

Strategic Contributions of the FinTech Professional to Risk Management and Nation-Building

Adedotun Christopher Adeniyi

National Grid, Warwick Technology Park, Gallows Hill, Warwick, UK.

Corresponding author: dotun.christopher1@gmail.com

DOI: <https://doi.org/10.62154/qjmr.2024.017.010523>

Abstract

The expertise of the FinTech professional is critical to every nation's wellbeing, risk and financial management, technology leadership, and nation-building. The aim of this study is to explore the crucial role played by the FinTech professional in risk management and nation-building. The study is rooted in three theories of strategic management and integrated functionality, which offer valuable insights to the functional connectivity between finance and technology sectors, economy and management, and the FinTech professional and other professionals in collaborative risk management and nation-building. Data are obtained from survey questionnaire, observation, and selected library and internet materials. Mixed method alongside its associated techniques, content and thematic analyses, systematic review, and interpretative tools are employed. The analysis shows that the FinTech professional expertly and diversely contributes significantly to risk management and nation-building by playing strategic role in various spheres. The study concludes that the FinTech professional is a strategic risk manager, leader, builder and an agent of change in society. It recommends that this unique professional should be consistently consulted, partnered with, and involved in all public activities of every society and organisation.

Keywords: FinTech Professional, Finance, Technology, Risk Management, Nation-Building.

Introduction

The erstwhile challenges confronting fund management are continually getting compounded by new sets of technology-based challenges prevalent in the cyberspace. In other words, new challenges or threats to fund management have emerged with the advent as well as use of the internet and modern information technologies in the 21st century. The Internet, also known as cyberspace, is one of the fastest-growing areas of technical infrastructure development (Adenusi et al., 2019; Makeri, 2017). Cyberattacks on financial institutions are increasingly alarming. In fact, cyber threats to finance, financial data, and other valuables raise serious concerns and require pragmatic measures. That is, cybersecurity threats to financial institutions and financial market infrastructures are becoming widespread. Cybersecurity refers to the body of established rules enacted and instituted for the protection of the cyberspace (Makeri, 2017).

In a bit to tackle the 'new' challenges, 'new' fields and mechanisms have emerged too. FinTech is a recently emerged multifaceted field, which combines financial and

technological matters and techniques. In this contemporary era of digitalization, complex financial issues engulf different organizations. As Boitan (2019) note, the cybersecurity risks, which the FinTech professional combats alongside other professionals, include the broad information technology frauds, and improper monitoring or a complete negligence to do so. The dire need for the finance industry to strengthen its commitment to tackling frauds and scams by implementing various pragmatic measures cannot be overemphasized (UK Finance, 2019). Risk management, control, monitoring and prevention are some of the recent developments in the field of FinTech (Auwul et al., 2023a; Hasan & Hoque, 2023; Nadi et al., 2023; Okusi, 2024a & 2023). In view of the foregoing, this study seeks to establish the critical roles played by the FinTech professional in mitigating the rising risks in the digitalized society of the 21st century and in contributing to nation-building. Apart from identifying the strategic roles played by the FinTech professional in risk management and nation-building, the study will also determine the extent to which this professional contributes to risk management in finance and technology sectors, and nation-building.

Statement of Problem

With the rise of internet banking, e-transactions, and digitalization, different cyber threats have also surfaced and remained a hard-to-crack knock in the 21st century (Nwode et al., 2024; Nwosu et al., 2024; Obinna et al., 2024; Thuraka et al., 2024a&b; Kopp et al., 2017). Concerned by the rising cybersecurity threats, this study rises to explore the role of the FinTech professional in combating risks to finance and financial resources, technologies, and nation-building efforts. It argues that by playing a critical role in risk management, the FinTech professional doubles as a FinTech risk manager and nation-builder. The multifaceted role played by the FinTech professional is currently undermined. Following the negligence or poor awareness about the role, professional collaboration with this professional is currently low among many nations of the world. The need for change to that end informed this study.

The increasing exposure to cyber-attacks across the globe, and in America and Europe in particular (Boitan, 2019), informed the emergence of FinTech profession. According to Boitan (2019), European and international authorities continually raise concerns over poor identification, evaluation, management, and prevention of emerging finance and technology risks in contemporary times. The role of the professional of this profession is still being undermined and understudied. Therefore, this study takes up this undermined thematic concern about the role of the FinTech professional in cybersecurity, risk management and national development for scholarly exploration.

Aim and Objectives

This study is aimed at exploring the critical role of the FinTech professional in risk management and nation-building. Its specific objectives are to:

- i. Examine the critical roles played by the FinTech professional in risk management and nation-building.

