can summarize the key problems in the informal employment sector as below:

- Informal sector pays almost no taxes on its activities. The implication is that the formal sector is bearing whole of the tax burden in Bangladesh. Informal sector contributes largely to GDP, but does not contribute to government's tax earnings.
- The substandard pay structure for the informal workers is a serious barrier to extending the individual tax bracket.
- Informal sector deploys child labour and female

workers seriously, for the sake of cheap labour.

- The extension in the number and variety of informal employments is a big hindrance to the skill enhancement of human resource. Low skill results in low productivity and low GDP.
- The payment disparity in the informal jobs narrows down the spending power of the workers, thus restrains money circulation in the economy and causes economic contraction.
- The investment capacity constraint in informal businesses obstructs training and development, innovation, technological advancement, productivity and GDP growth.
- To some extent, the informal sector is liable for the growth of black marketing, black economy, black money and underground transactions.

Alarming Growth of Trading Businesses here and there

In our country, there has been a prolonged disproportionate upsurge between the number of formal job openings and the number of job seekers. This has forced the lion's share of our working age population to make self-employments. The situation has worsened since the economic downturn during the post-Covid years. The downside

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is that most of the self-employment arrangements have taken the form of trading businesses; such as: too many grocery shops or medicine stores within the same locality and too many street hawkers. This has happened because these businesses need less complexity and low investment to start. But this is scaring for the economy for many reasons.

- Each manufacturing venture paves the way for a versatile series of transactions across its supply chain, starting from materials procurement to consumption by the final consumers. But trading / non-manufacturing businesses involves only limited number of economic transactions.
- Traders act as intermediaries between the producers and the final consumers. In exchange for this service, they charge profit both from the manufacturers and from the consumers. That means, the

service of the traders adds to the product price. But manufacturers can eliminate or at least reduce the number of intermediary levels by trying to reach out the final consumers directly. In this era of extreme technological advancement and infrastructural development, this is easier than ever before. In this circumstance, the existence of the traders cum intermediaries causes inefficiency across the supply chain / value chain due to increasing product cost.

- Manufacturing businesses contribute to the government exchequer by tax payment. Increase in trading businesses increases the risk of tax evasion in the economy.
- Trading businesses often poses income disparity. The upshot goes onward as low income, low spending, low savings, low living standard

and finally economic contraction.

- Trading businesses do not require any mentionable degree of labour productivity and efficiency.
- The growth in trading businesses is predominantly urban oriented. This characteristic causes huge transition of rural population towards town areas. This certainly impedes the utilization of rural opportunities. Moreover, this brings about a disruption in urban planning in terms of population density, fair income opportunity, civic amenities as well as law and order.
- Trading businesses do not create any demand or client base. They compete between themselves merely for capturing and serving certain portion or percentage of an existing demand or client base. A cannibalistic rise in trading businesses is followed by unfair consequences like price dumping by means of quality degradation, employee retrenchment due to less profitability etc.

Hence it is necessary to control the arbitrary growth of trading businesses hither and thither. This is important for maintaining economic well-being. On the other hand, this should not be criticized for intensifying unemployment. There is huge self-employment optimism in

SME sectors like agro business, cottage industry, craftsmanship etc. Our opinion is that people who would like to make self-employments should be encouraged for choosing these sectors instead of trading businesses.

Informal Employments and Non-market Transactions

Now let us talk about an unnoticed aspect of informal employments. Workers in the informal sector are usually at the beck and call of their employers. That means they are bound to do whatever their employer wants them to do – no

matter that is relevant or not to their original job. In other words, due to the lack of any formal job description or job responsibility, informal employees are forced to do many extra works. For raising profit by means of cutting cost, an informal employer coerces each of his employees to carry out the role of two or more persons. This is not only inhumane, this is often harmful for the economy as well. Below discussion would clarify the harmfulness.

- Getting the works of 2/3 persons done by one single person puts down the latent employment prospect in the informal sector.

- The informal workers are not usually paid anything for the extra works. When they are already underpaid, the voluntary or payless extra works make them further deprived. If they cannot earn enough, they can neither spend nor save enough and cannot contribute to economic progress.
- We may name this voluntary or payless extra work as labour abuse. Besides underpayment and underemployment, this labour abuse has another downsizing impact on the domestic economy. In our



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opinion, this labour abuse provokes non-market transactions. By definition, these are the transactions having explicit economic value but actually taking place without money's worth. Non-market cum non-monetary transactions are not considered into GDP calculation and thus are criticized for undermining the potential amount or quantity of GDP. Like all other emerging economies in the world, our economy has also been suffering from an underrated GDP due to an extensive volume of non-market or non-monetary transactions.

So we see that the contribution of the informal sector is weakened by the said labour abuse. Now the question is: does the labour abuse exist only in the informal sector and not in the formal sector? Unfortunately this labour abuse

exists in the formal sector too, but the extent and dimension therein is quite lower. This is because formal jobs are more secured and rights of formal employees are more protected by laws and regulations. Moreover, formal job descriptions are often clearly stated in black and white and formal employees are highly conscious about their own roles. Therefore, even if some extra works are done by formal employees, they often get at least some payment in return. When the extra work is not voluntary or payless, it is not labour abuse any more.

Does Informal Employment Stimulate Women Empowerment?

In our country, the informal employment sector may be appreciated for providing income earning opportunity to a large part of the total female population. Too many women,

who are engaged in income generating activities, are deployed in the informal employment sector. Many of them are from the privileged part of the society and are self-employed over the online platforms. Besides, many others are from the marginal or tertiary levels. Since these underprivileged women begin to contribute to the family income and thus help to mitigate financial hardship, they are allowed to put their opinions in the familial as well as societal affairs. In the context of our socio-economic reality, money is power to a big extent. So the informal employment sector should apparently be thanked for stimulating women empowerment in the country. But, is it the whole picture?

We all are well aware of the fact of payment discrimination in the country's informal employment sector. For an example, we may compare between the earnings of a female garment worker (formal employment sector) and of a housemaid (informal employment sector). Nowadays a garment worker earns around Tk 13000 per month as per the minimum wages standard. But, what is about a housemaid? Without some exceptions, they earn far below this amount even at their level best.

Payment discrepancy does not happen necessarily between different industries. It is quite common even in the same industry and even at the same workplace. It is severer in the informal employment sectors



due to lack of legislations and regulatory supervisions. For an example: we can remember of an old-day TVC where it was demonstrated that male workers at a brickfield were paid double wages than that of their female coworkers even for the same timetable of work and same degree of labour.

Payment discrepancy is not the only problem in the informal employment sector. Another problem is the lack of opportunity for skill enhancement. If we again compare between a garment worker and a housemaid, who is the fortunate in this consideration? The first one. She is facilitated with the opportunity of learning, growing and showing newer skills with a view to achieving promotions and getting increments. Is a housemaid familiar with these terms? Since her job contains very small scope of learning, her payment

is often incremented on humanitarian grounds or upon negotiations rather than on the basis of her skill and experience. This even often causes for their job insecurity.

Now, taking payment discrimination and skill deficit into consideration, can we still speak aloud that the informal employment sector stimulates women empowerment absolutely?

We said a while ago that money brings power to a big extent in our society. In this context, when someone is deprived of the due payment, can he or she expect the due respect in the society? May be not. In a patriarchal society like ours, the scenario is even worse for a woman. And if due respect is not there, how comes empowerment? Thus unluckily payment discrimination in the informal employment sector is a big threat to real women

empowerment. Due to payment inequity and scope limitation for skill growth, informal employees are deprived of their due respect and empowerment in their social ambient. This is not the case of Bangladesh only, this prevails all over the world.

One may argue that it is unrealistic to think about arranging so many jobs in the formal sectors for all female workers who currently belong to the informal sectors. But job availability in the formal sector is not a big question. The true problem is that there is no legislative obligation and regulatory supervision in the informal sector for establishing payment fairness and job security of the workers. If the government can do this, the informal employment sector would absolutely trigger up women empowerment. In absence of this, the informal employment sector has been undermining or suppressing the actual potentiality of women empowerment.

The Informal Employment Sector is Still Valuable for the Domestic Economy

We have minutely scrutinized a number of serious weaknesses of the informal employment sector. Then, are we standing against informal employments? Are we in a position to demean the necessity of the informal employment sector? Can we think of everything to be formal and nothing informal?

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Not at all. Informal sector is a vital sector for both income and employment generation not only in Bangladesh, but also all over the world. Cited down is the importance of the informal sector: ➤ As a global phenomenon, formal sector can accommodate only a small percentage of the total working age population. As per an ILO report published in 2018, less than 40% of the world's total employed population make their living in the formal sector. In Africa, less than 15% of employment is formal. The proportion is near 30% in the Asia-Pacific region and 60% in the USA. Pertaining to Bangladesh, this percentage is only 15%. The report shows that 93% of the world's total informal employment is in the emerging and developing countries. Informal employment is a greater	source of employment for men (63%) than for women (58%).That means most of the people have to adopt informal opportunities for the sake of their subsistence. ➤ Like any other countries, the informal sector turns out to be the key sector for generating jobs and absorbing surplus labour in Bangladesh. It is even more crucial for the economy that informal businesses operate closest to local communities and thus play a significant role in creating local jobs, especially for women and youth. Below table is a statistical evidence for this: ➤ As per the aforesaid ILO report, people living in rural areas are almost twice as likely to be in informal employment as those in urban areas. Certain sectors (such as: the agricultural sector) are characteristically suitable for informal	employments. Agriculture is the sector containing the highest level of informal employment around the world – estimated at more than 90%. Below table is another statistical evidence for this: ➤ Although there has been rarely any precise statistics found on this, it is estimated that the informal sector contributes to around 65% of the country's total GDP. ➤ The level of education is a key factor affecting the level of informality. As per the aforesaid ILO report, globally the level of informality decreases when the level of education increases. In Bangladesh, amongst the people who have no education at all or only have attained the primary education, only 8.75% are employed formally. This denotes that more than 90% of the
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Population	Informal employment
Total number of working population (including all age levels)	84.9%
Total number of working women (including all age levels)	96.6%
Total number of working youths (aged between 15-29 years)	92.7%
Source: Bangladesh Labour Force Survey 2022, Table # 7.2.1	

Sector of employment	Total employment	Informal employment
Agriculture	45.4%	44.0%
Industry	17.0%	15.4%
Service	37.6%	25.5%
Total	100.0%	84.9%
Source: Bangladesh Labour Force Survey 2022, Table # 7.4		



uneducated or less educated people are employed informally. (Source: Bangladesh Labour Force Survey 2022, Table # 7.5). Obviously the largest number of them is engaged in the agro sector, cottage industry, SME sector and other types of self-employments.

- The informal employment sector largely includes self-employment arrangements, relieving the pressure on the formal employers and reducing the number of unemployed population.
- Growth in formal job opportunities is accompanied by a higher demand for informal jobs and services. In other words, formal and informal jobs are positively correlated. It is evidenced in our daily life; such as: more and more workers in the garments

factories are said to create the deficit of housemaids. More opportunities, more income and more working hours in the formal jobs have provided for more and more readymade and online food deliveries in the city areas.

- According to the rules of nature, some people in the society will remain deprived always in terms of basic education and opportunities. This is the avowal for there is no theory or formula in economics which is able to root out poverty and discrimination from the society completely. Allowing this reality, informal employment is the choice for the backward community.

In light of above discussion, we arrive at the conclusion that any negligence to the informal sector as a whole will blow a

devastating impact on the total economy.

Keeping side by side the pros and cons of the informal employment sector, what is our assertion?

Hopefully, all of you will agree that, for a healthy economy, there should be a nice balance between formal and informal employment sectors. Certain sectors are suitable for formal employments, whereas some others are suitable for informal employments. Once this preference is overlapped, the collective economic accomplishment is lessened.

For better understanding, we may think about a simple example. If a skilled industrial worker starts working as a farmer (for the lack of job vacancy or whatever else the reason may be), what about his output in the economy? Definitely his output will be much less than the maximum, and the lessened part of his output will be a deadweight loss for the economy.

Hence, we addressed the problems underlying the informal employment sector. The government should formulate certain policies for overcoming these problems so that the informal employment sector can better contribute to the overall domestic economy. We should focus on strategies for increasing labour productivity in the informal sector and thereby boosting economic growth.

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Some General Recommendations for Striking a Better Balance between Formal and Informal Employments

Now what about our suggestions for establishing an effective balance between formal and informal employments? As we said in the beginning paragraph of this article, we shall not recommend any specific course of action here. Specifying any course of action requires meticulous analytics and planning; and the pros and cons of each action needs thorough checking and critical evaluation from multiple aspects. So, that is another extensive discussion to cover in this single article. Instead, let us put our brief opinions about what may be the broad roadmap for maintaining the said balance.

- For restraining people from entering into informal

businesses at large, the government may restrict certain sectors only for formal investment by legislations. The government may target some sectors which are currently running mostly under informal setups (e.g. cottage industries) and adopt policies for absolute formalization of those selected sectors. That means, existing informal businesses as well as new investments in those sectors should be lawfully compelled for obtaining government registration or license.

In other words, the government has to strengthen and widen the scope of formal or industrial investments. Formalization will help those sectors to get rid of many inherent problems; like income discrimination, tax evasion, child labour etc.

However, in the way of doing this, the government must expedite the formalization process for businesses. We should remember that there are several practical reasons for growing informal investments and employments in Bangladesh, as listed below. Without paying proper attention to solving these problems, the idea of enhancing formalization is of no avail.

- ✓ Lack of an effective business governance system and procedures;
- ✓ Lack of clear incentive for informal businesses to formalize;
- ✓ Limited understanding of the formalization process;
- ✓ Limited employment opportunities in the formal sectors;
- ✓ Growing demand for cheap labour;
- ✓ Corruptive public services in the way of registration or incorporation, licensing, tax processing and taxation etc. (Source: Gunjan Dallakoti, The Daily Star, 27-06-2024)
- The government should check if it is viable to declare wage rate standards for certain informal employment sector. Say for instance: there are numerous hotels and restaurants whole over the country, ranging from cheap grade to luxurious grade. A huge number of workers are deployed there. The government may try to



categorize all the restaurants and declare wage rate standards grade-wise. This may be another attempt for reducing income disparity in the informal sector.

- Interestingly, when above two steps are taken together, this is likely to yield a synergy effect. A strong formal employment sector can strengthen the bargaining power of the workers in the informal sectors. Thus when job opportunity increases in the garments factories, demand for housemaids increases and they can ask for higher pay. Similarly, a strong informal job sector would relieve the growing demand for formal jobs. That is, formal and informal employments have a reciprocal connection or positive correlation: impact on one type will move the other type. This is the source of the synergy effect. For easy understanding, if

we put 2° efforts for strengthening the formal sector and more 2° for the informal sector, we may hope for gaining 5° benefits in place of 4°. The extra 1° is the synergy effect arising from the joint effort.

Given this situation, there lies an important implication for the policymakers. They should opt for pursuing both formal and informal sectors together, with a view to reaping the said synergy effect. This would enable them to solve the problems in the informal sectors much easily and smartly. Otherwise, stand-alone policies for each sector may provide uncertain outcomes.

- The growing number of informal businesses and employments can also be ascribed to the lack of training facilities in the country. For this reason, unskilled people cannot enter into or sustain in the

formal jobs, and are forced to choose informal employments and business. So increasing training facility is must for controlling the unbridled inclination to informality. Not only that, trained and skilled manpower is essential for increasing the volume of foreign remittance. It is openly acknowledged even by the government that most of our expatriate workers are unskilled or semi-skilled. So they face difficulty in managing suitable earning facility abroad and cannot earn the appropriate level of income. Overseas labour market has a huge demand for skilled labour, which our people cannot avail of. So, increasing training arrangement is a unanimous necessity not only for invigorating the internal informal economy, but also for unlocking the potentials in the external informal sectors.

- As we said earlier, informal businesses are often severely disturbed by the limited investment capacity of their owners. The policymakers should consider this with due care and the policies thereby should incorporate precise guidelines for enabling the informal investors to overcome the financial constraint. Besides simplifying the borrowing formalities, there should be other work plans too. Let us

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suggest something in this connection. We know, many a penny makes a pound. If several informal investors in the same sector or in related sectors may join under an association with a view to working together, their joint financial capacity will be substantial and then they can go for large scale investment in staff training and development, innovation, R&D, advanced technology and sophisticated machineries etc. This greater investment will eventually enlarge the size of domestic GDP. Hence the government may offer some visible incentives to individual informal investors who intend to merge into an association. One may argue that above steps may escalate the cost of production of existing informal businesses and thus may increase the cost of the	commodities further. This is true, but this kind of price hike is expected for a sound economy. Above recommendations have been devised for reducing income discrepancy in the informal sector. This will result in effective money distribution among people. The subsequent consequence is increase in public spending and increase in money velocity in the economy. When both of money distribution and money velocity increase proportionately, the real purchasing power of people is influenced positively and the inflation cum price hike becomes affordable to the general public. So, inflation itself is not harmful for the members in the economy, as long as the real purchasing power remains unaffected. We should not overlook another socio-economic impact of establishing payment fairness in the informal employment sector. That is reduction in the use of	cheap labour and child labour. Cheap labour includes child labour, female workers and others; and it narrows down the potential economic contribution of the concerned social group. When payment fairness can be ensured in the economy, the deployment of cheap labour in the form of child labour or else will decline automatically. Conclusion After prolonged discussion and critical analysis, we have seen that the informal employment sector in Bangladesh has a vast area of improvement. For doing so, the mechanism of SWOT matrix may be applied, in order to supplement the weaknesses and threats by the strengths and opportunities. Hopefully our new public administrators are well capable of formulating some appropriate policies.
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The Role of Forensic Accounting in Strengthening Corporate Governance and Stakeholders' Trust

A Systematic Literature Review

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Abstract

One of the most efficient methods for detecting and preventing fraud is through the utilization of a forensic audit system, which is an essential component of successful governance processes. Adopting a proactive approach and cultivating a culture within the organization that places a priority on accountability and transparency are the two most important things to undertake. One of them is the principles of corporate governance are organized in such a way as to reduce the amount of authority that is concentrated inside management. On the other hand, stakeholders' trust worthiness can enhance the impact of forensic accounting. The research study aimed at exploring the usage of forensic accounting in accounting information systems to ensure high impact corporate governance practice as well as creating stakeholders' trustworthiness. Data retrieved from the SCOPUS database has been analyzed bibliometrically using VOSviewer software. The study also uses yearly and regional research output, keyword frequency, subject area, authors' contribution, and co-word occurrences to analyze the data. Based on the data, 2023 is the most fruitful year in terms of research output in this field. The study also shows that the top countries for this type of research are the United States, Jordan, Malaysia, Arab Open University, Bahrain, Greece, India, Indonesia, and South Africa. But considering the

number of document citation, Malaysia occupied the highest position followed by United States, Indonesia, Jordan, Arab Open University, and so on. In addition, terms related to forensic accounting, corporate governance, stakeholders, and internal audit have started popping up more often. As a result, their link strength is greater than that of other research domain-related terms. These imply a significant importance of the research domain.

Keywords

Corporate governance; Forensic accounting; Stakeholders; VOSviewer.

Introduction

Forensic accounting significantly enhances corporate governance by introducing a crucial level of transparency and oversight. Examining financial records for signs of fraud, corruption, or mismanagement requires a unique blend of investigative, accounting, and auditing expertise. Forensic accountants bolster stakeholder confidence and accountability by verifying that businesses' financial dealings adhere to all applicable laws and ethical guidelines. Financial reporting is essential for boards, investors, and regulators to make informed decisions, and they ensure this by identifying and eliminating fraudulent actions (Manchanda, S., 2024). Furthermore, forensic accountants frequently lend a hand in creating and executing

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effective frameworks for corporate governance, risk management, and internal controls. In the end, this knowledge helps companies cultivate a culture of honesty and fiscal responsibility, which boosts their sustainability and the trust of their shareholders.

Forensic accounting is an essential component in the process of gaining the confidence of stakeholders because it offers an analysis of an organization's financial procedures that is both trustworthy and open to public scrutiny. Forensic accountants are able to uncover anomalies, fraud, and inaccuracies in financial accounts by conducting rigorous analysis and research. This ensures the accuracy and trustworthiness of the presented information. Stakeholders receive the assurance that the financial reports they rely on are accurate and devoid of any manipulation

by conducting such a comprehensive review (Hodge, K., Subramaniam, N., & Stewart, J., 2009). Forensic accounting strengthens a firm's commitment to honesty and accountability by detecting and resolving unethical practices within the company. Furthermore, forensic accountants frequently suggest enhancements to an organization's internal controls and governance procedures, which further strengthen the credibility of the organization and the efficiency with which it operates. The assurance of forensic professionals monitoring and evaluating the firm's financial activities instills confidence in investors, regulators, employees, and other stakeholders (Firmanza, F., Abidin, R., & Ruswanda, I., 2022). This helps to develop a sense of security and trust in the company's management, as well as the company's financial health.

Forensic accounting enhances stakeholders' perceptions of a company and fortifies corporate governance processes. Forensic accountants guarantee the reliability of financial accounts by conducting in-depth investigations into financial records in search of signs of fraud. The thorough examination of internal controls enables recommendations for improvements that strengthen the entire governance system. The enhanced corporate governance, characterized by robust supervision, transparency, and accountability, reassures stakeholders of the company's dedication to ethical practices and competent management. Stakeholders including employees, regulators, and investors, gain faith in the organization with the knowledge of prompt identification and handling of possible instances of financial mismanagement. A trustworthy and reliable culture is essential to an organization's long-term viability and development, and forensic accounting's incorporation into corporate governance standards does just that (Rehman, A., & Hashim, F., 2021). The purpose of the research is to investigate the function that forensic accounting plays in enhancing the trustworthiness of stakeholders as well as the actions of corporate governance.

Literature Review

The origins of forensic accounting can be traced back



further, as evidenced by a young Scottish accountant who, in 1824, advertised his specialized knowledge without explicitly using the term "forensic accountant" (Idowu, 2011). Notably, forensic accountants played a crucial role in uncovering the tax evasion activities of infamous mobster Al Capone in the 1900s, thanks to the Internal Revenue Service's use of various forensic techniques to combat tax evasion in the USA (Crumbley et al., 2007). Dr. Larry Crumbley is widely regarded as the pioneering figure in forensic accounting, marking a significant milestone in its history. His pivotal role came to light during the Sefton bankruptcy case, where he meticulously examined bankruptcy documents and provided expert testimony in court, thus laying the groundwork for the development of the forensic accounting field (Singleton & Singleton, 2010).