- ii. Determine the extent of the contribution of the FinTech professional to risk management in finance and technology sectors, national development, and nation-building.

Research Questions

The study is guided by the following research questions:

- i. What are the critical roles played by the FinTech professional in risk management and nation-building?
- ii. To what extent is the contribution of the FinTech professional to risk management in finance and technology sectors, national development, and nation-building?

Novelty

Appraising the place of the FinTech professional in risk management and nation-building implies exposing the undermined all-important role played by this professional to a large heterogeneous audience. That is what this study sets out to do. The implication is that the study is novel, as it creates awareness about the critical role played by the FinTech professional in various sectors of society. By engaging in a scholarly appraisal of the role of this expert, the study draws appreciable attention to the role and the extent of the contribution made by the professional. Besides informing the public about the enormous role played by this specialist of a dual broad profession, the study helps to keep a good number of the public abreast of information about this expert. It also bridges a laid-bare research gap, thereby drawing the attention of scholars, stakeholders and other individuals to the multifaceted critical role of the FinTech professional. As such, the significance of this study cannot be overemphasized.

Theoretical Framework

The study is rooted in three related theories. These are Systems Theory (ST), Structural Functionalism (SF), and Agency Theory (AT). Accordingly, ST sees complex systems from interdisciplinary perspective. Like SF, it considers various formal endeavours and components of society as being functionally interconnected and the integral parts of a whole. The society is the organic whole, to which the integral parts are its constituents (Bertalanffy, 1968). The lead exponent of ST is Ludwig von Bertalanffy. Others include Norbert Wiener, Ross Ashby, Stafford Beer, Jay Forrester, Humberto Maturana and Francisco Varela, and Peter Senge.

Since FinTech comprises two main endeavors with broad scope coverage, this study considers ST as being apt, because there are various interdisciplinary systems correlating and functioning interdependently in the field called 'FinTech'. For example, systems of finance and technology are combined by the FinTech professional in the course of carrying out their symbolic and all-important functions and activities. The various systems involved in the field of FinTech are the integral parts of the whole society. Different systems interact

for the realization of financial safety, efficient management of finances and technologies, and for all the undertakings of the broad field of FinTech.

The Functionalist Theory (FT), championed by Emile Durkheim and Robert Merton, holds that elements of society are functional and interconnected, and thereby co-exist, correlate, and act or function interdependently in their dealings (Merton, 1938; Chinoy, 1967; Ashley, 2019). Also, the theory assumes that the functionality and the stability of society depend on the collective contributions of all its constituent elements (Ashley, 2019). The implication of the foregoing is that without the contribution of FinTech, as a critical system of society, and that of its professionals, as actors in the system, the society cannot do well. This is because a lot of things would be at stake. The FinTech professional unveils the nitty-gritty of the field, which contributes to the wellbeing of the society. Put simply, this study argues that the FinTech professional contributes significantly to the functionality and the stability of society through professional gestures and responsibilities.

The professional gestures and responsibilities of the field of FinTech can only be best undertaken by the professional, as the custodian of the field. Without the contributions of this professional, the field is bound to be faced with enormous challenges without any (significant) solutions. Interestingly, the solutions proffered transverse the field to many other spheres of society. Also, the professional of FinTech correlate with other professionals and stakeholders of society to see to the wellbeing of society and the integral systems of society. By virtue of the functionality of both the systems of FinTech and the professional, the field stabilizes rather than disrupts social stability and public affairs of society. This study avers that although the systems and the professional of FinTech also can be dysfunctional sometimes, their functional aspects outweigh and make up for the dysfunctional aspects. The functionalists note that some aspects of society can be both functional and dysfunctional (Merton, 1938; Chinoy, 1967; Ashley, 2019). These are manifest and latent functions. Manifest functions are intended and commonly recognised consequences, while latent functions are unintended and often hidden consequences (Ashley, 2019).

We now move on to Agency Theory (AT). This theory is characterized by principal-agent relationship, asymmetric information, moral hazards, adverse selection, governance and monitoring, aligning with incentives, costs of transactions, sharing and managing risks, designing contracts, and behaviors or aspects of behavior. Prominent figures of AT include Michael C. Jensen, William H. Meckling, Eugene F. Fama, Oliver E. Williamson, B. J. A. (Bobby) Van der Meer, R. Edward Freeman, and Jean Tirole. These are the most renowned theorists of AT, who have put forward and made clear what AT entails and how it can be applied variously in fields like management, economics, finance, organizational characteristics, commerce, corporate communications, international relations, and intergroup relations.