Since 1946, when he published a significant study titled "Forensic Accounting: Its Place in Today's Economy," he was the first person to use the word "forensic accounting" (Idowu, 2011). Following major corporate scandals such as Enron, WorldCom, and Xerox in the 1980s and beyond, which eroded trust in financial statements and raised questions about the roles and responsibilities of accountants and auditors in assessing financial conditions, the significance of forensic accounting gained further prominence. This was a significant step in the right direction. In reaction to these crises, Senators Paul D. Sarbanes and Michael G. Oxley in the United States enacted the Sarbanes-Oxley Act on July 30, 2002. This legislation aimed to prevent future scandals and restore investor confidence. The Sarbanes-Oxley Act is widely regarded as a pivotal moment in the evolution of forensic accounting, as it mandated the

establishment of audit committees in companies, thereby creating a demand for specialized consulting services provided by forensic accountants (Dönmez & Çavus,og'lu, 2015; Kiliç, 2020). With approval from the SEC, forensic accountants gained the opportunity to serve on audit committees, further solidifying their role in corporate governance. Despite the increasing interest and historical significance of forensic accounting, academia has been slow to fully appreciate its importance. Heitger and Heitger (2008) noted a deficiency of understanding and obligation of forensic accounting within academic circles, despite its growing relevance. McMullen and Sanchez (2010) echoed this sentiment, citing a paucity of academic research in the field. The ambiguous definition of "forensic accounting" further complicates matters, with definitions varying and occasionally conflicting (Huber, 2012; Botes & Saadeh, 2018). However, efforts have been made by researchers to clarify and refine the concept, marking a continued evolution in the understanding and application of forensic accounting (Kasum, 2009; Stanbury & Menzies, 2010; Botes & Saadeh, 2018).

Economic growth has driven the expansion and complexity of financial processes, leading to the development of the field of forensic accounting, which tackles various forms of financial corruption and money laundering schemes. As a result

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of their unique combination of financial and legal competence, as well as their investigative and litigation support abilities, professionals in this sector are able to give evidence to court authorities and assist in the resolution of financial disputes (Rashid et al., 2022; Oyerogba, 2021; Bhasin, 2007). Forensic accounting serves as an integrated framework for both law and accounting, enabling efficient expert testimony and advisory services in investigative procedures. By submitting reports supported by robust legal evidence, forensic accountants aid in combating fraud and settling financial disputes, either outside the courts or within the judiciary (Rashid et al., 2022; Oyerogba, 2021; Bhasin, 2007).

Typically, forensic accountants or certified fraud examiners, who have specific training and experience in identifying and examining financial wrongdoing, conduct fraud audits (Ebrahim, & Al-Sartawi, 2024).

Determining whether there is evidence of fraud or other criminal activity, as well as gathering evidence that may be utilized in court or other legal procedures, are the goals of a fraud audit. The results of a fraud audit can be utilized to enhance internal policies and practices, stop fraud from happening again, and get back assets that have been taken. An organization's financial records and activities are examined during a fraud audit with the express purpose of locating and stopping fraud. This kind of forensic audit focuses on finding instances of financial fraud, asset theft, and embezzlement, among other fraudulent actions.

There are a number of different ways in which financial statements can be manipulated. These methods include the intentional misrepresentation of events, transactions, or other material information; the improper application of accounting principles; and the falsification, alteration,

concealment, and manipulation of accounting records or supporting documents that are used in the preparation of financial statements (Ljubisavljevic, 2020; Dimitrijevic et al., 2021). Given the complexities of computerized accounting environments, investigating fraud necessitates a combination of auditing, computer crime, and digital forensic investigation skills. Collaboration between a digital investigator and a fraud auditor is advocated for optimal outcomes (Honigsberg, 2020).

Furthermore, according to a report by the ACFE (2012), financial fraud globally constitutes 10% of all cases of white-collar crime. While asset misappropriation and corruption are more common crimes, corruption, in particular, has the most significant negative impact on other forms of fraud (Sumartono et al., 2020). Financial frauds, including fraud and corruption, have gained significant attention on a global scale, affecting both profit-making private sector businesses and non-profit public/governmental sectors (ACFE, 2012).

The issue of accountability for accounting manipulations is a pivotal topic in audit literature. Resolving this issue is crucial, as focusing efforts on specific areas, such as organizational hierarchy, may enhance the effectiveness of efforts to detect and prevent manipulation. It has been reported that the Securities and



Exchange Commission (SEC) of the United States has conducted investigations into multiple instances of manipulation that involved the participation of high management (Dimitrijevic et al., 2021). An investigation that was carried out with the assistance of COSO, which stands for the Committee of Sponsoring Organizations of the Tread way Commission, discovered that chief financial officers (CFOs) and managing directors were the individuals responsible for accounting fraud in 83% of the instances that were investigated in the first study and 89% of the cases that were investigated in the second study. The primary focus of improper financial reporting was on wrong asset overvaluation, incorrect expense capitalization, and inappropriate revenue recognition (in fifty percent of the cases included in the first research and sixty percent of the cases included in

the second study). The SEC investigated 294 and 347 instances of manipulation in the first and second studies, respectively (Beasley et al., 2000; Dimitrijevic et al., 2021).

Insufficient accounting controls and constant pressure on business executives to achieve seemingly unattainable performance goals and standards, whether in terms of revenue or profit, are among the causes of financial fraud. Consequently, most financial reporting fraud places greater emphasis on presenting a favorable financial outlook for the firm rather than accurately portraying the actual scenario. Additionally, many enterprise managers enter into strict performance covenants with their bankers and other capital sources, which they prefer not to breach. Operating executives often receive "perks," incentives, and bonuses based on the

company's financial performance. In several businesses, salespersons may also receive commissions and incentives if their performance is deemed adequate. These incentives can motivate employees to submit overstated sales figures to increase their commissions (Chukwu et al., 2019).

Sadaf, R., Olah, J., Popp, J., and Mate, D. (2018) study the ways in which global governance, global competitiveness, and other institutional elements have had a role in determining the number of instances of accounting fraud that have happened in a wide variety of nations. They may see forensic accounting as a critical tool for mitigating financial risks, protecting shareholder interests, and maintaining public trust in the organization's integrity and transparency. They may expect regular reporting and communication from management and internal audit regarding the results of forensic accounting investigations, key findings, and remediation actions taken to address identified deficiencies. Besides, external stakeholders may value the transparency and accountability demonstrated by organizations that prioritize forensic accounting adoption in their internal audit practices. They may view effective forensic accounting measures as essential for safeguarding the organization's reputation, minimizing regulatory scrutiny, and maintaining investor confidence. External stakeholders may have

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expectations regarding the disclosure of material financial fraud risks, incidents, and remediation efforts in the organization's financial statements, annual reports, and regulatory filings. It can be concluded that the stakeholder perceptions of forensic accounting adoption in internal audit practices are likely to be influenced by their perspectives on risk management, governance, compliance, transparency, and the perceived value-add of forensic accounting techniques in detecting and preventing financial fraud and misconduct. Effective communication, collaboration, and alignment of objectives among stakeholders are essential for successfully integrating forensic accounting into internal audit processes and fostering a culture of accountability and integrity within the organization (Alkhalaileh, R. I., Alshurafat, H., & Al-Hazaima, H., 2023).

Enny Susilowati Mardjono et al., 2024 discusses the importance of utilizing forensic accounting, internal control systems, and big data to detect and prevent fraud in audit institutions in Indonesia. It emphasizes the significance of understanding fraud risks and implementing anti-fraud measures within organizations. The Fraud Triangle theory, which outlines the components that lead individuals to commit fraud, is also highlighted. The integration of these elements aids in identifying fraudulent activities and establishing a systematic approach to mitigate them. The

document stresses the role of big data in accumulating evidence to analyze trends and detect misconduct effectively.

Objectives

The study has been conducted

- i) to visualize the impact of forensic accounting in strengthening corporate governance and creating stakeholders' trustworthiness during 2006 to 2024.
- ii) to analyze the trends of research productivity based on year, regional output, types of publications, authors' contribution, and keyword frequencies.

Methodology

This is a quantitative bibliometric analysis where the secondary data have been

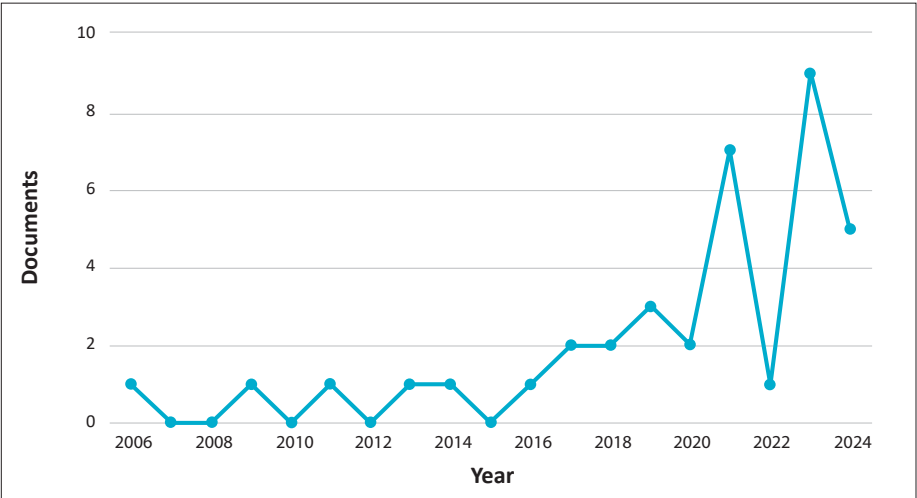
extracted from SCOPUS database accessed on July 8, 2024. Only 37 documents has been found using the search sting TITLE-ABS-KEY ("Forensic accounting" AND "Corporate governance" OR "Stakeholders"), No filtering has been made for limiting the documents rather all the 37 documents have been analyzed to attain the objectives of the research. The VOSviewer software has been used to analyze and visualize the data during the time period.

Data Analysis and Interpretation

Yearly Research Output

Figure 1 illustrates the evolution of research articles on the importance of forensic accounting practices towards creating stakeholders' trustworthiness and making efficient corporate governance

Figure 1: Number of published documents from 2017 to 2024



Source: Scopus database

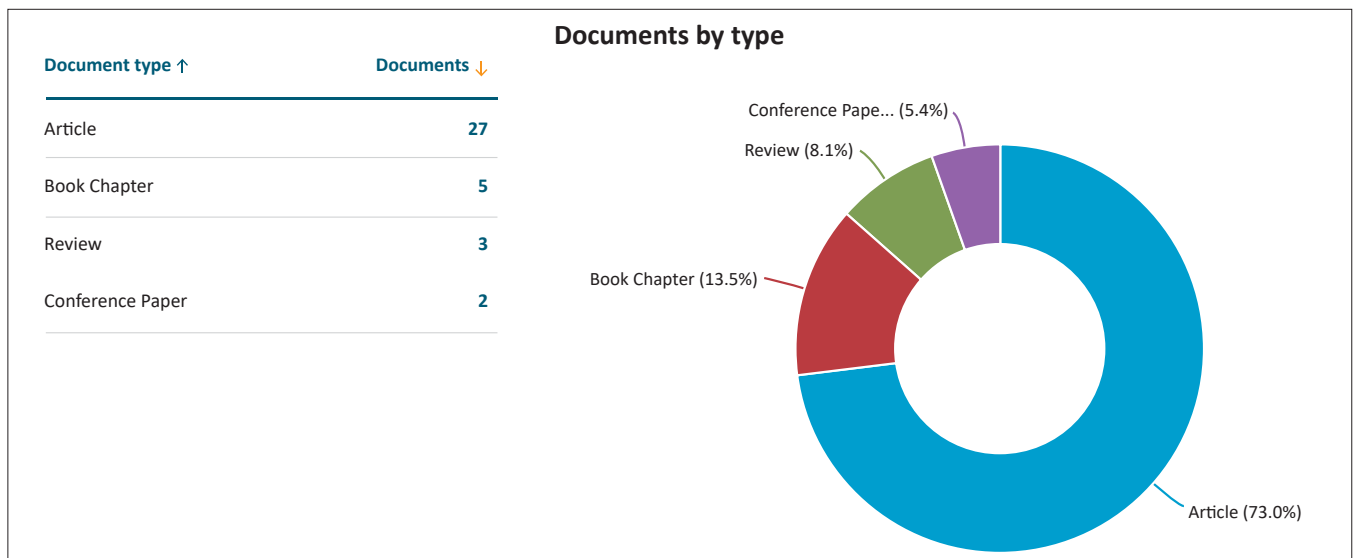
practices from 2006 to 2024. According to the data, there was only one paper published in the area in the year 2006. From 2006, a consistent upward trend persisted until 2023. However, it

was declined in the year 2024. Given the retrieval of the data on July 8, 2024, this subject is currently a crucial area of study and may see an increase in research by the end of the year.

Document by Type

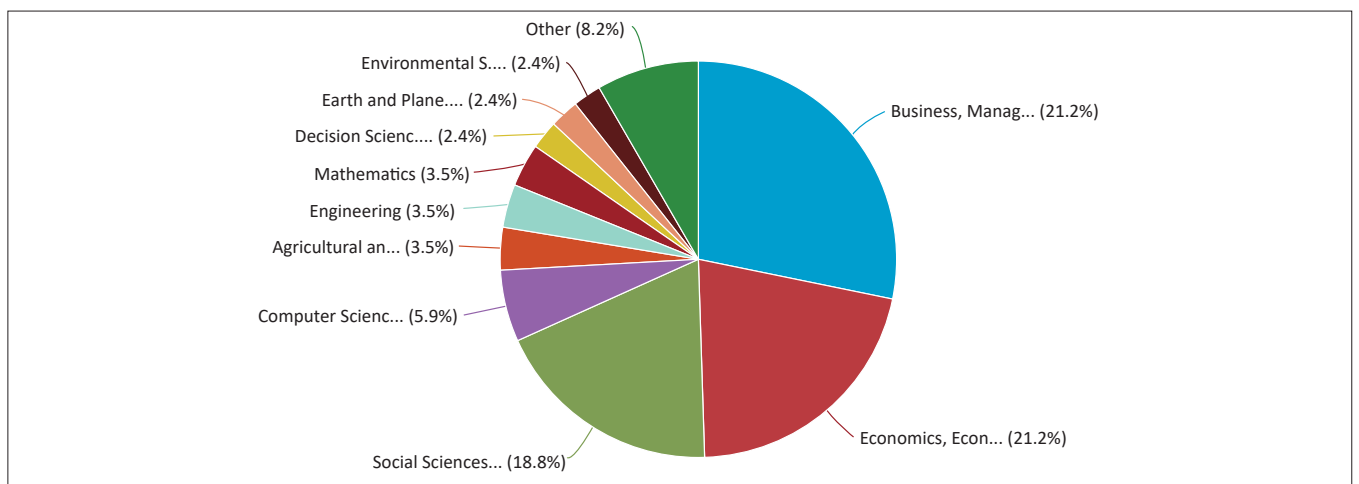
Research on the important subject falls into various areas, as shown in Figure 2. The field of research published a total of 37

Figure 2: Number of documents considering forms of publication



Source: Scopus database

Figure 3: Number of documents considering subject area



Source: Scopus database

documents during the study period. Of these, 73.0% (27) are research articles, 5.4% (2) are conference papers, 13.5% (5) are book chapters, and 8.1% (3) are review. The above information indicates a few number of research study has been conducted related to the domain. So, future research can make a significant impact on usage of forensic accounting practices in creating good corporate governance as well as increasing trust worthiness of the stakeholders. Documents by Subject Area Figure 3 represents that the highest percentage (28.2%) research in our field of study has been conducted in Business management area followed by Economics (21.2%), Social Science (18.8%), and Computer Science (5.9%); and so on this implies the paramount importance of the research on business and management.	Regional Productivity Analysis To comprehend the distribution of research production and its influence on scientific advancement, regional productivity is an essential component of bibliometric analysis. Researchers can find places with a lot of creativity and productivity by looking at things like the amount of publications, citations, and patterns of collaboration within those regions. This research aids in highlighting the contributions of various regions to the global scientific community and provides useful information for policy decisions and resource allocation, thereby enhancing our understanding of disparities and strengths. In addition, by analysing regional productivity, we can find new centres of research, encourage cross-border partnerships, and put money into underfunded fields, all of which add up to a	more equitable and diverse scientific community. Keyword Occurrences Analysis A total of 217 keywords have been found in the SCOPUS database in the search. In view of 2 times minimum appearances keywords only 20 meet the thresholds out of which Table 2 listed top fifteen keyword occurrences and their link strengths during the research period: The research used a keyword frequency analysis with words as its unit of analysis. One method in bibliometrics called "keyword analysis" looks for relationships between ideas that appear in paper titles, abstracts, or keywords. This method's main selling point is the co-word's ability to generate a field and structure. One drawback, according to Zupic and Čater (2015), is that words
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Table 4: Top-10 Country-wise publications and citations

Country	No. of Publications	Country	Citation number
United states	7	Malaysia	59
Jordan	6	United states	47
Malaysia	4	Indonesia	29
Arab open university	2	Jordan	12
Bahrain	2	Arab open university	6
Greece	2	University	6
India	2	India	3
Indonesia	2	South Africa	3
South Africa	2	Bahrain	0
University	2	Greece	0

Source :Authros' own calculation based on the VOSviewer analysis

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Table 2: Top-Fifteen keyword occurrences

Sl. No.	Keywords	Frequency	Total link strength
1	forensic accounting	20	4
2	corporate governance	10	8
3	fraud	9	3
4	fraud detection	3	13
5	governance	3	4
6	internal control	3	4
7	Accountability	2	7
8	article	2	5
9	auditing	2	30
10	corporate sustainability	2	4
11	crime	2	20
12	decision making	2	6
13	detection	2	5
14	forensic accountings	2	4
15	fraud prevention	2	2

might have several forms and interpretations. The basic premise of co-word analysis is that frequently occurring words in texts may suggest related ideas. Only co-word analysis out of all the bibliometric methods uses actual text to generate similarity metrics (He, 1999; Zupic & Čater, 2015). Co-word analysis, which involves combining titles, keywords, and entire texts, can construct a semantic map of the field and uncover the fundamental concepts that have shaped and continue to shape it (He, 1999). According to him (1999), co-word analysis is now a "powerful tool for knowledge discovery in databases" (1499). The authors of the seminal work on co-word analysis, Callon et al. (1986), stressed the significance of words and provided the theoretical groundwork for the field. In the years after Callon et al. (1986) published their findings, co-word analysis gained popularity in the US and other European nations.

Table 2 lists the top fifteen keywords and the intensity of the links to them in relation to the study domain of forensic accounting practices. Out of all these keywords, the term "forensic accounting" has been used 20 times. Additionally, the research domain's strongest co-word with the highest link strength (30) is auditing, followed by terms like corporate governance, fraud, governance, internal control and accountability.

Limitations and Future Research Directions

This study aimed to comprehensively analyze the incorporation of forensic accounting into accounting information systems. Nevertheless, it is important to acknowledge the limitations of bibliometric analysis. For example, the study exclusively used a single database, namely SCOPUS, and assessed the influence by considering only the papers included in SCOPUS.

Consequently, this procedure was constrained by impact factors and did not encompass all scientific publications (Zupic & Čater, 2015). In terms of sample uniformity, the research included peer-reviewed publications, books, relevant articles, conference proceedings, and reports. Researchers established a minimal threshold level for cluster construction due to the area's novelty and emergence. However, the bibliometric study has a shortcoming in that it may have omitted some potentially relevant articles. Furthermore, it exclusively takes into account published materials only. Researchers can undertake further investigation to reduce the aforementioned constraints.

Conclusion

Forensic accounting is crucial for enhancing stakeholders' credibility by offering a dependable method of guaranteeing financial precision and honesty within a company.

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Forensic accounting ensures the detection and prevention of fraud and unethical actions by thoroughly examining and analyzing financial records for any inconsistencies. This kind of meticulous examination provides stakeholders, such as investors, employees, customers, and regulators, with confidence that the organization's financial statements are precise and easily understood. By identifying and resolving financial anomalies, forensic accounting demonstrates a company's commitment to ethical behavior and robust internal controls. As a result, stakeholders develop trust and support for the company's management and financial well-being, which are essential for preserving their confidence. Forensic accounting techniques provide increased credibility

and transparency, which safeguard the company's reputation and boost its long-term stability and performance.

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Redefining and Enhancing Financial Performance Reporting with 'IFRS 18 Presentation and Disclosures in Financial Statements'

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Abstract

IFRS 18 Presentation and Disclosure in Financial Statements, set to take effect from 1 January 2027, is going to introduce significant changes in the presentation and disclosure of financial statements. IFRS 18 supersedes IAS 1. Unchanged requirements in IAS 1 have been moved to IFRS 18 and other applicable standards (IAS 8 and IFRS 7). The standard will affect all entities applying IFRS and stakeholders in the IFRS ecosystem. Notable key changes in financial performance reporting by IFRS 18 include specific requirement in categorization and sub-totals in statement of financial performance; enhanced guidance on aggregation, disaggregation, and labeling to ensure material information is not obscured; requirement of starting cash flow statements with operating profit or loss as the starting point; removal of option for the presentation of interest and dividends paid and received in cash flow statements; and requirement of disclosure of management performance measures (MPMs) in the notes of financial statements.

IFRS 18 will improve financial performance reporting. The comparability of financial performance reporting will be enhanced due to the standardization of the format of financial performance statements through requiring categorization of items into defined groups (operating,

investing, and financing), and presentation of sub-totals of items. Transparency in reporting will be improved by the requirement of detailed disclosures of expenses by nature or function and MPMS. The consistency in financial statement presentation will be improved due to clear guidelines on aggregation, disaggregation, and labeling of information.

Besides financial performance reporting, IFRS 18 may also have a big impact on a number of other areas of businesses including modifications or changes to accounting systems, processes, and controls; changes or adjustments to current performance measures; and modifications to contractual agreements associated with financial results. Obviously, IFRS 18 is going to bring the significant changes to the entities' financial performance presentation, but still there are some issues, i.e. judgement on aggregation and disaggregation may lead to reduced comparability; judgement in classification of expenses increase variety as opposed to consistency and comparability; performance measures to increase diversity as opposed to comparability; and missing communication of management view of company's performance position and cash flow condition, for which it can be criticized/debated.

Reporting entities and regulatory bodies should be proactive for smooth transition

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and full compliance of IFRS 18. Reporting entities should conduct a comprehensive review to understand the significant changes to the financial reporting systems and processes, implement a project to execute the required upgradations & modifications for compliance, upgrade internal control framework related to financial reporting to ensure that is aligned with new requirement, arrange trainings for finance, accounting, and audit teams to familiarize them with new standard and its practical application, work closely with external auditor ahead to ensure that financial

statements meet the new requirement and potential issues (if any) are addressed early, and develop a clear communication strategy to explain the change and its impacts on stakeholders. Regulatory bodies (ICAB and FRC) should issue detailed guidelines and examples to support reporting entities in interpreting and applying IFRS 18, organize workshops and seminars for reporting entities to provide trainings on knowledge and application, and establish mechanism including periodic reviews and assessments etc. to monitor and enforce compliance with IFRS 18.

Key Changes and Requirements

Background

The International Accounting Standard Board (IASB) initiated the Primary Financial Statements Project in 2016 to address investors' concerns regarding comparability and transparency in performance reporting. The body spanned discussions from April 2016 to May 2019 to shape the project's scope which excluded discontinued operations and focused on four main areas including (i) introducing defined subtotals and categories in the statement of profit or loss, (ii) implementing requirements to enhance aggregation and disaggregation, (iii) requiring disclosures about management-defined performance measures (MPMs) in financial statement notes and (iv) Improving

Time Frame	
April 2016	: Adopted Primary Financial Statements Project
April 2016 - May 2019	: Performed Primary Discussion
December 2019	: Published Exposure Draft
December 2020 - January 2021	: Performed Consultation
March 2021 - June 2023	: Redeliberated Proposals
9 April 2024	: Issued IFRS 18



presentation of statement of cash flows through amendment of IAS 7. An Exposure Draft was published in December 2019 which proposing a new standard integrating aspects of IAS 1 with changes and moving other requirements to IAS 8 and IFRS 7. IASB reviewed feedbacks and proposals on the Exposure Draft from December 2020 to January 2021. The body redeliberated proposals from March 2021 to June 2023 and finally published IFRS 18 Presentation and Disclosure in Financial Statements on 9 April 2024.

Objectives of IFRS 18

Stakeholders have concerns regarding the structure and contents of statement of financial performance (income statement) which vary widely across companies. Existing standard allows flexibility in

presentation which results in a diversity of measures being presented by companies. A study of Mazars, conducted on 32 companies of Euro Stoxx 50 Index in August 2016, revealed that all companies reported EBIT as a subtotal in the statement of profit or loss, however, their subtotal labelling and conclusion were inconsistent. In calculating EBIT, 35% of companies incorporated the share of profit or loss from investments accounted using equity method, whereas 65% do not include this. EBITDA was reported by 46% of companies while 12% of these presented it as a subtotal in their statement of profit and loss. A study conducted by IASB on 100 companies revealed that over 60 of these reported operating profit figures using at least nine different calculation methods (IFRS, 2024). According to a study of CFA Institute, a

majority of respondents (55%) expects to define key subtotals i.e. operating profit, EBIT, and EBITDA by standard-setters.

Shareholders have also worry that which MPMs are valuable as under existing standard companies often do not sufficiently explain how these are calculated and why these are used. Now, entities disclose the MPMs outside the financial statements i.e. press releases, strategic reports, management discussion & analysis, etc. which are defined differently i.e. EBITDA, adjusted profit, profit excluding non-recurring items, etc. According to Choi (2015), non-GAAP performance measures (so called alternative performance measures or MPMs) reporting mitigates information asymmetry between the management and outside users. Investors often rely on non-GAAP to evaluate companies considering that these metrics provide a better insight on the performance trends (Frederickson and Miller, 2004). However, investors can be misled if these are properly reconciled or explained. Reporting entities require to enhance transparency in the disclosure of non-GAAP measures including reconciliation to GAAP measures and clear explanation of adjustments (Barrack, 2024).

Stakeholders do not receive sufficient detailed information and adequate grouping or disaggregation in financial

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statements and this raises their concerns that financial statements can obscure crucial information. Providing detailed information in the financial statements enhances transparency and facilitates to users’ better decision making. Effective grouping simplifies complex information while retaining essential details (Bonner, Clor-Proell and Koonce, 2014). Conversely, excessive aggregation can obscure material information and distort analysis. Appropriately structured financial statements balance between too much detail and insufficient granularity (Bui, Chen, Chen and Lin, 2023).

IFRS 18 is going to address the above-mentioned issues. The objective of IFRS 18 is to improve financial reporting by:

- o Prescribing a defined structure to the statement of financial performance,
- o Requiring disclosures regarding MPMs,
- o Establishing enhanced principles for grouping (aggregation and disaggregation) of information to both - primary financial statements¹ and notes to financial statements.

IASB claimed that IFRS 18 will improve the companies’ financial performance reporting. IFRS 18 is expected to improve the quality of information provided and empower investors to make more informed decisions. This improvement is anticipated to foster market confidence and lead more efficient and resilient capital markets.

¹ IFRS 18 introduces the concept of ‘primary financial statements’. It defines distinct roles for the primary financial statements and the notes. The primary financial statements serve as a useful structured summary of assets, liabilities, equity, income, expenses, and cash flows while the notes are to provide additional material information.

Objective of IFRS 18

- Improve financial reporting by -
- Establishing a defined structure to the statement of financial performance
 - Mandating disclosures regarding MPMs
 - Establishing enhanced principles for grouping (aggregation and disaggregation) of information.

Summary of Changes

While IFRS 18 introduces significant changes to financial statements presentation, all aspects of IAS 1 are not being revised. Unchanged requirements are mainly brought forwarded to IFRS 18. Some requirements have been incorporated into IAS 8 and IFRS 7. Tables of concordance with IAS 1 and other accounting standards (IFRS 18, IAS 8, and IFRS 7) are provided in **Appendix 01, Appendix 02, and Appendix 03.**

Topics brought forwarded into IFRS 18 without significant changes include - (i) Definitions (Paragraph 7-8), (ii) Complete set of financial statements (Paragraph 10-14), (iii) Materiality and aggregation (Paragraph 29 and 31), (iv) Offsetting (Paragraph 32-35),



(v) Frequency of reporting (Paragraph 36-37), (vi) Comparative information (Paragraph 38, 38A, 38B, 38C, and 38D, 40A, 40B, 40C, 40D, 41, 42, 43, and 44), (vii) Consistency of presentation (Paragraph 45-46), (viii) Structure and content (Paragraph 47), (ix) Identification of the financial statements (Paragraph 49, 50, 51, 52, and 53), (x) Statement of financial position (Paragraph 54-80), (xi) Statement of profit or loss and other comprehensive income² (Paragraph 81A, 81B, 82A, 85A, 85B, and 88-105), (xii)

Statement of changes in equity (Paragraph 106-110), (xiii) Statement of cash flows (Paragraph 111), and (xiv) Notes (Paragraph 112, 112, 113, 114, 116, 134, 135, 136, 137, and 138).

Topics that have been incorporated into IAS 8 rather than IFRS 18 include – (i) Fair Presentation and Compliance with IFRSs (Paragraph 15-24), (ii) Going Concern (Paragraph 25-26), (iii) Accrual basis of accounting (Paragraph 27-28), (iv) Disclosure of accounting policy information (Paragraph 117-117E), (v) Disclosure along with material accounting policy

information or other notes, the judgements, apart from those involving estimations (Paragraph 122 - 124), and (vi) Sources of estimation uncertainty (Paragraph 125 - 133). Topics that have been incorporated into IFRS 7 instead of IFRS 18 include – (i) Disclosure if an entity reclassified as a puttable financial instrument classified as an equity instrument and an instrument that imposes on the entity an obligation to deliver to another party a pro rata share of the net assets of the entity only on liquidation and is classified as an equity instrument (Paragraph 80A), and (ii) Disclosure for puttable financial instruments classified as equity instruments (Paragraph 136A). Superseding IFRS 18 to IAS 1 has resulted in certain consequential amendments to IAS 7.

Summary of Important Changes

IFRS 18 is going to bring several key changes in financial performance reporting compared to IAS 1. The following table summarizes the key changes to be confronted during financial statements preparation.

² Statement of profit or loss' has been renamed as 'Statement of Financial Performance'. This change reflects a broader view that the statement encompasses not just profit or loss but also other aspects of financial performance that may be relevant to stakeholders. It provides a more comprehensive overview of how a business has performed financially over a period including revenues, expenses, gains, and losses.

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Table A: Key Changes in Financial Reporting (IAS 1 vs. IFRS 18)

Aspect	IAS 1 (Current Standard)	IFRS 18 (Upcoming Standard)
Statement of financial performance		
Categorization and sub-totals in statement of financial performance	There is no specific requirement of classifying incomes and expenses into classes and categories. There are limited requirements regarding line items and sub-totals.	Specific requirement of categorization and sub-totals. - o Requirement of categorization of incomes and expenses into operating [residual category if incomes and expenses are not classified into other categories], investing [incomes and expenses related to - (i) assets that generate a return individually and largely independently of the entity's other resources i.e. interest income, return on other financial assets, (ii) investment in subsidiaries, associates, and joint ventures, and (iii) cash and cash equivalents], financing [incomes and expenses related to - (i) changes in the carrying amount of liabilities that arise from transactions involving only the rising of finance i.e. interest expense, (ii) certain other items of interest income and expense i.e. interest income arising from the unwinding of the discount of an asset retirement obligation in the scope of IAS 37], income tax [tax expense and income arising from the application of IAS 12 Income Taxes], and discontinued operations types [Incomes and expenses from discontinued operations arising from the application of IFRS 5 Non-current Assets held for Sale and Discontinued Operations]³. - o Requirement of two defined sub-totals: operating profit or loss (sub-total of all incomes and expenses classified under operating category) and profit or loss before financing and income tax (sub-total of operating profit or loss and all incomes and expenses classified under investing category).

³ The classification of incomes and expenses will not be identical for all entities because IFRS 18 requires entities to assess 'main business activities' in classifying expenses. For instance, Entity M, a manufacturer, with excess cash invested in publicly traded equity instruments should categorize income from equity instruments under investing category as investing in such asset is not its core business activities, whereas Entity N, an investment bank with excess cash invested in publicly traded equity instruments should categorize income from equity instruments under operating category as investing in such asset is its core business activities.

Aspect	IAS 1 (Current Standard)	IFRS 18 (Upcoming Standard)
Aggregation & disaggregation	General guidance on aggregation & disaggregation of items.	- Foreign exchange differences must be classified according to the related incomes/expenses category unless it causes undue effort or cost. Enhanced guidance on aggregation and disaggregation to ensure material information is not obscured. - Clear guidance on whether information should be included in the primary financial statements or notes. - Requirement to identify incomes and expenses that arise from individual transactions or other events, and classify them into groups based on shared characteristics. - Stricter guidance on presenting operating expenses by nature or by function and disclosure of specific expenses. There should be a disclosure for the expenses classified by nature for certain amounts (depreciation, amortization, employee benefits, impairment and write-downs of inventories).
Labeling	General guidance on labeling.	Enhanced guidance on labeling. - Requirement to use 'other' label only if a more informative label is not found. - For an aggregation of varied material items, requirement to use of a label that is as precise as possible about the type of item the 'other' amount is i.e. 'other operating expenses', 'other finance expenses' etc. - For aggregation of varied materials items, requirement to consider whether the aggregated amount is large enough that financial statements' users might question what is included under here. If so, further information about what amount is material is required to provide.
Statement of financial position		
Aggregation & disaggregation	General guidance on aggregation & disaggregation of items.	Enhanced guidance on aggregation and disaggregation to ensure material information is not obscured.

Redefining and Enhancing Financial Performance Reporting with 'IFRS 18 Presentation and Disclosures in Financial Statements'

Aspect	IAS 1 (Current Standard)	IFRS 18 (Upcoming Standard)
		- o Clear guidance on whether information should be included in the primary financial statements or notes. - o Requirement to classify identified assets, liabilities, and equity into groups based on shared characteristics. Items should be disaggregated if the resulting disaggregation is material.
Statement of cash flows		
Starting point under Indirect Method	Accounting policy choice and guided by IAS 7. Operating profit or loss is not specifically required as the starting point.	Requires operating profit or loss as the starting point.
Classifying interest and dividend cash flow	Accounting policy choice and guided by IAS 7. There is an option for the presentation of interest and dividends paid and received.	Removal of option for the presentation of interest and dividends paid and received. The classification of interest and dividends cash flows will be based on the main business activities of the reporting entities.
Notes to the financial statements		
Management-defined Performance Measures (MPMs)	No specific guidance.	Disclosure requirement of MPMs in the notes of financial statements including – - o A description of why MPMs provide management's view of entity's financial performance - o A description of how MPMs have been calculated - o A description of how MPMs provide useful information about an entity's financial performance - o A reconciliation of MPMs to the most to the most comparable IFRS measures - o A statement that MPMs provide management's view of an aspect of the entity's financial performance - o The effect of tax and non-controlling interests separately for each of the differences between MPMs to the most to the most comparable IFRS measures.



Effective Date

IFRS 18 is effective retrospectively for reporting periods beginning on or after 1 January 2027. Early adoption is permitted starting from the release date of 1 April 2024, and must be disclosed in the notes.

If a reporting entity applies IAS 34 Interim Financial Statements in preparing the condensed interim financial statements in the year of first-time application of the standard, it will require to present headings and subtotals expected to be used in applying IFRS 18 during annual reporting.

Effective Date

- IFRS 18 is effective from 1 January 2027 retrospectively, with early adoption permitted.

Also, reporting entity will require to disclose reconciliations for each line item presented in the statement of financial performance for the comparative periods immediately preceding the current and cumulative current periods.

Impact of IFRS 18 on Financial Performance Reporting

IFRS 18 is poised to bring significant improvements to performance reporting by entities. According to Andreas Barckow, the chairman of IASB, IFRS 18 represents the most significant change to companies' presentation of financial performance since IFRS Accounting Standards were introduced more than 20 years ago. Here are several key impacts of IFRS 18 on financial performance reporting:

(i) Enhanced Comparability

IFRS 18 prescribes a structure format for the presentation of statement of financial performance by requiring categorization of items into operating, investing, financing, income taxes, and discontinued operations and inclusion of two defined sub-totals (operating profit or loss, and profit or loss before financing and income tax). This standardized presentation will reduce diversity and improves comparability in financial reporting practices. Standardized presentations will improve the ability of the users to compare financial performance uniformly. The reduced diversity will make it easier to compare financial performance across different entities and industries.

(ii) Increased Transparency

IFRS 18 requires disclosure of details of expenses by nature or function and MPMS along with reconciliation to the nearest IFRS-defined subtotals. The disclosure of details of expenses by nature or function will provide a better insight of financial operations. The disclosure of MPMS along with reconciliations to the nearest IFRS-defined subtotal will ensure that stakeholders can understand and evaluate

Redefining and Enhancing Financial Performance Reporting with 'IFRS 18 Presentation and Disclosures in Financial Statements'



the metrics used to assess performance and obtain deeper insights on the financial health. Also, IFRS 18 requires additional disclosures for items categorized as 'other' in the financial statements. Reporting entities will now require to provide detailed information rather than generic labels. This will enhance the transparency of financial reporting.

(iii) Improved Consistency

IFRS 18 standardizes the presentation and disclosure of financial statements. It provides clear guidance on aggregation, disaggregation, and labeling of information. Companies will require to classify assets, liabilities, equity, incomes, and expenses based on shared characteristics and disclose MPMS in a single note of the

financial statements. Also, IFRS 18 requires starting cash flow from operating activities segment of statement of cash flows with operating profit or loss and presenting interest and dividends paid and received based on main business activities. These requirements will lead to consistency in financial reporting practices.

Impact on Businesses

In addition to having an impact on financial performance reporting, IFRS 18 may also have a big impact on a number of other areas of businesses. The impact from this change should be well understood by management and those in charge of corporate reporting. Businesses should take into account the following issues when evaluating the possible effects of IFRS 18.

(i) Modifications or changes to accounting systems, processes, and controls

The compliance to IFRS 18 may require substantial changes to accounting systems, processes, and controls. Reporting entities will need to reevaluate their charts of accounts, data mapping, and IT systems to align with the new requirements. This can be particularly challenging for entities with complex operations or operating in a number of jurisdictions. Also, small entities with few resources may find the change cost prohibitive.

(ii) Changes or adjustments to current performance measures

Currently many companies present their self-defined subtotal figures in their statement of financial performance. However, in order to comply with the newly defined subtotal requirement in IFRS 18, these may be required to be adjusted. For instance, mandatory subtotal of operating profit under IFRS 18 will necessitate companies to adjust how they calculate it.

(iii) Modifications to contractual agreements associated with financial results

Remuneration packages, bonus plans, or debt covenant tests, that

currently use self-defined subtotals (like operating profit or loss) as a starting point for evaluation, will be required to reassessed to determine their alignment with IFRS 18. Terms and conditions may be required to change depending on the details of these arrangements. In these situations, businesses must determine what has to be changed, inform the appropriate parties, and assess how the changes will affect outcomes and results in accordance with the new standard.

Still Debatable Issues

Even though IFRS 18 is going to bring the most significant changes to the entities' financial performance presentation since IFRS Accounting Standards were introduced more than 20 years ago, it is crucial to recognize some issue for which IFRS 18 can be criticized/debated. These are as follows:

(i) Judgement on aggregation and disaggregation may lead to reduced comparability

IAS 18 provides enhanced guidance on aggregation and disaggregation so that material information is not obscured. Management may need to exercise judgments to establish what items are material to key and other stakeholders in the primary financial statements and

disclosure notes. Making a judgement on what sub-totals and disclosures are material may also result in significantly different financial statements preparation by reporting entities. Over time, as reporting practices be adopted and refined by majority entities, consistency in financial statements will emerge.

(ii) Judgement in classification of expenses increase variety as opposed to consistency and comparability

Significant judgements will be required in categorizing incomes and expenses into operating, investing, and financing types. This can lead to inconsistencies and comparability issues specially for complex business models like conglomerates or entities with diverse operations. For example, a manufacturing company with a financing operating segment may find it challenging to consistently classify expenses related to financing activities both at consolidated and subsidiary levels.

(iii) Performance measures to increase diversity as opposed to comparability

While IFRS 18 aims to enhance transparency of MPMs, it does not list these. As measures aren't

standardized, different companies might use different ways to calculate and present these. Also, there is potential for companies to manipulate these for presenting a more favorable financial picture. The lack of comparability will pose challenges for investors and other users to navigate performance measures until sector practices develop.

(iv) Missing communication of management view of company's performance position and cash flow condition

IFRS 18 requires that certain MPMs be included in the financial statements with corresponding disclosures. An MPM will be subject to IFRS disclosure requirement if – (i) it is used in public communication outside financial statements, (ii) used to communicate management's view to an aspect of financial performance to users. For scoped-in MPMs, disclosure should be made with the following information in a single note of the financial statements. MPMs are only included in the disclosure requirements if these are communicated for financial performance purpose, MPMs solely be based on the statement of financial position (i.e. current ratio, quick ratio, debt ratio, etc.) or statement of cash flows (i.e. adjusted OCF) are not

Redefining and Enhancing Financial Performance Reporting with 'IFRS 18 Presentation and Disclosures in Financial Statements'

included. Financial position and cash flows-based MPMs are still ignored. But, besides how management views the company's financial performance, users have concern to how management views the company's performance position and cash flow condition.

Call to Action

Reporting entities and regulatory bodies are encouraged to start early in planning for IFRS 18 implementation effectively. The smooth transition and full compliance to IFRS 18 requires some proactive steps from reporting entities and regulatory bodies. Here's a call to action for reporting entities and regulatory bodies.

Reporting Entities

- ✓ Conduct a comprehensive review to understand the significant changes to the financial reporting systems and processes including update & modification to the chart of accounts, data mapping, and reporting software solution.
- ✓ Implement a project to execute the required upgrades & modifications for compliance.
- ✓ Upgrade internal control framework related to financial reporting to ensure that is aligned with new requirement.

- ✓ Arrange trainings for finance, accounting, and audit teams to familiarize them with new standard and its practical application.
- ✓ Work closely with external auditor ahead to ensure that financial statements meet the new requirement and potential issues (if any) are addressed early.
- ✓ Develop a clear communication strategy to explain the change and its impacts on stakeholders.

Regulatory Bodies (ICAB and Financial Reporting Council)

- ✓ Issue detailed guidelines and examples to support reporting entities in interpreting and applying IFRS 18.
- ✓ Organize workshops and seminars for reporting entities to provide trainings on knowledge and application.
- ✓ Establish mechanism including periodic reviews and assessments etc. to monitor and enforce compliance with IFRS 18.

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A Comparative Analysis of Insurance Sector in Bangladesh Growth, Potential Challenges, Proposal for Potential Solutions and Path to a Resilient Economy

Abdul Hamid FCA

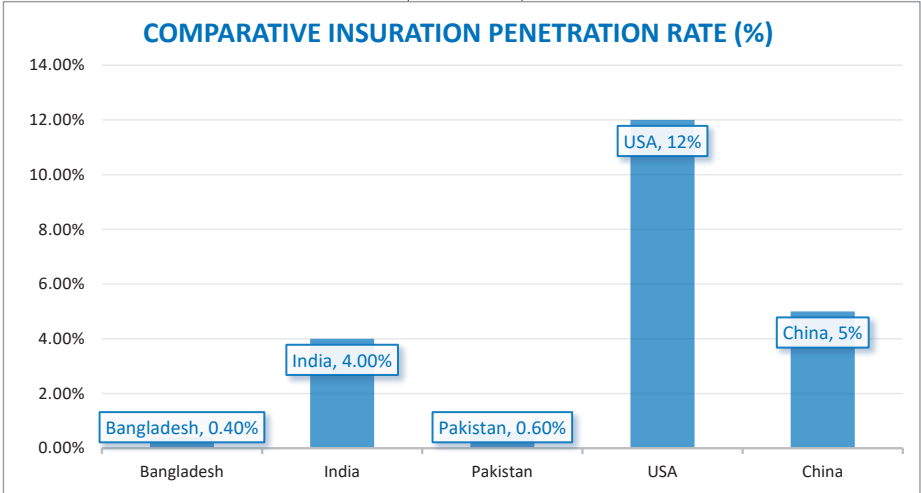


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The insurance sector in Bangladesh is growing and its economic size is gradually expanding with high competition and increasing awareness of financial protection, especially in urban areas. The industry consists of both life and non-life insurance and it plays a vital role in supporting economic growth by offering risk management tools to businesses and individuals. The insurance industry in Bangladesh has been growing steadily over the past few decades. As of recent reports, there are approximately 82 insurance companies operating in the country, which includes both life insurance and non-life insurance companies. While this number may seem high, it is important to assess this in relation to the overall size of Bangladesh's economy and its insurance penetration. The optimal number of insurance companies should align with the market size, the potential, and

the capacity of companies to provide high-quality products. While there is no precise formula, the general trend in other countries suggests that the number of insurers tends to be lower in markets with comparable economies.

At present the total number of Insurance Companies in India is only 58 (Non-life: 32 & Life: 26). During the fiscal year 2023-2024, in India, total insurance market size is \$ 2,16,700 million where the total economy of India is \$ 3.94 trillion. On the other hand, currently total number of Insurance Companies in Bangladesh is 82 (Non-life: 46 & Life: 36). As of recent reports, the total market size of the Bangladesh insurance industry (life and non-life combined) is valued at around \$ 146 million where the economy size of Bangladesh is Tk. \$ 455 billion and a population of around 170 million only. The insurance



Source: Different Website

The article was reviewed by
Sabbir Ahmed FCA

penetration rate of Bangladesh is only 0.40% which remains lowest compared to regional peers like India where the rate is 4 % percent and for Pakistan it is only 0.60 %. The insurance sector of the country, thus, remains in its infancy. In contrast, developed countries typically have a penetration rate of 5-12%.

It is so ridiculous that the number of insurance Companies in India of trillions of dollars economy is only 58, where the number of Insurance Companies in Bangladesh is 82 which has created a very unhealthy competition with bad practice of high commission among the Insurance Companies in Bangladesh.