As Scott (2008) and Watson et al. (2007) have rightly observed, AT emphasizes the important link between stakeholders and managers, who are both agents of success wherein they act and represent. It follows that AT, like ST and FT, dwells on

interconnectivity. In its case, stakeholders and the managerial representatives of organization (ought to and do) functionally correlate to achieve a whole lot of different goals. It is quite interesting that AT advocates inter-agency collaboration among actors of organisations and nations. Its call is a message to stakeholders in other fields that they need to collaborate meaningfully with FinTech professionals and vice versa. Collaboration calls for mutual engagement among actors, who have to build, showcase and uphold trust while focusing their engagement on achieving common goals (Akkermans et al. 2020; Macfarlane, 2005; McNay, 2005).

In support of the above, Beyerlein et al. (2003) have observed that global, economic and business problems can be solved more effectively when skills, values and processes for effective collaboration are established and sustained. In the same vein, Ojiako and Nwode (2022) posit that it is only with collaboration that solutions to world's complexities, collective existence, and welfare can be found. As such, AT is relevant to this study, as it advocates collaboration between the FinTech professional and other professionals and stakeholders of society. Thus, collaboration, as AT teaches, is a viable means of attaining meaningful goals. Like the two other adopted theories, AT aptly situates in this study and offers valuable insights to the claims on the strategic role of the FinTech professional in risk management and nation-building.

Related Literatures

Cybersecurity risks in the finance sector are internet-based threats to the sector, which pose serious threats to operations, management, internal systems and control, regulatory compliance and auditing (Boitan, 2019). Being internet-based, the FinTech professional, an expert who is very conversant with these threats and the technology-based measures for quelling them, plays a firsthand role in managing these risks or threats. As Makeri (2017) indicates about the cybersecurity professional, the FinTech professional shares the following professional undertakings with the cybersecurity expert:

- i. Reducing the vulnerability of internet users of information systems and networks;
- ii. Assisting individuals, groups, institutions and governments to put up a sustained cybersecurity culture;
- iii. Working in collaboration across public and private sectors to make the cyberspace safe for users;
- iv. Fostering a deep and better understanding of current trends in cyberspace, information technology, and cybercrimes;
- v. Devising effective means of proffering solutions;
- vi. Ensuring the availability of resources and advanced FinTech mechanisms for solutions to financial and technological threats and problems;
- vii. Enhancing regulatory compliance, which includes confidentiality, authenticity, non-repudiation, and building as well as ensuring integrity.

Since the FinTech professional doubles as an expert of finance (management) and technology (management and security), it is quite justifiable to assert that the above listed

are some of the many undertakings of this dualist professional, who combines the broad undertakings of both finance and technology fields. Given that each of these two fields has its diverse professional concerns and undertakings, there is no gainsaying the fact that the FinTech professional is an expert who manages conventional and technical risks eruditely and competently. Siddigi (2020) notes that being that since cyber-risks are on-going challenges, it is imperative to develop and implement an effective harmonized framework for creating awareness about risks and how to manage them, as awareness can proffer a better resilience to risks. Luma et al. (2021) note that sophisticated measures are needed for effective mitigation of security issues posed by internet security threats and attacks.

Slapničar et al. (2022) emphasize that the effectiveness of cybersecurity audit positively correlates with effective risk management, thereby foiling the success of any cyber attacks. In addition, this professional also plays other roles, which are not technology-based. Studies affirm the huge impact of AI on accounting and financial management, information systems and other spheres (Auwul et al., 2023b; Bonsu et al., 2023; Chowdhury, 2023; Fahmida-E-Moula et al., 2023; Hossain et al., 2023). The two sets of roles played by this strategic professional contribute immensely to national development, nation-building and the safety of financial systems, critical infrastructure, other critical systems of society, and people across the globe. Building a strong cyber awareness culture entails creating high level of sensitization about cyber threats and being well informed about how best to mitigate the threats.

The mitigation of the threats can be less difficult if there is an appreciable level of awareness. As the Chartered Institute of Internal Auditors (2018) rightly notes, risk management framework entails defining risks, risk defense modalities, and adequate representation of stakeholders of financial institutions in Operational Management, Risk, Internal Control and Compliance Departments, and Internal Audit. Also, UK Finance (2019) reiterates the need to defend financial systems and infrastructure as well as the society from cyber threats using the following:

- i. Advanced security systems that protect customers, including real-time transaction analysis, sophisticated ways of authenticating customers, behavioural biometrics on devices and technology;
- ii. Designing a Banking Protocol to serve as rapid warning and response scheme, through which bank branch staff can alert police in case of fraud suspicions;
- iii. Developing new technology meant to track suspicious payments and identify money mule accounts.