Many insurance companies were approved based on political considerations rather than economic necessity. Political connections often superseded

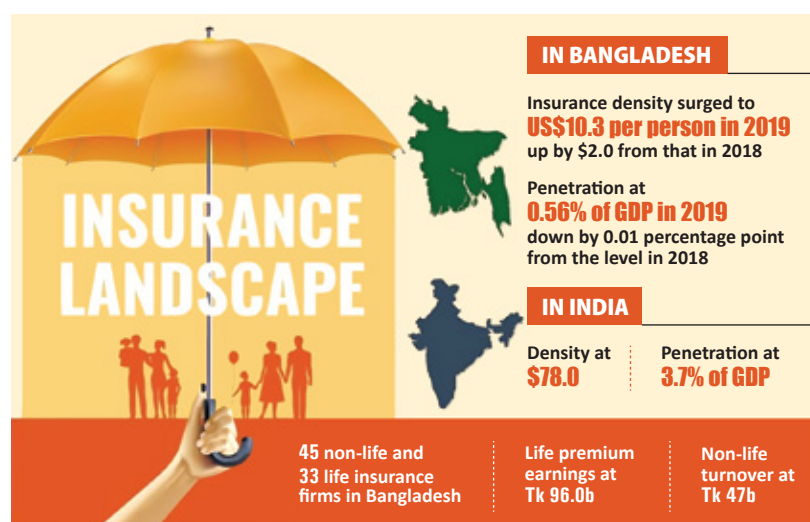
qualifications when companies were granted licenses under different political parties. More than two-thirds of the insurance companies registered in Bangladesh since 1990. However, these companies could hardly attract clients due to fragile customer confidence. In Bangladesh, 72 insurance companies have been registered since 1991, according to the Insurance Development and Regulatory Authority (IDRA). The highest number of registrations, 60, occurred under Awami League governments. No insurance companies were registered under the caretaker government, which held power from 2006-2008. During the Bangladesh Nationalist Party's 1991-1996 tenure, three life and eight non-life insurance companies were registered, according to IDRA data. The BNP-Jamaat alliance, which ruled from 2001 to 2006,

allowed only one non-life insurance company. Bangladesh has a total number of 82 Insurance Companies, compared to neighboring India's 58, Pakistan's 40 and Sri Lanka's 28.

For Bangladesh, it would likely be ideal or ought to have maximum 20-30 well-capitalized, diversified, and efficient insurance companies that are focused on world class serving the market. This would allow companies to achieve better economies of scale, invest in customer education and awareness, and create stronger consumer trust. The number of excess insurance companies in Bangladesh, when compared to the country's economy size, has been identified as a factor contributing to unhealthy competition in the insurance sector and therefore the Companies are becoming sick and dead gradually. Here are some key reasons for unhealthy competition in Bangladesh:

Overcrowding in the Market

Bangladesh has a relatively small economy compared to the number of insurance companies operating within the country. This leads to intense competition, but the market size may not be large enough to sustain such a high number of players. This overcrowding can lead to companies engaging in aggressive pricing strategies, which may hurt profitability and





undermine the financial stability of the insurers.

Price Wars

In an attempt to capture market share, insurance companies often engage in price wars, offering policies at much lower rates than their competitors in spite of tariff market. While this may attract customers in the short term, it can lead to reduced profit margins and even financial strain on the companies. Over time, this can impact the industry’s ability to provide reliable service and long-term sustainability.

Quality vs. Quantity

Excess competition can drive insurers to prioritize volume over quality. This might result in companies cutting corners in terms of customer service, claims settlement, or risk

assessment. In the long run, this erodes trust in the insurance sector and can discourage potential customers from purchasing policies.

Regulatory Challenges

The sheer number of insurance companies in Bangladesh also presents a regulatory challenge. The Bangladesh Insurance Development and Regulatory Authority (IDRA) has to oversee the activities of a large number of insurers. If regulations are not properly enforced or adapted to handle such a large industry, this can lead to inefficiencies, mismanagement, and even fraudulent practices in the industry.

Financial Stability and Risk Management:

With many companies competing for a limited pool of

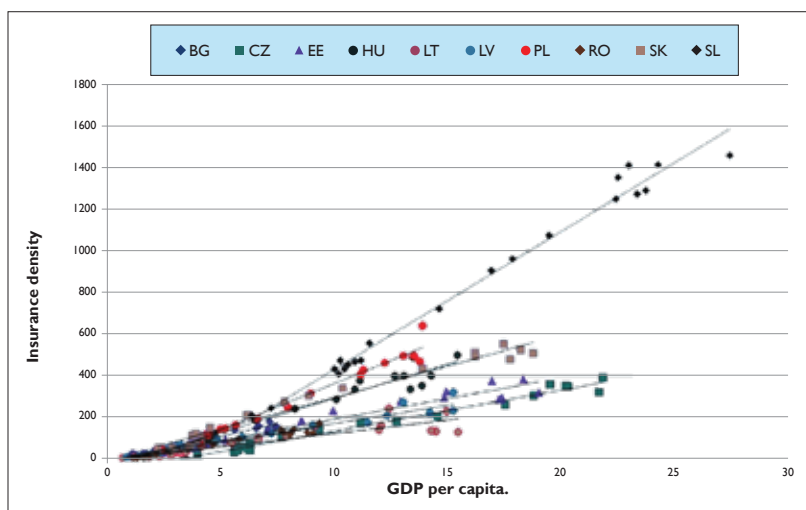
customers, insurers may engage in riskier business practices to attract business. This can lead to instability, particularly if a company takes on high-risk clients without the necessary financial backing. In the worst-case scenario, companies could face insolvency, leading to losses for policyholders and the overall economy.

Lack of Product Differentiation

When the market is saturated with too many players, companies may find it difficult to differentiate their products meaningfully. This often leads to a "race to the bottom" in terms of pricing, as insurers may struggle to distinguish themselves based on value-added services or innovative insurance products. Instead, the competition becomes largely about underpricing rivals, which ultimately benefits neither the insurers nor the consumers in the long run.

Limited Consumer Awareness

With so many options available, consumers may become confused or overwhelmed by the number of choices. This lack of awareness about the various products and their benefits can drive consumers to choose based on price alone, often without fully understanding the coverage they are getting. This can hurt the reputation of the industry and further fuel unhealthy competition.



Source: <https://www.researchgate.net>

Economic Constraints

Bangladesh's per capita income is relatively low compared to developed countries, which means the overall demand for insurance products remains limited. A smaller pool of potential customers for a large number of companies makes it challenging for businesses to operate profitably without cutting prices or taking on excessive risks.

Potential Solutions to Improve the Situation:

- **Mergers and Acquisitions:** Encouraging mergers and acquisitions can help consolidate the market, creating larger, more financially stable players.
- **Regulatory Oversight:** Strengthening regulatory measures to ensure companies adhere to fair competition standards,

adequate solvency margins, and ethical business practices.

- **Market Education:** Increasing consumer awareness through education campaigns to help them understand the value of insurance beyond just price.

Product Innovation:

Fostering innovation in insurance products and services, so that companies can differentiate themselves based on value rather than competing purely on price. No vehicle of this world run without motor insurance except Bangladesh. It was stopped during the regime of Bangladesh Awami League. Immediate reinforcement of the motor insurance is required for survival of the sector. Household property and high-rise building of city corporations and district towns may be covered by the insurance.

In summary, while competition is important for the development of any market, the excess number of insurance companies in Bangladesh relative to its economic size can lead to unhealthy competition,

Bangladesh General Insurance - Gross written premiums (BDT billion) and annual growth, 2018 - 2027f



GlobalData.

Source: GlobalData Insurance Intelligence Center | Note: e: estimated; f: forecast

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price wars, lower quality of services and bad reputation in the society. Therefore, the employees of the Insurance Sector in Bangladesh are neglected everywhere. It is important for regulatory authorities, industry stakeholders, and companies themselves to address these issues in order to foster a more sustainable and consumer-friendly insurance sector.

Other Difficulties & Challenges in Insurance business in Bangladesh

The insurance industry in Bangladesh faces several

challenges that hinder its growth and efficiency. These difficulties stem from both structural issues within the industry and broader socio-economic and cultural factors. Here are some of the key challenges:

Low Insurance Penetration

- **Cultural and Social Factors:** Insurance penetration in Bangladesh is among the lowest in the world, with a significant portion of the population having little or no understanding of insurance products. There is often a cultural aversion to buying insurance, especially

life insurance, due to a lack of awareness and understanding.

- **Trust Issues:** Many people view insurance as a luxury or a gamble, and there is skepticism about whether they will ever benefit from it. This is compounded by past instances of financial scandals within the insurance industry, which have eroded public trust.

Limited Awareness and Education

- **Lack of Awareness:** A large section of the population remains unaware of the

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BARRIERS IN BANGLADESH



various types of insurance products available, their benefits, and how they work. Even among the educated and affluent, many have limited knowledge about the nuances of different policies.

- **Absence of Financial Literacy:** Many people lack basic financial literacy, which makes it difficult for them to understand complex insurance terms, policies and the long-term benefits of insurance. The concept of risk management and financial planning is not widely ingrained.

Regulatory and Compliance Challenges

- **Weak Enforcement of Regulations:** While the insurance sector is regulated by the Insurance Development and Regulatory Authority

(IDRA), enforcement of regulations can be inconsistent. Some insurance companies fail to meet regulatory requirements, which undermines the stability and credibility of the industry.

- **Corruption and Mismanagement:** There have been instances of corruption and mismanagement in some insurance companies, which lead to inefficiencies and lack of investor confidence. Some insurers have faced difficulties in paying claims or maintaining solvency.
- **Outdated Legal Framework:** The insurance laws and regulations in Bangladesh are sometimes outdated and do not align well with international standards. This limits the ability of companies to innovate and offer competitive products.

Poor Customer Service and Claims Processing

- **Inefficient Claims Settlement:** One of the major concerns for policyholders is the often slow and bureaucratic claims settlement process. Delays in claim approvals and insufficient customer service can lead to frustration and reduced trust in the system.
- **Lack of Transparency:** Some companies may not fully explain policy terms or claims procedures, which can lead to dissatisfaction and a lack of clarity for customers when they need to make a claim

Limited Product Diversification

- **Standardized Products:** The insurance products offered in Bangladesh are often quite basic and lack the customization or diversification seen in more developed markets. There is limited innovation in terms of product offerings, and insurers tend to focus on traditional life, health, and motor insurance, with fewer options for things like critical illness, travel insurance, or pension plans.
- **Limited Micro insurance Options:** There is a significant opportunity to offer micro insurance (low-cost, small coverage policies), but this segment

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remains underdeveloped. A large portion of the population still lives in rural areas and is engaged in low-income work, and thus is underserved by existing insurance products. Health Insurance as a Product: Health Insurance is one of the most popular insurance products all over the world; but this product is highly neglected in our country. High Competition and Low Profitability Fragmented Market: The market is fragmented with many players, which intensifies competition. As a result, some insurance companies struggle to	maintain profitability, especially as they compete on pricing rather than service or innovative products. Pressure on Premium Rates: To remain competitive, some insurers lower premium rates, which can result in insufficient coverage and financial instability. Additionally, price wars may lead to unsustainable practices, with companies offering policies at a loss to capture market share. Insufficient Distribution Channels Limited Reach in Rural Areas: While the insurance	market is concentrated in urban areas, rural Bangladesh remains largely untapped. Many people in rural areas have limited access to insurance agents or brokers who can explain policies and sell insurance products. Dependence on Agents: Insurers in Bangladesh are heavily dependent on agents for distributing products, but the agent network is often not well-trained or equipped to handle the complex needs of modern insurance customers. The lack of digital platforms for selling and servicing policies limits the industry's reach.
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Inadequate Risk Management and Data Analytics

- **Weak Risk Assessment Models:** Many insurers in Bangladesh do not have advanced risk assessment tools or actuarial models, which can lead to underpricing of policies or an inability to properly manage claims. This can negatively affect the financial stability of insurance companies.
- **Lack of Big Data analysis:** The insurance industry in Bangladesh has not fully embraced data analytics, machine learning, or artificial intelligence to predict risks, set prices, or improve customer experience. This makes it harder to operate efficiently

and manage large volumes of data in a structured way.

Natural Disasters and Climate Risks

- **Vulnerability to Natural Disasters:** Bangladesh is highly susceptible to natural disasters like cyclones, floods, and earthquakes. While the country's insurance industry has made some efforts to address these risks, there is still a significant gap in terms of coverage for natural calamities. This leaves many businesses and individuals without adequate protection in the event of large-scale disasters.
- **Underdeveloped Catastrophe Insurance Market:** There is a lack of

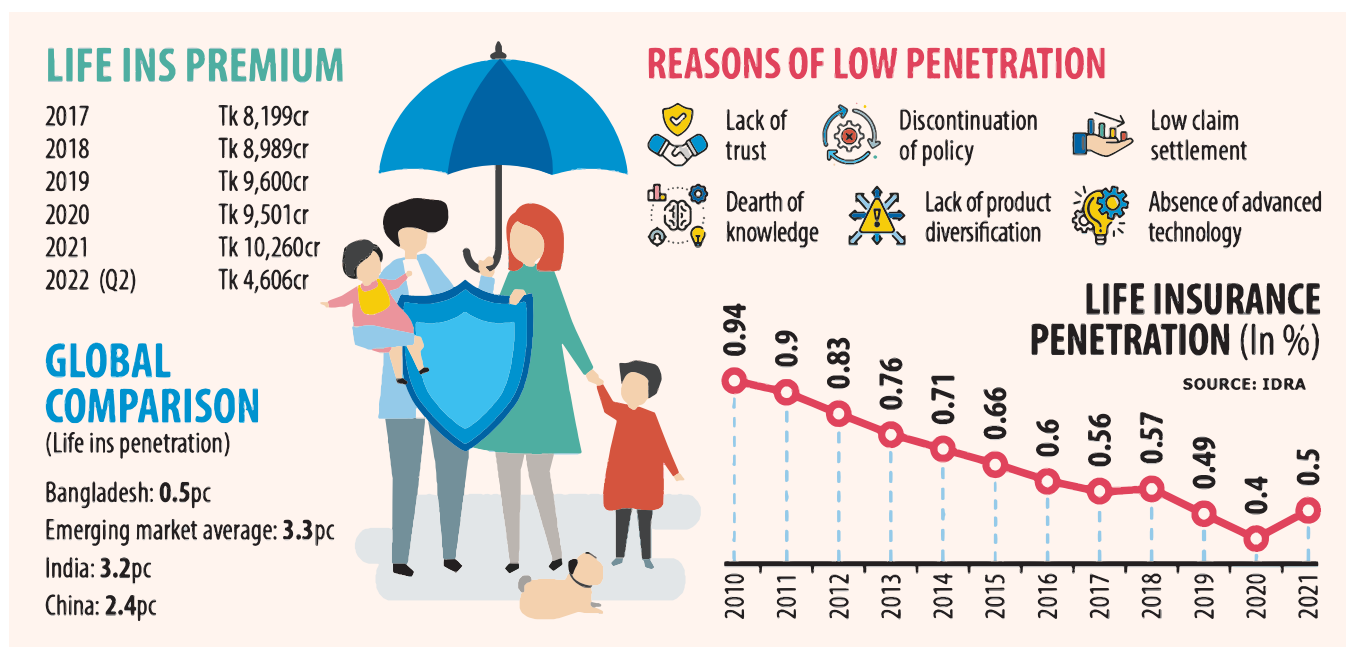
sufficient products to cover the wide-ranging effects of natural disasters, particularly in the context of climate change. Catastrophe insurance is not widely available, and the premiums for such policies may be prohibitively expensive for the average citizen or small business.

Economic Instability

- **Inflation and Currency Devaluation:** Bangladesh's economy, like many others, is subject to inflation and currency fluctuations, which can affect the cost of insurance premiums and claims payments. This instability can make it difficult for insurers to price products effectively and maintain profitability.

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- **Low Disposable Income:** With a significant portion of the population living below the poverty line or in lower-middle-class brackets, many people find it hard to afford insurance premiums. This results in a limited customer base for insurance companies, especially for life and health insurance products.

Limited Foreign Investment

- **Inhibiting Growth:** The insurance market in Bangladesh remains largely closed to foreign investment due to regulatory restrictions and the preference for local ownership. This limits the ability of the industry to

benefit from foreign expertise, technology, and capital, which could drive innovation and efficiency in the sector. However, Metlife Alico and LIC as foreign companies are doing well.

- **Bad Practice of excess commission:** It is the most alarming problem in insurance sector of Bangladesh for last 2 (two) decades which creates an unhealthy competition among the Companies. Regularity rate of commission for non-life Insurance is 15% on tariff value of premium. But sometimes it goes up to 60% and then it becomes difficult to survive for the non-life Companies with

40-45% excess expenditure. It is surprising how they can prepare their financial statement with 40%-45% excess expenditure. It is a big question now – how the Audit Firms are issuing “clean” Audit report to the Insurance Companies.

Pragmatic & Potential Solutions to Improve the Situation:

Recommendations for growth and transparency and control of bad practice of excess commission of the insurance sector in Bangladesh:

Guaranteed Premium Scheme (GAPS) may be an effective tool for eliminating the unhealthy competition in the Insurance



sector particularly in non-life sector. Details of the procedure are as follows:

- **Separate Bank account for expenditure to control the bad practice of excess commission:** Currently in the prevalent system all expenses other than claim, Re-Insurance and dividend are disbursed through a single bank account which creates ambiguity to mix up regular salary and dummy salary. Hence, 3 (three) more accounts can be opened i. One account only for salary disbursement 2. One account for disbursement of Agent commission 3. One account for management expenses purposes. Thus by maintaining these 3 (three) distinctive accounts, practice of excess commission can be controlled to a large extent. Similarly dedicated

Re-Insurance & Claims account can be operated.

- Guaranteed Average Premium Scheme (GAPS) is a program typically associated with insurance policies, particularly in the context of long-term care, health insurance, or annuity contracts. It is designed to stabilize premiums over time, providing policyholders with a predictable and consistent premium payment schedule. The practice of commission-based selling, especially in industries like insurance, can lead to various undesirable outcomes, including mis-selling, conflict of interest, and poor customer outcomes. One way to control or mitigate such practices is through the introduction of Guaranteed Premium Schemes, which can help ensure more

transparent and ethical sales practices. Here's how this can work and its role in controlling bad practices: A Guaranteed Premium Scheme is a method where the premium paid by the policyholder remains fixed for a predetermined period. It is typically designed to attract customers with the certainty of stable premiums without unexpected increases in cost. This contrasts with regular commission-based structures where agents may encourage customers to opt for more expensive or inappropriate policies for their own financial gain.

By implementing Guaranteed Premium Schemes (GAPS), insurance providers can reduce the influence of high commissions that encourage bad practices. When agents are not incentivized to sell the most expensive plans, they are more likely to act in the best interests of the customer. Additionally, regulatory frameworks, clear disclosures, and performance-based rewards will further ensure that the practice is ethical and focused on long-term customer satisfaction rather than short-term profit maximization.

By applying this scheme premium of at least 5 (five) recent consecutive years of a particular Company can be brought in to an average considering 3 (three) years

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premium accounts as mentioned above. Every year excess and shortage of average premium income may be transferred to/from the common account as maintained by Bangladesh Insurance Association (BIA). The entire scheme will be conducted with a single account of BIA. The Guaranteed Average Premium Scheme (GAPS) has to be signed in stamp paper by all the CEO of Insurance sector & the competent authority of coming to an agreement that if the average amount is higher then the Company will pay the excess/surplus amount premium to BIA or in respect of lower average BIA will pay the shortage amount to the particular Company. Thus the unhealthy competition of commission may be reduced. For example, if the average guaranteed premium amount of 5 years is 100 crore and the

current year business is 110 crore then the excess amount of Tk. 10 crore less 15% agent commission has to be paid to the account of BIA and on the other hand if the current year business is Tk. 90 crore then the shortage amount of Tk. 10 crore has to be paid to the account of that particular Company. Re-insurance transfer premium to BIA will be borne by the parent Company. Apart from this, every year there may be 5-10% growth rate on the deposited amount in BIA and based on this amount a Re-Insurance Company may be formed with the ownership of all Insurance Companies in Bangladesh,

Although the scheme apparently seems very effective, nevertheless, to implement it practically ground works are to be conducted holistically. Only combined/holistic effort of the authority of the Companies and

BIA can make it possible. Initially skilled teams from the Insurance Companies have to be formed to visit all the Companies whether the companies are maintaining the Guaranteed Premium Scheme and the distinctive/dedicated accounts for salary, expenses and other purposes. Apart from this team every company has to be audited on regular basis regarding this matter.

If the scheme can be implemented in this way then a very resilience culture will prevail among the Insurance Companies. Unhealthy competition of excess commission will be stopped and controlled and the rate of commission will never go beyond 15%. Under this scheme, no Insurance Company can offer 15% higher commission since the Company has guaranteed premium income and craziness for procurement of business will be eliminated.

The Guaranteed Premium Scheme helps control bad practices related to commission in some other ways:

- **Eliminating Incentives for Over-selling:** In a commission-driven model, agents earn a percentage of the premiums paid by customers, creating a financial incentive to sell higher-premium plans, even if they are not in the best interest of the customer. A Guaranteed Premium

Scheme can reduce this incentive because the agent is not rewarded disproportionately for higher premiums, but rather for more suitable or long-term plans. • Reducing Mis-Selling Risk: Because the agent is not as motivated by high commissions, they may be more likely to prioritize the customer's needs and provide honest advice about the most appropriate insurance product, leading to a reduction in mis-selling and providing customers with products they actually need. • Long-Term Customer Focus: Under a Guaranteed Premium Scheme, the focus shifts from short-term commission gains to ensuring that the customer is satisfied with a long-term policy that has stable and predictable premiums. Agents are incentivized to	build long-term relationships with clients, which encourages ethical sales practices. • Fixed, Transparent Costs: A guaranteed premium reduces the likelihood of unexpected cost increases, which can be a point of contention when agents sell products that later lead to complaints. Customers can feel more secure when they know their premiums won't suddenly rise, leading to higher customer satisfaction and fewer complaints about. ➤ Increasing Awareness and Education: Public awareness campaigns and financial literacy programs can play a significant role in promoting insurance. ➤ Regulatory Reforms: Stronger enforcement of regulations and the adoption of modern laws can help restore public	confidence and improve industry standards. ➤ Innovation in Products and Services: Insurers need to diversify and innovate their product offerings, including micro insurance and digital platforms for easier access. ➤ Improved Claims Processing: Streamlining claims processes and improving customer service can enhance customer satisfaction and trust. ➤ Focus on Rural Markets: Expanding distribution networks, especially through mobile and digital channels, can help insurers tap into the rural market. Ultimately, the industry will need to create a balance between trust, accessibility, affordability, and innovation to overcome the challenges and unlock its full potential in Bangladesh.
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Customer's Webrooming Behavior in Consumer Electronics Industry of Bangladesh

Determining Purchase Offline Factors

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Abstract

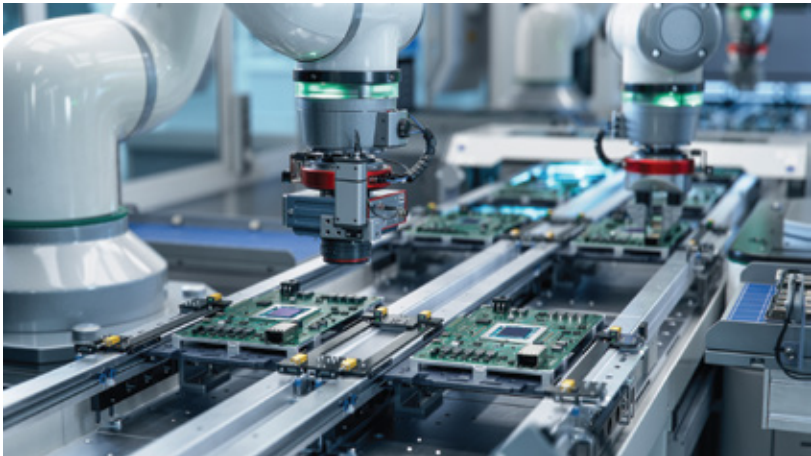
This research delves into the factors influencing webrooming behaviors leading to offline purchases within the consumer electronics industry of Bangladesh, with a specific focus on large home appliances. The study extends across the Dhaka, Chattogram, and Rajshahi divisions, involving a sample size of 385 participants. Using a comprehensive set of factors comprising 8 independent variables, it examines one (Purchase Offline) of two critical aspects: 'Search Online' and 'Purchase Offline.' Employing techniques such as Cronbach's alpha reliability analysis, frequency, correlation, and regression analysis, the study unveils positive impacts of these factors on webrooming behaviors. The outcomes revealed that eight factors of webrooming is positively correlated to 'Purchase Offline' [Complex Buying Behavior ($r = 0.511$, $p < 0.001$), Sensory Experience ($r = 0.528$, $p < 0.001$), Instant Gratification ($r = 0.411$, $p < 0.001$), Personalized Assistance ($r = 0.399$, $p < 0.001$), Social Experience ($r = 0.313$, $p < 0.001$), Avoiding Online Hassles ($r = 0.365$, $p < 0.001$), Difficulty in Re-solving Issues ($r = 0.425$, $p < 0.001$), and Trustworthiness of Sellers ($r = 0.466$, $p < 0.001$)]. All hypotheses are accepted. The research concludes by delineating its limitations, suggesting directions for future investigation, and offering recommendations.

Keywords

Consumer Electronics Industry, Omnichannel Marketing, Webrooming, Purchase Offline.

Introduction

In the dynamic landscape of consumer behavior, the interaction between online and offline shopping has garnered significant attention from businesses, researchers, and policymakers, particularly concerning the development of a smart Bangladesh. The onset of the digital era has catalyzed a shift in how consumers approach their purchasing decisions, notably in the consumer electronics sector (Gupta, Su, & Walter, 2004). Webrooming, where customers utilize online platforms for research and decision-making regarding large home appliances before finalizing their purchase offline, exemplifies this evolving trend (Halibas, Nguyen, Akbari, Akram, & Hoang, 2023). While showcasing the dynamic nature of consumer decision-making, webrooming also presents a myriad of challenges and opportunities for businesses (Nordin & Ravald, 2023). This trend underscores the imperative for online retailers to optimize their strategies, offering compelling incentives and services to encourage customers to complete their purchases online following their research. Failure to adapt to this evolving consumer behavior may jeopardize the sustained growth and profitability of online



marketplaces (Baumöl, Hollebeek, & Jung, 2016). Moreover, understanding consumer preferences through webrooming behaviors provides invaluable insights for strategic decision-making, competitive advantage, operational optimization, and innovation within the consumer electronics industry. This comprehension empowers retailers to navigate shifting market dynamics, fostering growth, and ensuring long-term viability in a fiercely competitive landscape. Thus, comprehending the factors driving webrooming behaviors in Bangladesh's consumer electronics industry is essential for informed decision-making and sustainable business practices.

Rationale of the Research

This study is poised to offer invaluable insights into contemporary consumer behavior, shedding light on the trend of leveraging online

information prior to offline purchases. Such findings will present a significant opportunity for both local and global brands operating in Bangladesh to refine and adapt their strategies within the competitive webrooming landscape. Bangladeshi firms seeking to integrate insights from webrooming into their operational strategies stand to gain a competitive advantage, particularly in catering to the discerning and technologically savvy customer base. By incorporating webrooming behaviors into omnichannel marketing strategies, inventory management, and sales approaches, companies can effectively bridge the gap between online and offline channels, particularly within the consumer electronics market. This integration not only enhances business efficiency but also aligns with the overarching objectives of advancing towards a Smart Bangladesh.

Goal and Objectives

The main goal of this study is to determine the factors of searching online that trigger webrooming behaviors. Specifically the following eight objectives are taken to achieve the main goal:

- 1. To find out the impact of Complex Buying Behavior (CBB) on Purchase Offline (PO).
- 2. To determine the impact of Sensory Experience (SE) on Purchase Offline (PO).
- 3. To destine the impact of Instant Gratification (IG) on Purchase Offline (PO).
- 4. To elucidate the impact of Personalized Assistance (PA) on Purchase Offline (PO).
- 5. To assess the impact of Social Experience (SoE) on Purchase Offline (PO).
- 6. To disclose the impact of Avoiding Online Hassles (AOH) on Purchase Offline (PO).
- 7. To examine the impact of Difficulty in Re-solving Issues (DRI) on Purchase Offline (PO).
- 8. To expose the impact of Trustworthiness of Sellers (TS) on Purchase Offline (PO).



Literature Review

Webrooming is characterized by customers conducting online product searches but ultimately opting to purchase items in bricks-and-mortar stores. This behavior is particularly prominent within the consumer electronics sector, notably for significant household appliances like refrigerators, freezers, air conditioners (ACs), televisions (TVs), and washing machines.

Purchase Offline (PO): Online searches play a pivotal role in the decision-making process, a substantial number of customers still prefer to finalize their purchases through traditional offline channels (Aw, Basha, Ng, & Ho, 2021). This phenomenon is particularly pronounced in industries where sensory experiences, hands-on evaluation, and immediate gratification play vital roles in the customer's decision-making journey (You Li & Yaping Chang, 2023). In this study, we have

pointed out eight factors related to another independent variable 'Purchase Offline' by reviewing literature in the below:

1. Complex Buying Behavior (CBB): Large appliances are substantial investments, and customers want to physically inspect and evaluate them before making a purchase (Uzir, Hamid, & Latif, 2019).
2. Sensory Experience (SE): Physical stores allow customers to see, touch, feel, and try products before making a purchase. This sensory experience is especially important for large. 56% of Customers prefer to touch and feel a product before they buy (Payne, 2018). Customers value the opportunity to interact with the product by opening doors, touching controls, examining the build quality, and evaluating how the appliance functions. This tactile

experience is essential for building trust in the product (Khandelwal, Yadav, & Kumar, 2019).

3. Instant Gratification (IG): Customers who want or need a product immediately prefer physical stores because they can take their purchase home right away, avoiding shipping times and potential delays associated with online shopping (Kraus, 2023; Szymanski & Stanislawski, 2018).
4. Personalized Assistance (PA): In physical stores, customers can interact with salespeople who can offer guidance and assistance. The absence of this personalized assistance at online can make customers feel less supported (Flavián, Gurrea, & Orús, 2019).
5. Social Experience (SoE): Shopping can be a social activity for some people. They may enjoy going to physical stores with friends or family, making it a shared experience (Patel, 2022; Halibas, Nguyen, Akbari, Akram, & Hoang, 2023).
6. Avoiding Online Hassles (AOH): Customers who are not tech-savvy or who find the online shopping process confusing or frustrating may prefer the simplicity of shopping in physical stores (Gupta, Kushwaha, Badhera, Chatterjee, & Gonzalez, 2023).

7. Difficulty in Resolving Issues (DRI): Customers worry that if they encounter problems with their online purchases (e.g., defective items, shipping issues, returns), it may be more challenging to resolve these issues compared to dealing with a physical store where they can speak to someone face-to-face (Karim, 2013). Delays, damaged packages, or lost shipments can lead to dissatisfaction and erode trust in the online shopping experience (Komal, 2021). Customers often feel more comfortable discussing warranty details and after-sales support with store representatives in person (Jaiswal & Singh, 2020). This can be particularly important for

expensive appliances with long-term service needs. Returning or exchanging a large appliance purchased online can be complicated and costly due to its size and weight. Physical stores usually offer more straightforward return and exchange processes.

8. Trustworthiness of sellers (TS): Some customers are wary of online marketplaces due to the presence of counterfeit or refurbished products and scams (Visua Labs Ltd., 2023). They fear that they might receive inferior or fake goods, or that the seller may disappear after receiving payment (Canon USA Inc., 2023).

Theoretical Framework

The association between independent variables pertaining to customers' attitudes regarding their searching online of webrooming behavior in Bangladesh is examined in the study. The dependent and independent variables have been structured to build a framework for the study's implementation. Theoretical discussion of the factors influencing webrooming behavior outlines and explains independent variables and their probable relation to dependent variable 'Purchase Offline'. The literature review makes evident that the searching online of Webrooming behavior have impacted by the independent factors. Thus, the figure that

Independent Variable

- Complex Buying Behavior (CBB)
- Sensory Experience (SE)
- Instant Gratification (IG)
- Personalized Assistance (PA)
- Social Experience (SE)
- Avoiding Online Hassles (AOH)
- Difficulty in Re-solving Issues (DRI)
- Trustworthiness of Sellers (TS)

Dependent Variable



Figure no. 1. The theoretical framework to investigate the reasons of webrooming leading to offline purchases.



follows might be used to explain the theoretical framework.

Drawing from the insights gathered through the literature review, objectives, and research framework, the subsequent hypotheses are formulated:

- H.1** CBB has a positive impact on Purchase Offline (PO) instead of purchase online.
- H.2** SE has a positive impact on Purchase Offline (PO) instead of purchase online.
- H.3** IG has a positive impact on Purchase Offline (PO) instead of purchase online.
- H.4** PA has a positive impact on Purchase Offline (PO) instead of purchase online.
- H.5** SE has a positive impact on Purchase Offline (PO) instead of purchase online.
- H.6** AOH has a positive impact on Purchase Offline (PO) instead of purchase online.

H.7 DRI has a positive impact on Purchase Offline (PO) instead of purchase online.

H.8 TS has a positive impact on Purchase Offline (PO) instead of purchase online.

Research Methods

Samples

This study targeted customers within the consumer electronics industry in Bangladesh, specifically focusing on large home appliances and electronics showrooms situated in Dhaka, Chattogram, and Rajshahi districts. Selection of respondents was primarily from urban areas due to the presence of a sizable pool of knowledgeable and experienced individuals. Utilizing a convenience sampling method with judgment, participants were recruited voluntarily, as they lacked the availability for structured interviews.

Considering a population of 100,000 or more, a minimum sample size of 383 was deemed necessary to achieve a 95% confidence level with a 5% margin of error (Saunders, Lewis, & Thornhill, 2009). With approximately 41 million households in Bangladesh and a reported usage rate of major home appliances among over 57.40% of them (Prothom alo, 2022; Sachee & Rabbani, 2022), a target of approximately 500 samples was established. Ultimately, the study obtained 385 completed responses.

Variables Measurement

The major tool utilized to gather data pertaining to study objectives was the questionnaire. There are 16 questions in the designed questionnaire to examine eight independent and a dependent variable, with responses on a 5-point Likert scale that ranges from 1 to 5, including strongly agree, agree, neutral, disagree and strongly disagree. Some example of items are: "I prefer to see, touch, feel or try products before making a purchase.", "I think physical stores usually offer more straightforward return and exchange processes." etc.

Data Analysis and Discussion

Demographic Statistics

Table-1 provides a comprehensive overview of the demographic variables scrutinized in the survey, encompassing Generations,

Table 1: Demographic information of the different respondents (N=385)

Variables	Freq. Dist.	Percentage	Variables	Freq. Dist.	Percentage
Generations			Income Level		
Baby Boomers (1946-1964)	34	9.0%	High (\$1,025 or less)	125	32.5%
Generation X (1965-1980)	120	31.2%	Upper Middle (\$1,026 to \$4,035)	170	44.2%
Millennials (1981-1996)	166	43.1%	Lower Middle (\$4,036 to \$12,475)	80	20.7%
Generation Z (1997-2009)	65	17.0%	Low (\$12,476 or more)	10	2.6%
Total	385	100.0%	Total	385	100.0%
Gender Male Female			Location Urban Rural		
Total	200	51.9%	Total	258	67.1%
	185	48.1%		127	32.9%
	385	100.0%		385	100.0%
Employment Status			Educational Qualification		
Service Holder Businessman	130	33.8%	Masters Honors HSC SSC	238	61.9%
Housewife	93	24.2%	Below SSC Nil	58	15.1%
Student Retired Unemployed	105	27.3%	Total	23	6.0%
Total	35	9.1%		34	8.9%
	10	2.6%		30	7.8%
	12	3.1%		2	2.3%
	385	100.0%		385	100.0%

Source: Field level primary data

Income Level, Gender, Location, Employment Status, and Educational Qualification. Below, a concise analysis of each factor is presented:

In examining the demographics of the study participants, it becomes apparent that there is a diverse representation across different generational cohorts, (Kotler, Kartajava, & Setiawan, 2021). Notably, the Millennial generation (born 1981-1996) constitutes the largest segment, comprising 43.1% of the total respondents, indicating a considerable presence within the sample. The distribution of income levels, sourced from the (World Bank, 2012), reflects a varied spectrum of financial backgrounds among survey participants. The Upper Middle income category (\$4036 to

\$12,475 per year) emerges as the largest segment, encompassing 44.2% of the sample, signifying a substantial portion falling within this income bracket.

Gender distribution within the study is fairly equitable, with males representing 51.9% of the sample and females comprising 48.1%. In terms of geographic distribution, a majority of respondents hail from urban locales, with 67.1% residing in urban areas, chosen for their abundance of qualified and knowledgeable individuals. The employment status of participants is diverse, with Service Holders forming the largest group at 33.8%. Additionally, Businessmen and housewives represent significant proportions of the

sample, constituting 24.2% and 27.3%, respectively. Lastly, a majority of respondents hold a Master's degree, accounting for 61.8% of the sample.

Reliability and Validity Analysis

Validity and reliability tests were conducted as part of our research methodology. To ensure the questionnaire's validity, we engaged 33 experienced interviewers well-versed in understanding customer omnichannel behaviors and the consumer electronics industry, who pre-examined the questionnaire.

For assessing the internal consistency of the measurement items, Cronbach's Alpha was utilized, a widely

Table 2: Internal Reliability Analysis for Variables

Variables	Cronbach’s Alpha	Number of Items
Purchase Offline	0.762	16
Complex Buying Behavior	0.870	2
Sensory Experience	0.823	2
Instant Gratification	1.000	1
Personalized Assistance	1.000	1
Social Experience	1.000	1
Avoiding Online Hassles	1.000	1
Difficulty in Re-solving issues	0.734	5
Trustworthiness of Sellers	0.785	3

Source: Field level primary data

accepted instrument in such evaluations. The reliability of the five constructs—four independent variables and one dependent variable—was evaluated using Cronbach’s Alpha. Malhotra & Peterson (2006), proposed a range for interpreting the Cronbach’s Alpha coefficient as a measure of reliability. According to their guidelines, reliability is considered weak if the coefficient is below 0.6, moderately strong if it falls between 0.6 and 0.8, and very strong if it ranges from 0.8 to 1.0.

Tables 2 unequivocally demonstrate that all constructs within our study exhibit either very good or moderately strong reliability. Consequently, these findings indicate trustworthy correlations among the variables, validating their potential for future research endeavors.

Pearson’s Co-Efficient of Correlation Analysis

Irrespective of their role as dependent, independent,

mediator, moderator, or control variables, the Pearson’s correlation coefficient (r) serves as a method to gauge the strength and nature of relationships among them. Its primary objective is to discern the types (positive or negative) and strengths (zero, weak, moderate, strong) of connections between the variables.

The correlation analysis between our dependent variable PO and the eight independent variables offers valuable insights into the factors influencing webrooming behavior. Among these factors, two variables stand out as particularly influential. First, SE exhibits the highest positive correlation with PO. This suggests that customers who tend to interact physically with products, such as touching or trying them out, are more likely to opt for offline shopping. This insight underscores the significance of in-store experiences and the importance of product tangibility in consumer electronics purchases.

Second, CBB also demonstrates a strong positive correlation with PO. This indicates that individuals who engage in more extensive decision-making processes, possibly involving detailed research and comparison, are inclined to prefer offline shopping. This behavior implies that complex purchase decisions may require the reassurance and confidence that in-person shopping provides.

Moreover, PA, SoE, AOH, DRI, and TS all exhibit moderate positive correlations with PO, suggesting their importance in influencing customers to choose offline purchases. These factors encompass aspects like seeking assistance from salespeople, valuing shopping with friends and family, avoiding online complications, anticipating difficulties in issue resolution, and placing trust in physical stores.

Conversely, IG reveals the weakest positive correlation, indicating that the immediate desire for satisfaction is a relatively minor driver of PO.

Table 3: Correlation matrix of 'Purchase Offline' and its Independent Variables

		CBB	SE	IG	PA	SoE	AOH	DRI	TS
Pearson Correlation	PO	.511	.528	.411	.399	.313	.365	.425	.466
	CBB	1.000	.334	.112	.366	.333	.301	.317	.356
	SE	.334	1.000	.167	.101	.163	.321	.365	.224
	IG	.112	.167	1.000	.239	.254	.276	.187	.256
	PA	.366	.101	.239	1.000	.103	.258	.411	.432
	SoE	.333	.163	.254	.103	1.000	.074	.133	.101
	AOH	.301	.321	.276	.258	.074	1.000	.426	.371
	DRI	.317	.365	.187	.411	.133	.426	1.000	.399
	TS	.356	.224	.256	.432	.101	.371	.399	1.000
Sig. (2-tailed)	PO	.000	.000	.000	.000	.000	.000	.000	.000
	CBB	.	.000	.000	.000	.000	.000	.000	.000
	SE	.000	.	.000	.000	.000	.000	.000	.000
	IG	.000	.000	.	.000	.000	.000	.000	.000
	PA	.000	.000	.000	.	.000	.000	.000	.000
	SoE	.000	.000	.000	.000	.	.000	.000	.000
	AOH	.000	.000	.000	.000	.000	.	.000	.000
	DRI	.000	.000	.000	.000	.000	.000	.	.000
	TS	.000	.000	.000	.000	.000	.000	.000	.
N	PO	385	385	385	385	385	385	385	385
	CBB	385	385	385	385	385	385	385	385
	SE	385	385	385	385	385	385	385	385
	IG	385	385	385	385	385	385	385	385
	PA	385	385	385	385	385	385	385	385
	SoE	385	385	385	385	385	385	385	385
	AOH	385	385	385	385	385	385	385	385
	DRI	385	385	385	385	385	385	385	385
	TS	385	385	385	385	385	385	385	385

*. Correlation is significant at the 0.01 level (2-tailed)

The statistical significance of all these correlations further underscores their relevance in shaping customer behavior. Overall, these findings illuminate the multifaceted nature of offline purchasing behavior, emphasizing the significance of SE, CBB, and various socio-environmental factors in the context of consumer electronics shopping in Bangladesh.

As a result, every variable has a relationship and a strong, positive connection with one another. But all values are below 0.7 that indicate there is no redundant predictive indicators or variables.

Regression Analysis

The primary objective of multiple regression analysis is to uncover the causal relationships between two or more

independent and dependent variables. This analytical method investigates the interrelationships among variables, with software tools such as SPSS-25 commonly employed for analysis.

Eight independent factors are also investigated using multiple regression analysis.-CBB, SE, IG, PA, SE, AOH, DRI, and TS with another dependent variable – PO. The following Tables 9, 10 and 11 make the regression

Table 4: In general Model fit of Dependent and the Independent Variables

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.501 ^a	.257	.254	.53109

a. Predictors: (Constant), CBB, SE, IG, PA, SE, AOH, DRI, TS
b. Dependent Variable: PO

Table 5: Overall Model fit of Dependent and the Independent Variables

ANOVA ^a					
Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	34.104	2	17.052	74.601	.000 ^b
Residual	99.602	383	.387		
Total	132.706	385			

a. Dependent Variable: PO
b. Predictors: (Constant), CBB, SE, IG, PA, SE, AOH, DRI, TS

Table 6: Regression output for 'Purchase Offline' and its Independent Variables

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.876	.316		9.132	.000
	CBB	.448	.050	.424	7.453	.000
	SE	.473	.067	.445	6.452	.000
	IG	.394	.077	.371	4.346	.000
	PA	.318	.045	.301	7.465	.000
	SoE	.287	.037	.251	6.356	.000
	AOH	.309	.063	.277	6.345	.000
	DRI	.374	.057	.308	5.467	.000
	TS	.389	.069	.287	4.346	.000

a. Dependent Variable: PO

output evident through their respective values.

The dependent variable (PO) and the independent variables (CBB, SE, IG, PA, SE, AOH, DRI and TS) are tabulated in the above table. The coefficient of determination, or R square value, is 0.257. It displays the proportion of Z's overall fluctuation that Xs can account for. Additionally, for an adjusted r-square to be considered

significant, its value must be smaller than 0.8. According to this theory, CBB, SE, IG, PA, SE, AOH, DRI, and TS are expected to account for 25.7% of the average PO.

We have further investigated ANOVA to testify the association among all variables in an effort to over-confirm the relationship between both dependent and independent variables.

Table 5 of the above ANOVA analysis result indicates that if the dependent variable's prediction relies solely on the mean of PO, then the squared error will be 132.706 (34.104+ 99.602). In contrast, the squared error will be reduced by 25.69 percent (34.104 ÷ 132.706) by using the two independent variables (CBB, SE, IG, PA, SE, AOH, DRI and TS). This is statistically significant as the F ratio of 74.601 and the p value is

0.00 against the criterion that the F value should be greater than 5 and the p-value is <0.05.

The significant relationship between the dependent variable, which is the PO, and the independent variables (CBB, SE, IG, PA, SE, AOH, DRI and TS) is displayed in Table 11. According to Hair et al. (2006), state that the typical regression model is:

$$Z = bZ + b1V1 + b2V2 + b3V3 + b4V4 + b5V5 + b6V6 + b7V7 + b8V8$$

Therefore, the prediction equation for PO can be expressed as follows, based on the data in Table 11:

$$Z (PO) = 1.876 + 0.448 (CBB) + 0.473 (SE) + 0.394 (IG) + 0.318 (PA) + 0.287 (SE) + 0.309 (AOH) + 0.374 (DRI) + 0.389 (TS)$$

The values of each beta are displayed in table 11. They indicate the degree to which the dependent variable is impacted by our independent factors. It can be understood as follows: for every unit change in CBB, a customer's offline purchase changes by 0.448 units. It is necessary for the p-value to be less than 0.05 and the t-value to be more than 1.96 to be significant for accepting hypotheses (Hair, Black, Babin, Anderson, & Tatham, 2006). So last eight hypotheses regarding to purchasing from offline (PO) are accepted. Taking into account the t- and p-values, we discovered that $p = 0.000 <$

0.05 and $t \Rightarrow 1.96$. Thus, it is possible to conclude that the independent variable results are significant. Furthermore, at t value of $4.346 > 1.96$ and $p = 0.000 < 0.05$, which is also significant, a one unit change in the TS results in a 0.389 unit change in the PO made by customers. So for this investigation, the values of its every other independent variable are also significant. All eight hypotheses regarding to Purchase Offline (PO) are accepted.

Limitations

Firstly, it is important to acknowledge that this study may not encompass all possible predictive variables that could influence webrooming behavior within the Consumer Electronics Industry of Bangladesh. Due to various constraints, there may be additional factors that were not examined. Secondly, a notable limitation arises from the inability to include customers from all high-end electronics shops across Dhaka, Chattogram, and Rajshahi divisions. This limitation may affect the comprehensiveness of the study's findings. Finally, constraints related to time, location, and accessibility have restricted our ability to recruit a more diverse sample, potentially impacting the generalizability of the results. Moreover, although the sample size of 385 respondents is considerable, enlarging it could have yielded more robust statistical outcomes in terms of significance. Despite

encountering these challenges, the collected responses were deemed adequate to achieve the study's objectives.

Future Research

To enhance the depth of understanding regarding webrooming behavior in Bangladesh's consumer electronics industry, several avenues for future research could be explored. Firstly, extending the investigation to encompass a broader geographical scope beyond Dhaka, Chattogram, and Rajshahi divisions, to include major divisions like Khulna and Sylhet, would provide insights into regional variations in customer behavior within the country. Secondly, future studies could delve into webrooming behaviors related to medium and small-sized electronics products. While the current research focuses on large home appliances, exploring patterns and preferences concerning items such as laptops, smartphones, and personal gadgets could offer a more comprehensive perspective on webrooming dynamics. Lastly, investigating the impact of webrooming on other industries, such as the Ready Made Garments (RMG) sector or other business sectors in Bangladesh, would contribute to a holistic understanding of webrooming behavior's broader implications beyond the consumer electronics industry.

Customer's Webrooming Behavior in Consumer Electronics Industry of Bangladesh: Determining Purchase Offline Factors



Recommendation and Conclusion

The study contributes to the expanding body of knowledge on webrooming behavior in Bangladesh, offering valuable insights for companies navigating the evolving landscape of consumer preferences in the digital age. Recognizing the potential impact of webrooming on online marketplaces, which may divert final transactions away from their platforms, stakeholders in the consumer electronics industry are urged to take proactive measures. Firstly, investments in technology, such as AI-driven chatbots or virtual assistants, can enhance online platforms' ability to provide personalized assistance to customers. This initiative aims to bridge the gap between the personalized support available

in physical stores and the digital shopping experience. Secondly, e-commerce platforms must prioritize addressing concerns related to counterfeit products by implementing stringent quality control measures and fostering partnerships with trusted sellers. Transparent communication of these efforts to consumers can help build trust and confidence in online purchases. Lastly, retailers—both online and offline—should recognize the interconnected nature of the two channels. Developing integrated strategies that capitalize on the strengths of both online and offline platforms can facilitate a seamless and satisfying shopping journey for customers. These collaborative efforts are essential for fostering a smarter consumer electronics industry in Bangladesh.

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Investigating the Determinants of Mutual Funds Investment Decision

Evidence from Earning Professionals of Bangladesh

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Abstract

Surveying 105 respondents with at least bachelor's degrees and earnings, this study aims to identify the determinants influencing investors to invest in mutual funds. Compared to other South Asian countries like India and Pakistan, the development of mutual funds in Bangladesh is not in a significant stage. Based on Structural Equation Modeling (SEM), this study has done the socio-demographic analysis, sampling adequacy test through KMO and Bartlett's Test, validity and reliability test through Cronbach's Alpha, Exploratory Factor Analysis (Extracting factors through Eigenvalues, scree plot, rotated factor matrix). The findings of the SEM model show that investors emphasize risk and return factors, and they are risk-averse investors. Reduced risk, better return, regular income, capital appreciation, liquidity, diversification of investment and long-term income features appeal to investors to invest in mutual funds.

Keywords

Financial Awareness (FA), Risk-Return Perception (RRP), Investment attitude (IA), Mutual Fund Investment Decision

Introduction

To keep pace with the monetary value of inflation, investment is a strategy for fund owners to increase their fund value. It is a

general principle of finance not to put all the eggs in a single basket. The underlying meaning of this principle is to diversify the investment in various assets to minimize risk which investment in mutual funds satisfies. As mutual fund investment is managed by professionals, investors who have limited knowledge and time to understand and monitor investment can get the advantage of investing in mutual funds. Having so much convenience, still mutual fund investment is not popular in our country.

In India, almost 10% of people invest in mutual funds (Singal and Manrai, 2018). In 2022, the mutual fund investment amount in Pakistan was 57 thousand 800 crores Tk. compared to 10 thousand 948 crore Tk. investment in Bangladesh. According to USA based Verified Market Research® Institute, the total worldwide mutual funds investment amount is 72.79 trillion dollars whereas out of this total investment, 32.96 trillion-dollar investment is comprised by the United States (Source: <https://samakal.com/feature/article/2307186259/>). It depicts that mutual fund investment is a popular term in developed countries and also becoming popular in South Asian countries like India and Pakistan. In Bangladesh, the government-owned investment institute 'Investment Corporation of Bangladesh' launched the first mutual fund of Bangladesh on 25th April



1980. According to the statistics of DSE as of 30 September 2024, there are 37 listed mutual funds in Bangladesh (Source: https://www.dsebd.org/ltp_industry.php?area=12). The mutual fund market in Bangladesh is quite small. The reason behind the poor investment scenario in Bangladesh may account for lacking financial awareness, trust issues, poor governance, and unrest in the stock market.

The market price of mutual funds is fixed by demand and supply factors whereas the intrinsic value of mutual funds is fixed by NAV. During the calculation of NAV, the closing price of the securities in the fund's portfolio is considered. As the market price is determined based on the demand and supply factors, NAV is not always equal to the market price (Chowdhury et al.,

2018). Although NAV is guided by the Bangladesh Securities and Exchange Commission to measure the performance of mutual funds, Sharpe ratio, Treynor ratio and Jensen's Alpha are also used by globally and locally to assess the performance of funds (Anwar et al., 2016). The importance of mutual funds in Bangladesh's capital markets is growing day by day as Bangladesh's economy has faced lots of challenges recently including higher interest rates, lower foreign reserves, and the impulsive nature of the capital market. The mutual fund can not only develop the capital market but also contribute to the money market as it can act as an inter-mediation in the financial industry (Begum et al., 2016).

There are plenty of spaces or gaps to work on to understand

the factors that distract investors from investing in mutual funds and to focus on factors that can influence investors to invest in mutual funds. The principal objective of this paper is to find out the factors that determine mutual fund investment decisions taken by investors. It will deliver a message to the growing and new mutual fund companies about which factors need to be fostered in designing the scheme to achieve the expected growth in the mutual fund sector.

Literature Review

Dhar et al. (2017) defined a mutual fund as a pool of funds collected by a company from investors to invest in securities like stocks, and bonds. Mutual fund investment is a capital market investment managed by the professional fund manager. A mutual fund allows investors to diversify their risks as professional fund managers do not concentrate the investment on a single security. A mutual fund allows small investors to participate in diversified investments where a company sells shares of mutual funds and the proceeds from selling shares invest in diversified securities. Being managed by professionals, the mutual fund generates better returns bearing lower risks. Mungai (2021) asserted that mutual fund investment is indispensable for a country's financial and economic growth by including numerous people in the investment mechanism in

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the capital market. The performance of mutual funds depends on the fund-raising company's ability to generate capital gains, dividends or interest within the mentioned period. Surveying 100 respondents, Saha and Dey (2011) outlined the factors like financial awareness, preference, and expectation that influence investors in deciding whether to invest in mutual funds. According to Singal and Manrai (2018), mutual fund aims to maximize return and lower the risk. Investing in mutual funds minimizes risk through investment diversification. But	investors may also doubt whether the fund manager works well on behalf of them. Investment in mutual funds is influenced by economic, sociological and psychological factors. Fundamental factors like risk, return, and liquidity influence investors significantly in making investment decisions for mutual funds. Arathy et al., (2015) stated that for risk-averse investors mutual funds are a lucrative option as it is less risky compared to investing in the share market directly. The study found that tax benefits, diversification, capital appreciation, and brand image shape the investment decision of investors in the case	of investing in mutual funds. The authors also outlined that knowledge and knowledge about mutual funds to retail investors is possible through consultancy of brokers, financial institutions, and advertisements. According to Vyas (2013), mutual fund companies should come forward to provide advisory services to investors and ensure transparency of transaction-related information. This concept is further illustrated by Mohindroo and Singh (2013). The authors affirmed that fund managers can upgrade the performance of mutual funds by analyzing investor behavior and providing them with the proper service.
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Shira et al., (2017) investigated risk-return perception, financial awareness, investment criteria, and socio-demographic data to identify the factors that influence mutual fund investment decisions.

Based on the findings from the discussed literature review, this research will investigate the following hypotheses:

- H1: There is a significant association between financial awareness and mutual fund investment decisions.
- H2: There is a significant association between risk-return perception and mutual fund investment decisions.
- H3: There is a significant association between

investment attitude and mutual fund investment decisions.

Methodology

The respondents of this study include both mutual fund investors and non-mutual fund investors in Bangladesh. The questionnaire was prepared in Google form and sent directly to the respondents using social media. The research population included all the distinguished working professionals who have a minimum bachelor's degree. Education and profession have been considered as key factors before collecting data from respondents as the mutual fund is still an emerging concept in Bangladesh and earnings are also required to invest in somewhere. The sample size is an important consideration in data analysis. According to

(Westland, 2010), 10 observations per indicator was considered as a rule of thumb by previous researchers to consider a data set adequate. For this study, A-priori Sample Size Calculator for Structural Equation Models has been used considering anticipated effect size (0.3 has been used here for medium effect), desired statistical power level (0.80), number of latent variables (4), number of observed variables (16) and probability level (0.05). The outcome showed that a minimum of 100 sample size is required to create the model structure. This study has collected 107 responses initially.

To ensure the reliability of the data set, this research examines whether the data set is unengaged. The mean and standard deviation of each respondent's responses individually have been calculated. If any mean value is less than 0.5 or more than 4.5 and if any respondent's standard deviation is less than 0.25, it means the respondent has ticked all 1 or all 5 or the same answer for every question. Two responses for such an issue have been deleted and then the data set for analysis contained 105 responses.

A 5-point Likert scale has been used to measure the items where Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, and Strongly Agree = 5. The key variables and measurement items have been exhibited in Table 1:

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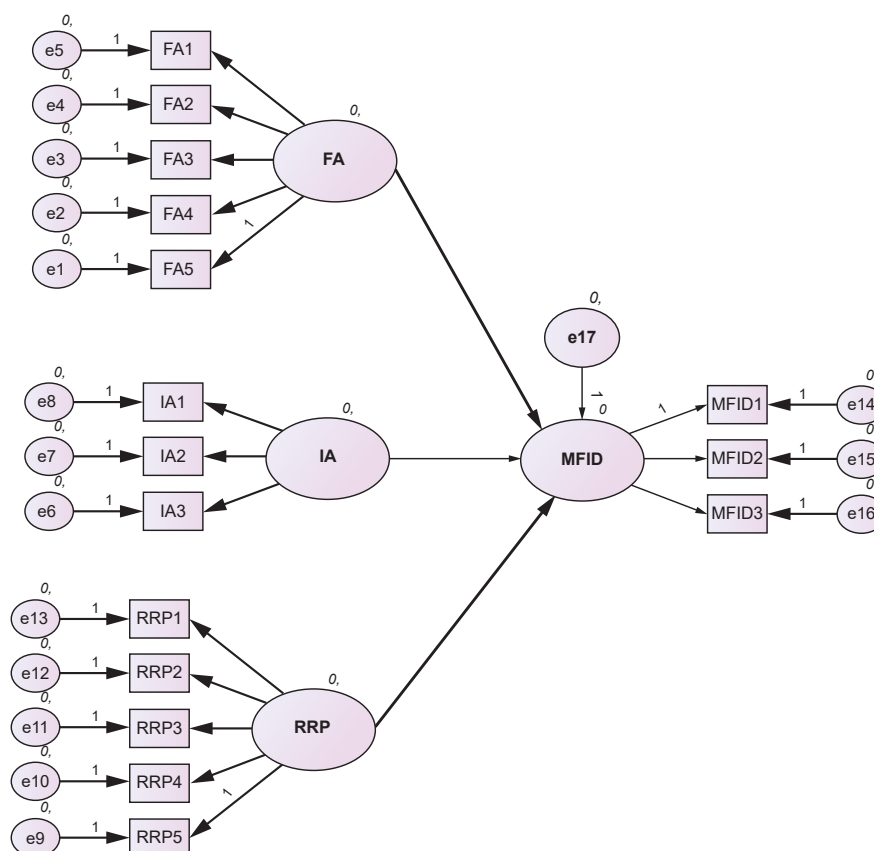
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Table 1: Summary of Measurement Items

Construct	Item	Source
Financial Awareness (FA)	FA1: I am not aware that mutual fund investment is managed by professional fund managers who have specialized skills and experience.	Saha and Dey (2011)
	FA2: Only experts can invest in mutual funds	Shira et al., (2017)
	FA3: Only large amounts of money can be invested in mutual funds	Saha and Dey (2011)
	FA4: It's not known to me that mutual fund generates better returns bearing lower risks, and reduce the risk associated with an investment portfolio through investing in different categories of securities.	Dhar et al., (2017), Arathy et al., (2015)
	FA5: I am not aware that mutual fund investors can enjoy an annual tax rebate.	Shira et al., (2017)
Investment Attitude (IA)	IA1: I prefer investment in Bank fixed Deposit to mutual fund	Shira et al., (2017)
	IA2: I prefer investment in stock/bond to mutual fund	Shira et al., (2017)
	IA3: I choose investment considering net asset value (NAV)	Chowdhury et al., (2018)
Risk-Return Perception (RRP)	RRP1: I prefer investments where there is reduced risk and better return.	Arathy et al., (2015)
	RRP2: I prefer regular income investment	Shira et al., (2017)
	RRP3: I prefer long-term capital appreciation investment.	Arathy et al., (2015)
	RRP4: I prefer an investment that provides liquidity.	Singal and Manrai (2018)
	RRP5: I consider an investment safe when it is managed by professionals and can generate higher income compared to other long-term investments.	Singal and Manrai (2018)
Mutual Fund Investment Decision (MFID)	MFID1: I have not invested in a mutual fund as I have not found significant promotional activities for it in Bangladesh.	Arathy et al., (2015)
	MFID2: In future, I want to invest in a mutual fund as it offers better returns with reduced risk along with capital appreciation, liquidity and tax-rebate benefits.	Singal and Manrai (2018)
	MFID3: I think initiatives need to be taken by banks and Mobile Financial Services to make mutual fund investment more popular.	Vyas (2013), Mohindroo and Singh (2013)

Figure 1 exhibits a structural equation model based on which the hypotheses will be investigated.

Figure 1: SEM model



Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26.

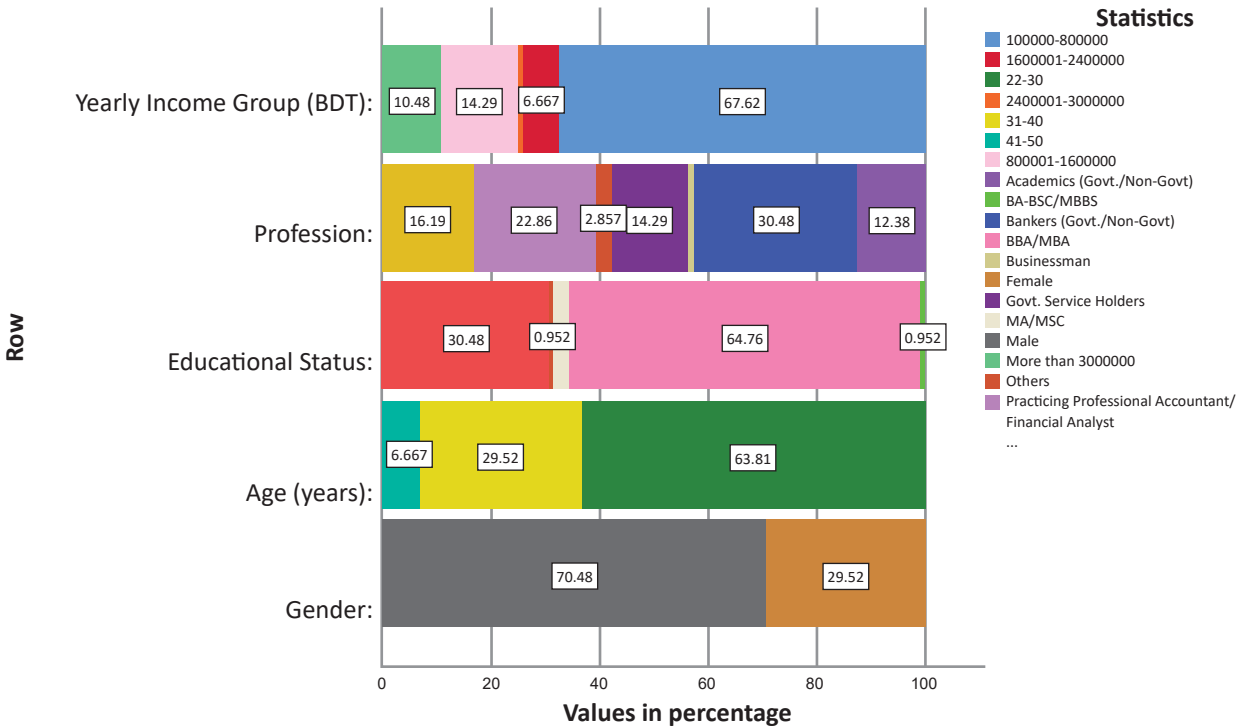
Structural equation modelling (SEM) will be used to find out the association between endogenous or dependent variable (here, Mutual Fund Investment Decision) and exogenous variables or independent variables (here, Financial Awareness, Investment Attitude, Risk-Return Perception). IBM SPSS AMOS 26 software will be used to investigate the determinants of mutual fund investment decisions.

Data Analysis and Discussion

Figure 2 exhibits the demographic characteristics of the respondents. Among 105 respondents, 70.48% were male and 29.52% were female. 63.81% of respondents belong to the age group of 22 years to 30 years. The minimum education criteria of respondents were a bachelor's degree and 64.76% have a BBA/MBA degree, indicating that most of the respondents have heard about mutual funds. There is a mixed group of professions. 30.48% of respondents are bankers, 22.86% are practicing professional accountants, 16.19% are other private service holders, 14.29% are govt. service holders and 12.38% are academics. Among the respondents, 67.62% fall into the income group of BDT100000 to BDT800000.

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Figure 2: Socio-demographic profile of respondents



Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26.

Table 2: KMO and Bartlett's Test for assessing sampling adequacy

Kaiser-Meyer-Olkin (KMO) Measure of Sampling is calculated to measure the sampling adequacy. The benchmark for KMO is 0.50. When the KMO test results in 0.50 or more than 0.50, it indicates that sampling adequacy is satisfactory. Bartlett's Test of Sphericity examines whether the correlation matrix is an identity matrix. The null hypothesis is that the correlation matrix is the identity matrix. The presence of an identity matrix indicates that variables are unrelated and thus unsuitable for structure detection.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	590.151
	df	120
	Sig.	.000

Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26.

Table 2 exhibits that KMO test results in 0.826 which is much higher than the benchmark of 0.50 indicating adequate sample adequacy of the data in this research. Here, the P value of Bartlett's Test of Sphericity is less than 0.05 which indicates that the null hypothesis is rejected, and the correlation matrix is not an identity matrix. Thus, the variables of this study are related and suitable for structure detection.

Table 3: Cronbach's Alpha for testing validity and reliability

Description	Cronbach's Alpha
Financial Awareness	0.807
Investment Attitude	0.604
Risk Return Perception	0.831
Mutual Fund Investment Decision	0.728

Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26

Measuring the reliability and validity of the data set is a prerequisite to move on to further calculation. To check the internal consistency, reliability and validity of the data set, Cronbach's Alpha is calculated. According to Tavakol and Dennick (2011), Internal consistency means whether all the items under a construct measure the same concept. The interrelatedness of the items under a construct is required to have a reliable and valid data set. According to Saunders (2009), the acceptable range for Cronbach's Alpha is 0.60 to 0.70 in the case of exploratory research. All the constructs under Cronbach's alpha are higher than 0.60 indicating a reliable and valid construct.

Table 4: Exploratory Factor Analysis (EFA)-Extracting factors through Eigenvalues

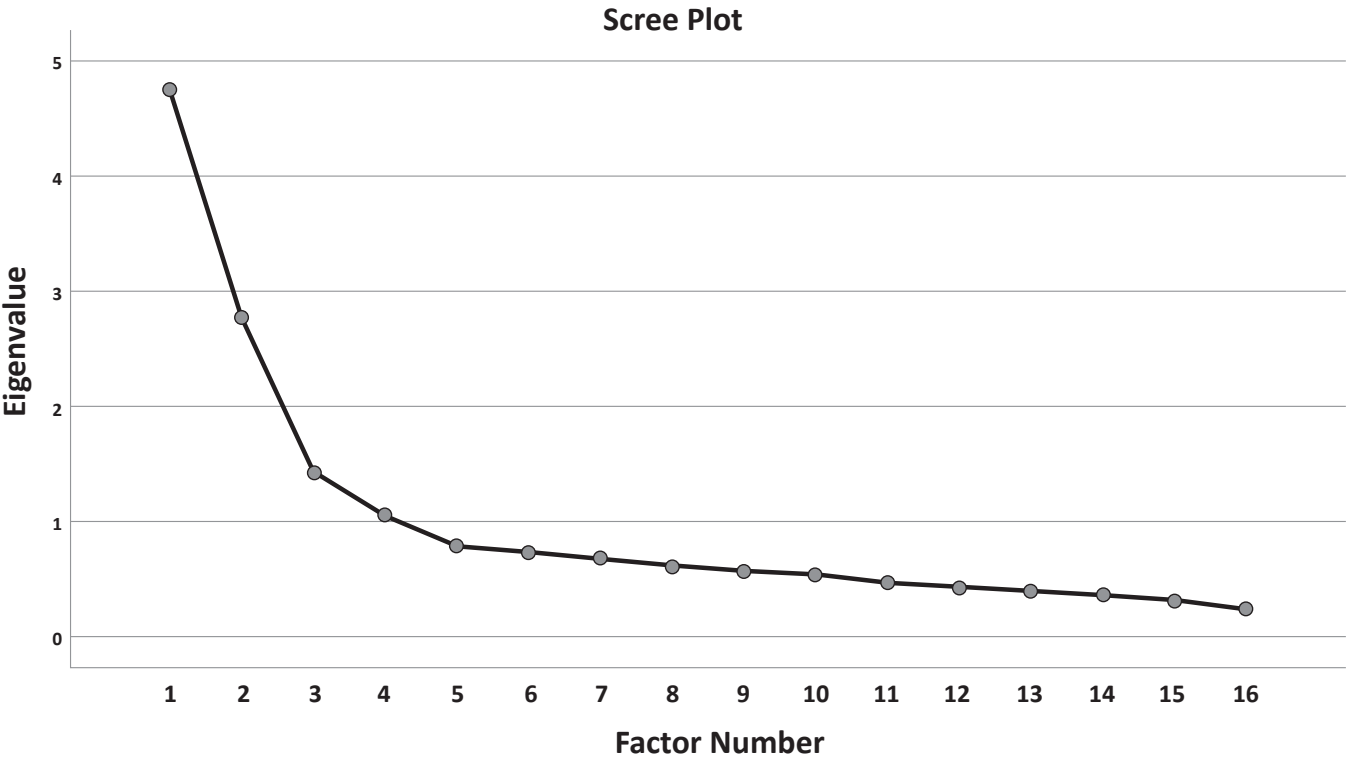
Factor	Initial Eigenvalues			Total Variance Explained			Rotation Sums of Squared		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.752	29.699	29.699	4.191	26.191	26.191	2.829	17.681	17.681
2	2.763	17.269	46.968	2.306	14.411	40.601	2.443	15.269	32.950
3	1.420	8.872	55.840	.796	4.974	45.575	1.501	9.379	42.329
4	1.047	6.542	62.383	.702	4.389	49.964	1.222	7.635	49.964
5	.784	4.897	67.280						
6	.728	4.549	71.829						
7	.671	4.192	76.021						
8	.603	3.769	79.790						
9	.561	3.509	83.299						
10	.528	3.299	86.598						
11	.455	2.847	89.444						
12	.416	2.603	92.047						
13	.386	2.412	94.459						
14	.354	2.213	96.672						
15	.304	1.901	98.573						
16	.228	1.427	100.000						

Extraction Method: Maximum Likelihood.

Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26

In the methodology of this research, the structural equation model presents 4 constructs (Financial awareness, investment attitude, risk-return perception, and mutual fund investment decision). This research has used 16 items under 4 constructs. Exploratory factor analysis is done to decide how many factors to be retained in the analysis based on eigenvalues (Iantovics, et al., 2019). The eigenvalue is a measure of how much of the variance of the observed variables a variable explains. Any factor with an eigenvalue greater than or equal to 1 explains more variance. Here according to calculation through SPSS, factors 1, 2, 3 and 4 are identified as the best factors as these 4 have eigenvalue greater than 1. As this study has used 4 constructs named financial awareness, investment attitude, risk-return perception, and mutual fund investment decision, the extraction of 4 factors justifies the model construction of this study.

Figure 3: Scree plot



Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26

The scree plot is the graphical representation of the factors extracted through eigenvalues. Among the 16 items, 4 items having eigenvalues greater than 1 further justify this study's model development of 4 constructs (Financial awareness, investment attitude, risk-return perception, and mutual fund investment decision).

Table 5: Rotated Factor Matrix

	Factor 1 Risk Return perception	Factor 2 Financial Awareness	Factor 3 Mutual Fund Investment Decision	Factor 4 Investment Attitude
RRP1	.673			
RRP2	.732			
RRP3	.543			
RRP4	.752			
RRP5	.656			
FA1		.697		
FA2		.721		
FA3		.714		
FA4		.652		
FA5		.585		
MFID1			.473	
MFID2			.556	
MFID3			.773	
IA1				.665
IA2				.607
IA3				.399

Extraction Method: Maximum Likelihood.
a. 4 factors extracted. 8 iterations required.

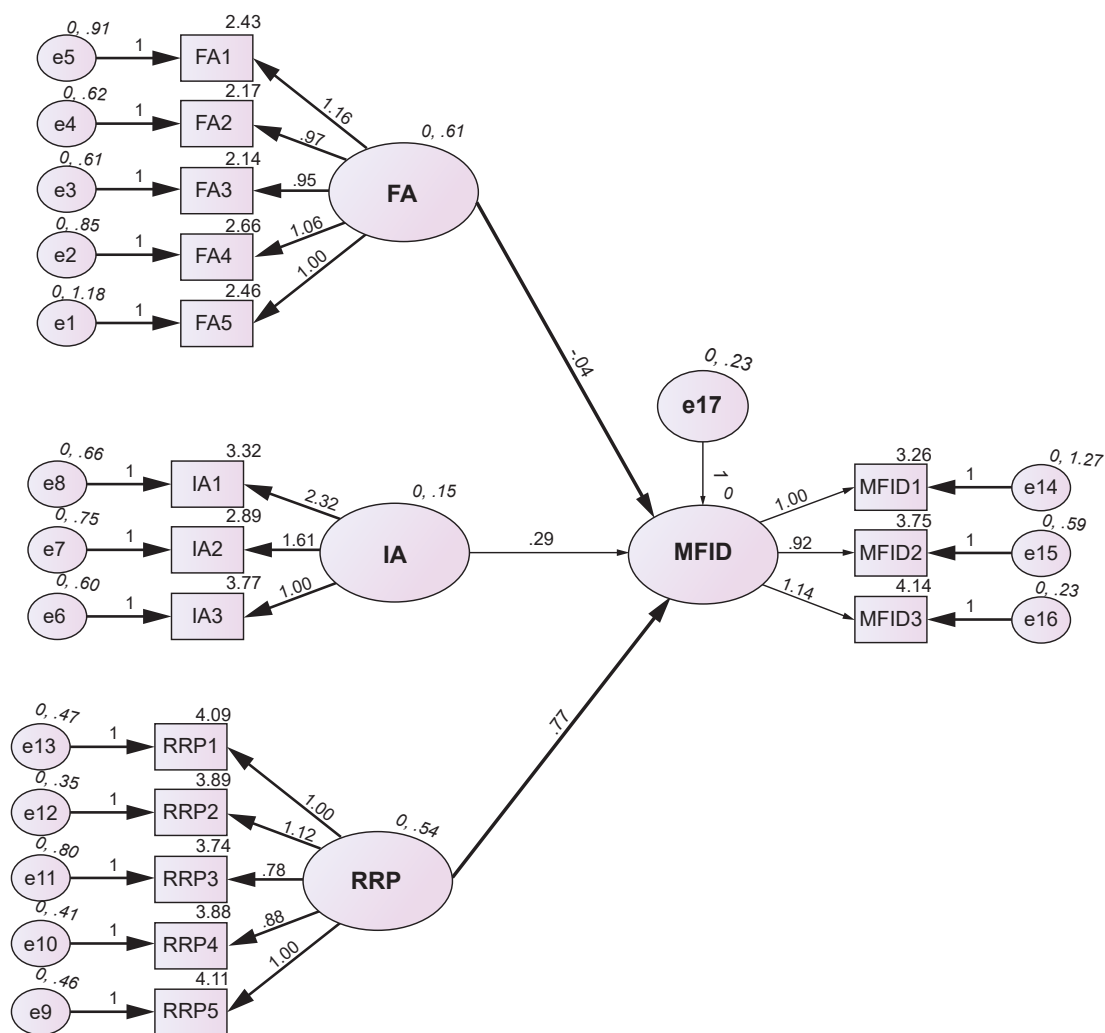
Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26

Table 5 shows the result of the rotated factor matrix. This study has used 16 items and 4 constructs. The rotated factor matrix illustrated that those 16 items have been clustered under 4 factors that are considered determinants regarding investment decisions in mutual funds by investors. The first factor (risk-return perception) comprised 5 items (reduced risk and better return, regular income investment, long-term capital appreciation investment, liquidity, preferring professionals' management and higher income compared to other long-term investments). The second factor (Financial Awareness) carries 5 items (not aware that mutual fund investment is managed by professionals, only experts' investment in mutual funds, only large amounts of investment, better returns bearing lower risks, and annual tax rebate). The third factor (Mutual Fund Investment Decision) contains 3 items (not invested in a mutual fund as not found significant promotional activities in Bangladesh, in future-want to invest in a mutual fund, initiatives need to be taken by banks and Mobile Financial Services to make mutual fund investment more popular). The fourth factor (Investment Attitude) comprised 3 items ((Bank fixed Deposit) to the mutual fund, investment in stock/bond to mutual fund, and investment considering net asset value (NAV)).

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Figure 4: Findings of Structural Equation Model (SEM)



Source: Authors' contribution based on the output developed by IBM SPSS Statistics 26.

Table 6: Structural model

Hypothesis	Path	Beta/estimates	P	Comment
H1	Financial Awareness > Mutual Fund Investment Decision	-0.04	0.656	Rejected
H2	Risk return perception > Mutual Fund Investment Decision	0.77	0.000	Accepted
H3	Investment Attitude > Mutual Fund Investment Decision	0.29	0.184	Rejected



This research has found a significant association between the risk-return perception of mutual fund investors and their investment decisions in mutual funds. Whenever investors consider whether they will invest in mutual funds, they look for reduced risk, better return and liquidity. Investors want to be assured whether mutual funds will provide regular income investment. No significant association has been found between financial awareness, investment attitude and mutual fund investment decisions. The mutual fund that provides capital appreciation, diversification, long long-term higher income is expected to be attractive to potential investors.

Fund managers of mutual funds may design their schemes in a way that provides reduced risk, better return, regular income,

capital appreciation, liquidity, diversification of investment and long-term income. The news of these designed schemes needs to reach prospective investors through advertisements, promotions, financial institutions, internet.

The significant association between risk-return perception and mutual fund investment decisions also indicates the risk-averse characteristics of the investors. Investors seek to rely on professional fund managers as they have limited time and lack of in-depth knowledge which professional fund managers need to keep in mind in designing the schemes. In the case of designing further schemes of mutual funds, companies may focus on these risk-averse investment criteria in-depth.

Chapter Five: Conclusion and Recommendations

This study has indicated two components that are considered more important by investors who want to decide on whether to invest in mutual fund, one is risk and another one is return. Considering the risk-averse perception of investors, new or growing staged mutual fund companies may emphasize lower risk, better return, long-term higher but regular income, liquidity, capital appreciation and diversification characteristics in designing the mutual fund scheme. This study will add value in this field to take steps to influence investors to invest in mutual funds. However, we observe some pervasive challenges like the extension of tenure of closed-end funds after expiry without unitholders' consent; poor fund management capabilities of most fund managers; investment in non-listed companies at abnormally high valuation; and poorly performing capital market and speculative nature of the market.

It is evident from the beta of risk-return perception and its significant level that the investors invest in mutual funds very defensively as the mutual fund industry in Bangladesh is still in the growing phase. The mutual fund industry of Bangladesh needs to address regulatory, operational, and investor-related challenges to improve investor confidence as

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well as the growth of the industry. For regulatory improvement, strengthening regulation and oversight is required from the Bangladesh Securities and Exchange Commission (BSEC) to ensure transparency, good governance, and investor protection. Investor education and awareness are prerequisites for making any kind of investment decision. To enlighten the investors of Bangladesh, the government and regulators need to conduct a nationwide campaign, workshop, and training on mutual funds.

The limitation of this study is that the number of respondents may need to be increased to get a wider conclusion from the whole market. For further similar research, researchers may arrange a focus group discussion (FGD) to have direct opinion from prospective and current mutual fund investors in precedence of preparing the questionnaire.

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Performance Appraisal and Organizational Commitment

Key to Banks Success

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Abstract

Committed employees are the most precious asset for the success of banks. Performance appraisal plays a key role in developing commitment among the banks' employees. Thus, the main purpose of this study is to analyze the employees' perception towards the performance appraisal and to explore the impact of performance appraisal on organizational commitment. A pre-structured questionnaire is used to gather primary data from the study population, which consists of randomly chosen respondents from 12 (twelve) private commercial banks in Bangladesh. The study uses both descriptive and inferential statistics to analyze two variables: performance appraisal and organizational commitment. Reliability Coefficient (Cronbach's Alpha) of each variable was greater than or equal to 0.6, indicating that the result was accepted. The mean score result of perception towards performance appraisal was $M = 3.69$, $SD = 0.647$, which indicates that the level of perception of employees towards performance appraisal practice is moderate. It implies a favorable attitude towards the performance appraisal system among banking sector personnel. With the aid of regression analysis, the impact of performance appraisal on organizational commitment was determined. The result of regression analysis showed that

F value for the ANOVA of performance appraisal and organizational commitment was $F = 72.766$; $p = .000 < .05$. The findings of this study support the hypothesis H1, which states that performance appraisal has a positive effect on organizational commitment. It also signifies that organizational commitment among private commercial bank employees in Bangladesh were significantly influenced by performance appraisal practices. The study concludes with the discovery that fair perception towards performance appraisal system strengthens the employees' organizational commitment which is in turn able to ensure success of the bank.

Key Words

Human resource management, organizational commitment, performance appraisal, performance appraisal standard, reward, performance appraisal communication

Introduction

The banking system is a vital component of a nation's economy in this era of globalization. Banks gather consumer savings and lend money to businesses to support industrial development. As such, banks are crucial to a nation's capital formation and mobilization. As a matter of fact, banks are indispensable to the growth of business and industry. The primary responsibility of commercial banks is to maintain social and economic stability as well as the economy's

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sustainable development by offering financial services to the general public and companies. Being a service-oriented industry, banking relies heavily on its human resources to be vibrant, skilled, and capable. Because of this, human resource management is significant for banks. When implemented and practiced effectively, human resource management will guarantee a dynamic, capable, and talented human resource that can assist a bank in achieving its objectives.

Any organization's ability to effectively evaluate its human resources is primarily dependent on its ability to use a valid and accurate employee performance appraisal system. An organization can achieve sustainable growth and success by implementing a well-managed performance appraisal system for each employee. Performance appraisal has been a vital instrument for assessing employee performance. The process by which an

organization formally and methodically determines performance dimensions or criteria to use in evaluating an individual is called performance appraisal. Dessler (2008) defined performance appraisal "as any procedure that involves settings work standards, assessing the employee's actual performance relative to those standards, and providing feedback to the employee with the aim of motivating the employee to eliminate performance deficiencies or to continue to perform above par." According to Griffin (2002), performance appraisal is a formal evaluation of an employee's job performance.

One of the most crucial aspects of performance appraisal is the perception of fairness, which has significant organizational ramifications. Performance appraisals are primarily used by organizations to determine whether to promote employees, raise salary, identify areas in need of training, and other considerations. Because of this,

employees are very interested in perceived fairness in performance appraisal, and their attitude toward the process has a big impact on its success. The perception of fairness in performance appraisals has been the biggest issue facing corporations in recent years. Since the performance reviews are given to the employees, their response is crucial to fostering a sense of commitment. According to (Iqbal et al., 2015), employees who feel that the current performance appraisal system is transparent, fair, free of any intentional or unintentional errors, and that employees are fairly rewarded for their job performance, report higher levels of commitment and a strong sense of attachment to the company. According to research by Hassan (2002), internal equality is ensured when there is a fair perception in the case of a promotion, and this has a substantial impact on higher levels of commitment.

Organizational commitment is defined as the degree to which a worker identifies with and participates in a particular organization (Porter et al., 1973). Meyer & Herscovitch (2011) defined commitment as "a force that binds an employee to a course of action of relevance to one or more targets." Allen & Meyer (1990) considered commitment as "an affective or emotional attachment to the organization such that the strongly committed individual identifies with, is involved in, and enjoys membership in, the



organization.” Griffin (2002) clarified an individual’s affiliation and attachment to an organization is reflected in their attitude of organizational commitment. Committed employees embrace the goals of the company and make a great effort to reach them (Mowdy et al., 1979). Each employee has a different level of dedication to the company. The degree to which an employee is committed to the organization can be significantly impacted by performance review procedures. In light of this, the study focuses on how employees view performance review procedures and how that affects organizational commitment.

Statement of the Problem

The banking sector of Bangladesh has prospered during the last few decades. During this period, the banking

sector has played an important role in the socio-economic development of Bangladesh. Globalization has led to increased client demands, dynamic environments, intense rivalry and uncertainty for banking industry. Banks consider optimal human resource performance to be a major source of competitive advantage when dealing with the problems posed by quickly changing market forces (Majumder, 2012). Each employee’s performance is determined by the effectiveness of the performance appraisal system and the evaluation of their work. Additionally, fair and equitable performance review processes encourage positive behavior among employees and commitment to the company. When fair performance appraisal methods are not followed, workplace problems such as lack of organizational commitment, employee

disloyalty, and job dissatisfaction occur. When employees are unhappy in their jobs, they lose interest in doing their jobs well and occasionally decide to quit the bank (Nasiri et al. 2015). Moreover, it is possible to lose competitive advantage due to demotivated human resources. Since only committed employees perform in the best interests of the organization. Perceptions of employees toward their organizations have shifted dramatically in recent times (Al-Kahtani, 2012). As a result, fair performance evaluation has emerged as an essential and beneficial solution to these problems since equitable procedures for performance reviews encourage employees to be more committed to the organization. Thus, the primary goal of this research is to investigate the effect of employee perceptions of performance appraisal procedures on organizational commitment.

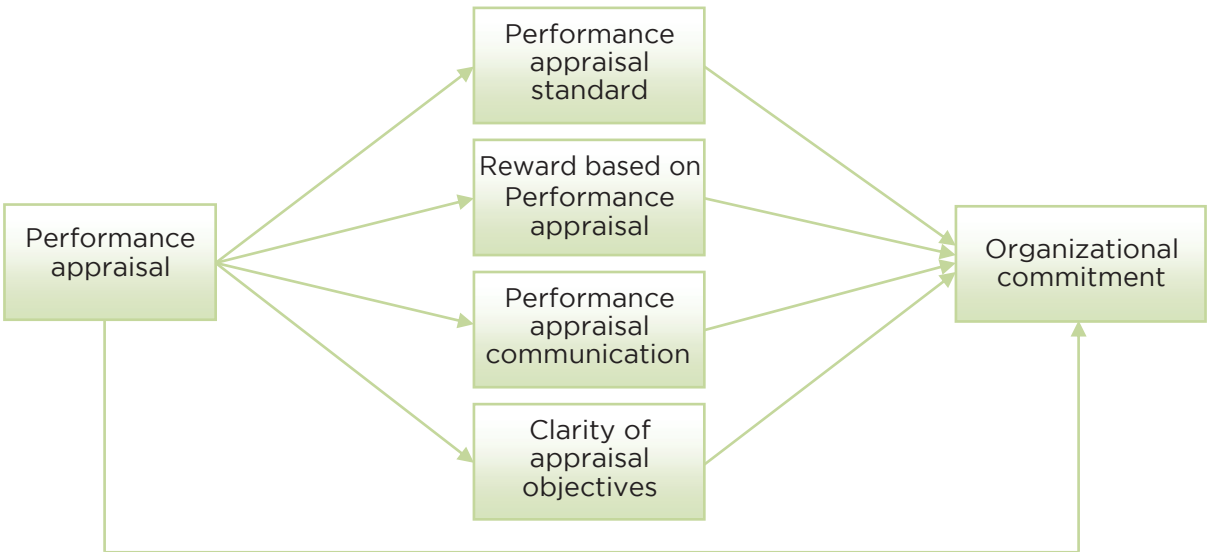
Literature Review and Conceptual Framework

One of the most important elements in maintaining a high level of organizational commitment is the effectiveness of performance appraisal practices (Muhammad, 2022). Salleh et al. (2013) explored through correlation and regression analysis that the commitment of Malaysian public sector employees is impacted by the perceived fairness of performance appraisal practices. Kadiresan et al.,

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(2015) revealed in a study that Malaysian employees' commitment is positively impacted by well-designed performance appraisal procedures. Nasurdin et al. (2008) found in a study in Malaysia that there is a strong and favorable correlation between organizational commitment and performance reviews. Pettijohn et al. (2000) explored that there is a considerable correlation between the level of organizational commitment of salespersons and the fairness of the performance appraisal process. The impact of performance appraisal systems on job satisfaction and organizational commitment in India's service industry was investigated by Neha & Himanshu (2015). According to the findings, staff	members who expressed satisfaction with the performance review process were also content with their jobs and showed a strong sense of commitment to the company. Singh & Rana (2015) demonstrated that organizational commitment of Indian employees is significantly and favorably impacted by the fairness of performance appraisal procedures. In India, Paul & Anantharaman (2004) conducted a study and the results of the study demonstrated that the overall effect of performance appraisal practices on organizational commitment was highly significant. lqbal et al. (2015) found that employees' level of organizational commitment is significantly impacted by their perception of the fairness of	performance reviews. Agyare et al. (2016) explored that employees' organizational commitment is positively impacted when performance appraisals are connected to employee's performance goals. In a study, Tersoo et al. (2018) found that Nigerian bank employees' organizational commitment is significantly affected by performance feedback, performance appraisal communication, performance appraisal standards and corrective action. Anand et al. (2020) discovered that employees' organizational commitment greatly impacted by the performance appraisal system. According to Alhakeem & Qazi (2022), organizational commitment is impacted by performance appraisal results among Saudi Arabian service industry employees.
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Figure 1: Conceptual Framework



Source: Developed for the Study



According to this model, performance appraisal (independent variable) and organizational commitment (dependent variable) is positively correlated. To accomplish this study's objective, the following hypotheses have been developed:

- H1: Performance appraisal practices have a direct and positive effect on organizational commitment.
- H1a There is a significant effect of performance appraisal standards on organizational commitment
- H1b Rewards associated with performance appraisal have a positive effect on organizational commitment
- H1c Performance appraisal communication has a

positive effect on organizational commitment

H1d Clarity of performance appraisal objectives has a significant effect on organizational commitment

Objectives of the Study

This study's primary goal is to evaluate the employees' perceptions of performance appraisal practices and to explore the impact of performance appraisal on organizational commitment of the selected private commercial banks (PCBs) in Bangladesh. The specific objectives of this study are as follows:

1. To identify the employees' perceptions of performance appraisal practices of PCBs in Bangladesh.
2. To explore the impact of

performance appraisal practices on employees' organizational commitment of PCBs in Bangladesh.

Methodology

The study uses a combination of qualitative and quantitative data to meet its aims. The research employed both primary and secondary data sources. Books and related publications are examined for secondary data. Private commercial banks listed on the Dhaka Stock Exchange have been included in this study. A pre-structured questionnaire is used to gather primary data from the study population, which consisted of randomly chosen respondents from 12 (twelve) private commercial banks in Bangladesh. BRAC Bank PLC, City Bank PLC, Dutch-Bangla Bank PLC, Eastern Bank PLC, Jamuna Bank PLC, Mercantile Bank PLC, ONE Bank PLC, Prime Bank PLC, Pubali Bank PLC, Southeast Bank PLC, United Commercial Bank PLC, and Uttara Bank PLC have been selected for this study.

Selected twelve banks have 105 branches in Rajshahi division. To ensure representation, 36 branches of the banks have been selected on a proportionate basis. From the survey it is identified that the selected 36 branches of twelve banks have 630 employees.

To obtain representative sample size, the following statistical formula was used for known population (Kothari, 2010).

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$$n = \frac{z^2 \cdot p \cdot q \cdot N}{e^2 (N-1) + z^2 \cdot p \cdot q} = \frac{1.96^2 \times 0.5 \times 0.5 \times 630}{0.05^2 (630-1) + 1.96^2 \times 0.5 \times 0.5} = \frac{605.052}{2.5329} = 238.87 = 239$$

Here,

n = Sample size

N = Total number of employees

z = Confidence level (at 95% probability = 1.96)

p = Estimated population proportion (0.5 this maximizes the sample size)

q = 1-p

e = error limit of 5% (0.05)

Moreover, data was also collected from each branch manager, i.e. 36 branch managers.

The total number of respondents stood at (239+36) = 275.

Based on earlier research (Walsh, 2003; Meyer & Smith, 2000; Evans & McShane, 1988), twelve items were used to assess participants' perceptions of performance appraisal procedures. Based on research by Meyer et al. (1993) and Allen & Meyer (1990) twelve items were used to measure organizational commitment.	primary data. A 5-point Likert scale was used for this inquiry; 1 means highly disagree, 2 means disagree, 3 means indifferent, 4 means agree, and 5 means highly agree. Pihie (2009) states that a mean score of 3.80 or above denotes strong perceptions, 3.40 to 3.79 for moderate perceptions, and 3.39 or lower for poor perceptions. Therefore, the levels consider the opinions of the staff about perception towards performance appraisal. The		study uses both descriptive and inferential statistics to analyze two variables: performance appraisal, and organizational commitment. For data analysis, IBM SPSS version 22 is utilized.
A questionnaire was distributed to 275 employees of the selected banks to collect			Reliability has been assessed using the Cronbach's Alpha coefficient. Straub et al. (2004) suggested that a dependability value of 0.60 or above is suitable for pilot research.

Table 1: Reliability Coefficient

Variables	Statements	Cronbach's Alpha	Decision
Performance appraisal standard	3	0.611	Accepted
Reward based on performance appraisal	3	0.810	Accepted
Performance appraisal communication	3	0.803	Accepted
Clarity of performance appraisal objectives	3	0.816	Accepted
Organizational Commitment	12	0.922	Accepted
Performance Appraisal Fairness	12	0.901	Accepted

Source: Survey Data

Above table shows that Cronbach's Alpha of each variable was greater than or equal to 0.6, indicating that the result was accepted. Therefore, without making any extra modifications, the researcher chose to use this questionnaire to collect data from the intended sample size of 195 respondents.

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Analysis and Discussion

This section mainly deals with the demographic profile of the respondents and the analysis done to identify the employees' perception towards performance appraisal and its impact on organizational commitment.

Demographic Profile

The respondents' demographic profiles are as follows:

Table 2: Demographic Profile of the Respondents'

Characteristics of Respondents		Frequency	Percentage
Gender	Male	201	73.1
	Female	74	26.9
	Total	275	100
Education Level	Graduate	49	17.8
	Post Graduate	226	82.2
	Total	275	100
Age	25-35	130	47.64
	35-45	72	26.18
	45-55	42	15.27
	55-above	31	10.9
	Total	275	100
Marital Status	Married	208	75.6
	Unmarried	67	24.4
	Total	275	100
Length of Service	1-5 Years	58	21.09
	5-10 Years	122	44.36
	10-15 Years	54	19.64
	15 Years above	41	14.91
	Total	275	100

Source: Survey Data

Table 2 shows that most of the respondents are men (73.1%), postgraduate (82.2%), in their 25-35 age range (47.64%), married (75.6%), and have 5-10 years of total experience (44.36%) in the workplace.

Perceptions of Performance Appraisal

Employees' perceptions to performance appraisal were analyzed through the mean and standard deviation.

Table 3: Perceptions of Performance Appraisal

Variables	N	Mean	Std. Error	Std. Deviation
Performance appraisal standard	195	3.77	.0432	0.7176
Reward based on performance appraisal	195	3.72	.0559	0.9275
Performance appraisal communication	195	3.64	.0482	0.8001
Clarity of performance appraisal objectives	195	3.68	.0362	0.6009
Performance Appraisal	195	3.69	.0390	0.6469

Source: Survey Data

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According to Table 2, the mean score is as follows: Performance appraisal standard (M=3.77), reward based on performance appraisal (M=3.72), performance appraisal communication (M= 3.64), and clarity of performance appraisal objectives (M=3.68). It implies that the majority of respondents' remarks fall into the "agree" or moderate reaction group. The aforementioned table also demonstrates that the total performance appraisal's mean score, M=3.69, falls into the moderate response group (agree). This finding suggests that the staff members of private commercial banks acknowledged the fairness and positive effect of performance appraisal procedures. This is corroborated by research conducted by Khan (2016); Iqbal et al. (2015); and Ikramullah et al. (2011), who looked at how employees felt about performance reviews and discovered that they believed the procedures were fair.

Relationship between Performance Appraisal and Organizational Commitment

Pearson correlation was used to calculate the link between organizational commitment and performance evaluation, as shown in Table 4.

Table 4: Pearson Correlation-Performance Appraisal and Organizational Commitment

Correlations			
		Performance Appraisal	Organizational Commitment
Performance Appraisal	Pearson Correlation	1	0.699**
	Sig. (2-tailed)		0.000
	N	275	275
Organizational Commitment	Pearson Correlation	0.699**	1
	Sig. (2-tailed)	0.000	
	N	275	275

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Source: Survey Data

Table 4 indicates a significant and positive correlation between organizational commitment and performance appraisal (r = 0.699, P < 0.01). The analysis goes on to demonstrate the important and positive role that performance reviews play in fostering organizational commitment. This is corroborated by research conducted by Farndale et al. (2010); Nasurdin et al. (2008); Pettijohn et al. (2000); Tziner & Murphy (1999) who discovered performance appraisal and organizational commitment is positively correlated.

Table 5: Model Summary-Performance Appraisal and Organizational Commitment

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.720 ^a	0.519	0.512	0.397316

a. Predictors: (Constant): Performance appraisal standard, reward based on performance appraisal, performance appraisal communication, clarity of performance appraisal objectives

Source: Survey Data

The regression yielded an R-square value of 0.519. This demonstrates that the performance appraisal variables are responsible for 51.9% of the variation observed in employees' organizational commitment.

Table 6: ANOVA- Performance Appraisal and Organizational Commitment

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.947	4	11.487	72.766	0.000 ^b
	Residual	42.622	270	0.158		
	Total	88.570	274			
a. Dependent Variable: Organizational Commitment						
b. Predictors: (Constant), Performance appraisal standard, reward based on performance appraisal, performance appraisal communication, clarity of performance appraisal objectives						

Source: Survey Data

According to the ANOVA table's results, $F = 72.766$ and $p = .000 < .05$. P value shows a substantial relationship between performance appraisal and organizational commitment because it is less than the 5% (0.05) significance level. According to these findings, there is a statistically significant correlation between organizational commitment and views of performance reviews. Therefore, the study accepted the hypothesis that there is a direct effect of performance appraisal on organizational commitment. This is corroborated by research conducted by Alhakeem & Qazi (2022) Muhammad (2022), Anand et al. (2020) Tersoo et al. (2018); Agyare et al. (2016) who discovered fairness of performance appraisal affects the organizational commitment.

Table 7: Regression Coefficients- Performance Appraisal and Organizational Commitment

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.592	0.178		8.929	0 .000
Performance appraisal standard	0.141	0.046	0.177	3.031	0 .003
Reward based on performance appraisal	0.287	0.042	0.468	6.770	0 .000
Performance appraisal communication	0.063	0.043	0.089	1.466	0 .001
Clarity of performance appraisal objectives	0.094	0.046	0.099	2.206	0 .044

Source: Survey Data

The regression equation to explain the model is:

$$Y = a + b_1X_1 + b_2X_2 + \dots + b_iX_i$$

Where, Y is the dependent variable (organizational Commitment) and ($X_1, X_2, X_3 \dots X_i$) are the independent variables. Thus, the model is represented as

$$\text{Organizational Commitment} = 1.592 + 0.141 X_1 + 0.287 X_2 + 0.063 X_3 + 0.094 X_4$$

The regression model revealed that employees' perception regarding performance appraisal standard, performance appraisal communication, performance appraisal-based reward and clarity of performance appraisal objectives had a significant and direct impact on organizational commitment.



Hypothesis Testing

H1a There is a significant effect of performance appraisal standards on organizational commitment

Hypothesis (H1a) can be accepted based on the multiple regression analysis result shown in Table 6 ($\beta = 0.150$, $t = 2.133$, $P < 0.05$). The researcher concluded that performance appraisal standards have a significant impact on organizational commitment. A prior study by Tersoo et al. (2018) supports this conclusion.

H1b Rewards based on performance appraisal have a positive effect on organizational commitment

It is possible to accept hypothesis (H1b) based on the multiple regression analysis result shown in Table 6 ($\beta = 0.465$, $t = 5.612$,

$P < 0.05$). The study concluded that performance-based rewards have a favorable impact on organizational commitment. Previous research by Singh & Rana (2015) and Agyare et al. (2016) supports this conclusion.

H1c Performance appraisal communication has a positive effect on organizational commitment

Hypothesis (H1c) can be accepted based on the multiple regression analysis in Table 6 ($\beta = 0.533$, $t = 8.751$, $P < 0.05$). The study concluded that performance appraisal communication has a significant impact on organizational commitment. Tersoo et al. (2018) conducted a prior study that supports this finding.

H1d Clarity of performance appraisal objectives has a

significant effect on organizational commitment

Based on the multiple regression analysis in Table 6 ($\beta = 0.148$, $t = 2.374$, $P < 0.05$) hypothesis (H1d) can be accepted. The study concluded that organizational commitment is positively influenced by clarity of performance appraisal objectives. This finding is supported by a previous study of Agyare et al. (2016).

H1 Performance appraisal practices have a direct and positive effect on organizational commitment.

Employees' perceptions towards performance appraisal were measured using performance appraisal standards, performance appraisal-based rewards, performance appraisal communication and clarity of performance appraisal objectives. From the above hypothesis testing we can see that formulated four hypotheses are accepted. Hence based on these findings H1 is accepted. It is implied that employees' organizational commitment is strongly impacted by performance appraisal practices of private commercial banks in Bangladesh. Previous research by Muhammad (2022); Alhakeem & Qazi (2022) and Tersoo et al. (2018), supports this conclusion.



Policy Implications

The achievement of an organization's strategic goals depends on having a team of committed staff. Employees who experience unfairness at work may display a range of unfavorable behaviors. Employers must thus ensure that employees receive fair performance appraisal if they hope to benefit from highly committed employees.

One of the prerequisites for the success of performance appraisal is interpersonal interaction between subordinates and superiors. The results of the study show that the interpersonal interactions of bank employees need to be encouraged. The improvement of interpersonal behavior can be achieved by treating employees with decency, civility and respect on the part of their managers. By doing so, better relations with employees will be developed thereby reducing the negative attitude towards

performance appraisal and banks will gain a dedicated workforce.

The findings of the study suggest that there is a need for proper communication with the bank employees on the issues of performance appraisal. Communication with employees is improved by providing timely, accurate and truthful explanations to employees on issues affecting their jobs, their work and performance appraisals. It is through proper communication and truthful explanation, the employees' trust will be increased, and the objectives of performance appraisal will be achieved.

Although the management of these banks have made every effort to evaluate the performance of the employees using the best methods, it has not been able to fully satisfy their employees. So, these banks need to use modern performance appraisal methods like management by objective, 360 degree appraisal, 720

degree appraisal, assessment center, psychological approach, HR score card, human resource accounting method to evaluate the performance of employees. By proper application and implementation of these methods, it is expected that the selected bank will be able to meet the performance appraisal needs of their employees.

Conclusion

This study looks at employee perceptions of performance appraisal and impact of performance appraisal on organizational commitment of employees in private commercial banks in Bangladesh. The mean score result of perception towards performance appraisal was $M = 3.69$, $SD = 0.647$ (Table: 3) which indicates that the level of perception of employees towards performance appraisal practice is moderate. It implies a favorable attitude towards the performance appraisal system among banking sector personnel. The findings of this study support the hypothesis H1, performance appraisal has a positive effect on organizational commitment. Specifically, employees' organizational commitment was significantly impacted by performance appraisal practices. According to the study results, employees assess their interactions with their employers using a performance appraisal framework and determine whether they were treated fairly or unfairly. Their sense of devotion to the company is

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subsequently impacted by the perceived fairness of performance appraisals.

The findings of the study add to our understanding of the link between organizational commitment and employee perceptions of performance appraisal as well as the need to treat employees fairly in banks. Thus, to benefit from highly committed human resources, the study suggests that banks should improve their performance appraisal systems as well as ensure fair practices. Finally, employees who are committed to the bank are strongly motivated to perform to the best of their ability and are more likely to go above and beyond the call of duty to satisfy clients. Committed employees also express their intention to stay with the bank for a long time, reject competitive job offers, refrain from actively looking for new jobs and speak highly of the bank to others. The longer banks can retain their employees, they can incur lesser costs on new hires and training. These characteristics such as staying with the bank for a long time, turning down attractive job offers, and commending the bank to others are essential for an organization to retain customers, generate revenue, expand and finally sustain success. Therefore, the study concludes with the discovery that fair perception of bank employees towards performance appraisal system strengthens the organizational commitment of employees

which in turn is able to ensure success of the bank.

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Appendix

Questionnaire

Title of the Research: Performance Appraisal and Organizational Commitment: Key to Bank Success

This questionnaire has been designed to assess the connection between performance appraisal and organizational commitment of private commercial banks in Bangladesh. You are, therefore, requested to respond to the questions presented herein in an objective manner. I would like to assure you that the information given here is solely to be utilized for academic purposes and shall be kept confidential. Thank You.

PART I: DEMOGRAPHIC INFORMATION

1	Designation	
2	Department/Division	
3	Sex	Male / Female
4	Age	 Years
5	Educational Qualification	Graduate / Post Graduate
6	Marital Status	Married / Unmarried
7	Length of Service	 Year(s)

PART II: Performance Appraisal

Tick (ffl) the appropriate response to each of the questions

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

1	Accurate information is the foundation for the appraisal	1	2	3	4	5
2	The method is suitable for the evaluation of performance	1	2	3	4	5
3	I am happy with the feedback I receive from my Bank	1	2	3	4	5
4	My level of performance is reflected in my rating	1	2	3	4	5
5	My job performance is the basis for my performance grade	1	2	3	4	5
6	I was able to voice my opinions and sentiments during the evaluation	1	2	3	4	5
7	My performance review is subject to appeal	1	2	3	4	5
8	My supervisor is generally courteous	1	2	3	4	5
9	My supervisor has given me a detailed explanation of the assessment processes	1	2	3	4	5
10	My supervisor does not say anything negative about me	1	2	3	4	5
11	Clear and better explanations of the methods were provided	1	2	3	4	5
12	My supervisor communicates with me in an open manner	1	2	3	4	5

Part iii: Organizational Commitment

1	Spending the remainder of my professional life with this bank would make me very happy	1	2	3	4	5
2	At my bank, I feel like a member of the family	1	2	3	4	5
3	I have a strong emotional bond with this bank	1	2	3	4	5
4	I have a great sense of community inside my bank	1	2	3	4	5
5	If I decided to quit my bank right now, too much in my life would be upended	1	2	3	4	5
6	Even if I wanted to, it would be quite difficult for me to leave my bank at this time	1	2	3	4	5
7	Staying with my bank is currently more of a need than a desire	1	2	3	4	5
8	I think my options are too limited to think about switching banks	1	2	3	4	5
9	I think that an individual has to be faithful to their bank at all times	1	2	3	4	5
10	I feel morally obligated to stay because I think loyalty is crucial	1	2	3	4	5
11	I learned the importance of remaining with one bank	1	2	3	4	5
12	I would not think it is appropriate to leave my bank if I have a better job offer elsewhere.	1	2	3	4	5

Thank you for your kind cooperation

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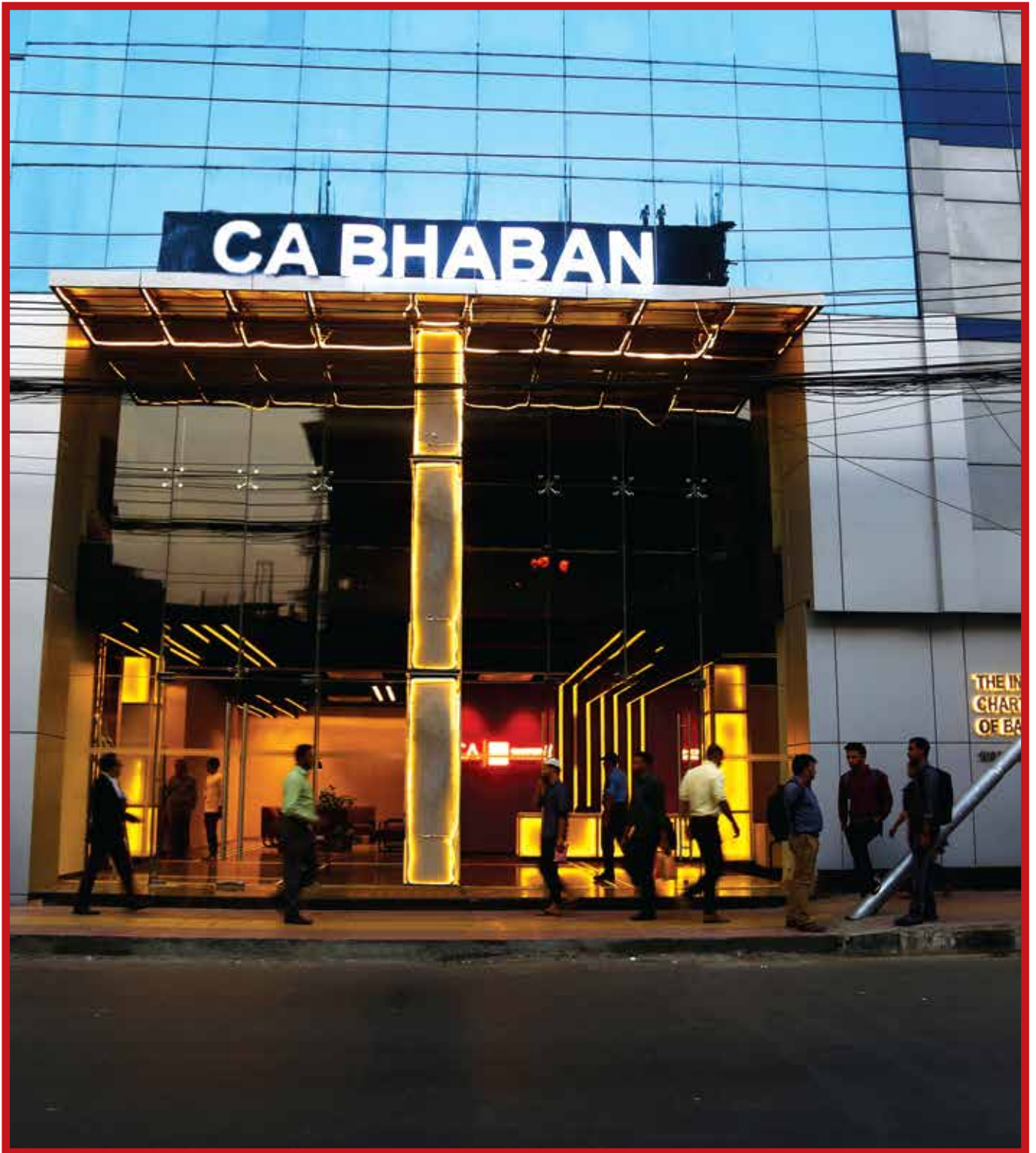
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Recognition of ICAB membership by ICAEW

Membership Scheme of The Institute of Chartered Accountants of England and Wales (ICAEW) allows the members of ICAB to apply for ICAEW membership based on their experiences.

Eligibility criteria of this membership scheme are a series of questions which assess ICAB Member's experience, achievements, skills and expertise. Each application must be supported by an eligible sponsor. Applicants need to complete an Examination of Experience.

Details of ICAEW Membership Scheme is available at <http://www.icaew.com/membership/becoming-a-member/members-of-other-bodies/campaigns/pathways-to-membership>.

ICAB signed its first Memorandum of Understanding (MoU) with the Institute of Chartered Accountants in England and Wales (ICAEW) in 2009. Since then, ICAB has been working with ICAEW as the learning and professional development partner, and also recognized as an approved tuition provider of ICAEW.

As per MoU, ICAB Members can be the members of ICAEW after successful completion of 04 papers out of 15. These members have the opportunity to apply for UK Practising Certificate (PC) subject to meeting the standard ICAEW PC requirement.

Recognition of ICAB Membership by CIPFA, UK

Members of the Institute of Chartered Accountants of Bangladesh (ICAB) are eligible to apply for membership of the Chartered Institute of Public Finance and Accountancy (CIPFA), a globally recognised membership body for the public sector.

An MoU between ICAB and CIPFA, UK was signed on 28 January 2017. Under this MoU, an ICAB member can also become a members of CIPFA subject to fulfillment of certain criteria.

An ICAB Member with good standing having five or more years post-qualification public sector experience are eligible for Full Membership of CIPFA as Chartered Public Finance Accountant (CIPFA) and the members having fewer than five years post-qualification public sector experience are eligible as Affiliate member of CIPFA (CIPFA Affiliat).

ICAB members having CIPFA Affiliate membership, or having no working experience in public sector can gain CIPFA status with the successful completion of exams of only two papers i.e. Public Sector Financial Reporting and Strategic Public Finance.

Membership through Chartered Accountants Australia & New Zealand (CA ANZ) International Pathway Program (IPP)

The Institute of Chartered Accountants of Bangladesh (ICAB) signed an MoU with the Chartered Accountants Australia & New Zealand (CA ANZ). Under this, ICAB members living in Australia or New Zealand having five years post qualification experience at anywhere will be eligible to be member of CA ANZ after successful completion of CA ANZ International Pathway Program (IPP).

There will be no requirement of passing CA ANZ general route examinations by eligible ICAB members as their International Pathway Program (IPP) workshop through case studies would examine the contemporary Australasian business, accounting and finance environment relevant for members of ICAB. On the other hand, CA ANZ members can also be members of ICAB subject to having Bangladeshi citizenship and other requirements as prescribed by ICAB Bye-laws.

Membership of the International Valuation Standards Council (IVSC)

Efforts are underway for ICAB to Become a member of the International Valuation Standards Council (IVSC). This would create an opportunity for the members of ICAB to involve in the valuation process of local and foreign investment in Bangladesh.

This would allow Chartered Accountants to put up their highly essential services and play positive roles in attracting foreign investment. With regard to this, ICAB has already conducted a Members Conference. More so, a virtual meeting with the CEO of IVSC was held on 8 June 2021 where the IVSC proposed ICAB to become member of IVSC on pro-rata basis.

Other Memberships

ICAB is an active member of International Federation of Accountants (IFAC), Confederation of Asian and Pacific Accountants (CAPA) and South Asian Federation of Accountants (SAFA). ICAB is also an associate member of Chartered Accountants Worldwide (CAW).