The FinTech professional is capable of deploying the listed measures for advanced risk management. Also, it is in recognition of the need for effective risk mitigation that the Centre for European Policy Studies (CEPS) organized a Task Force meeting that brought together experts in financial and tech industries, national supervisors, and European institutions. The 2018 meeting by the CEPS produced the following valuable recommendations:

- i. Convergence in the definition of cyber-incidents should be increased;

- ii. The existing framework for cyber-incidents reporting should be increased;
- iii. Well-reasoned decisions on whether or not data held by the centralized hub should be shared with supervisors, and customers;
- iv. Consistent, reliable and exploitable statistics on cyber-trends should be developed;
- v. Implementing best practices for cyber-hygiene by regulators and supervisors;
- vi. Reinforcing cross-border cooperation and legal convergence, both within the EU and other nations of the globe;
- vii. Designing best practices for the resolution of cases of cyber-attacks;
- viii. Strengthening the European Cybersecurity Certification Scheme;
- ix. Policy-makers should assess feasibility and necessity of creating an emergency fund in cases of large cyber-attacks.

As Jakka et al. (2022) agree, managing cybersecurity threats or challenges requires devising and using multifarious approaches to figure out, analyze and combat cyber threats to organizations' digital assets, sensitive data, critical infrastructure, and funds. Giuca et al. (2021) and Thach et al. (2021) argue that technological techniques are viable strategies for mitigating cybersecurity challenges. For this study, AI and ST can address different cybersecurity challenges in different spheres. They can help address the peculiar cybersecurity challenges confronting fund management. Using these technologies can bring forth growth, optimal performance, investment opportunities, etc. (Alam, 2024). It follows that the FinTech professional plays a crucial role in growth, optimal performance, and investment opportunities in the 21st century society.

The FinTech professional helps to combat the noted risks, among others, which confront nations like the US at a very high extent. It is in view of the foregoing that this study dissects the tactical role of the FinTech professional in the fight against the serious risks confronting finance and technology sectors and in the development of a nation in ways that help build the nation. The study is informed by the dire need to increase research into the risks and contribute substantially to the mitigation of the risks through the application of advanced technology-based techniques. As Kopp et al. (2017) note, risk awareness is increasing appreciably in recent times among firms in the industry, while most of the firms are yet to invest in cybersecurity at an appreciable extent due to financial and policy constraints, among other factors. The backdrop underscores the relevance of this present research.

Furthermore, the FinTech professional plays an essential role in risk management, which contributes immensely to nation-building. The Chartered Institute of Internal Auditors (2018) mentions that strong cyber awareness culture is one of the best ways of lodging defense against cyber-attacks. It adds that internal auditing plays a crucial role in ensuring a proper understanding and an effective implementation of this culture. The FinTech professional, as one who is engaged in these tasks, obviously plays a crucial role in auditing, building of a strong cyber awareness culture, and risk management. By playing these roles, the FinTech professional undoubtedly contributes significantly to nation-building. The reason is that as this professional undertakes the foregoing responsibilities, national wellbeing is attained. To that end, there is no doubt about the role of the FinTech

professional in nation-building. That is additional to risk management in finance and technology sectors.

Methodology

Survey design and mixed method are employed. The study relies on both primary and secondary data. Survey questionnaire and observation are the primary sources involved. Questions derived from the research questions were posted online and responses obtained through Google document. Selected library and internet materials, which are closely related to the study, are the secondary data sources used. Making use of inclusion and exclusion criteria of systematic review, some of the gathered secondary are excluded, while others are included. Those from databases, websites and other sources considered questionable or predatory are excluded from the study.

The otherwise ones are included. These include the secondary data sourced from credible repositories, such as Google Scholar, ResearchGate and Academia.edu. The online generated questionnaire data were observed, synthesized, interpreted and analyzed. Based on the principles confidentiality and informed consent (Nwosu, 2022; Osuchukwu & Danjuma, 2022), the personal data of the respondents were neither demanded nor included. The overall data analysis involved content and thematic analyses, systematic review, interpretative, and qualitative and quantitative techniques.

Data Presentation and Analysis

The survey questionnaire data are presented and analyzed in this section of the research. Here, data from fieldwork are presented and analysed. The data taken into consideration for the analysis are only those on the research objectives and questions, which address the research problem too. Being online survey questionnaire, there were no specific numbers administered. Interestingly, 400 were filled and obtained for presentation and analysis.

Data on the critical roles played by the FinTech professional in risk management and nation-building

Two sets of roles played by the FinTech professional, presented by the research to the respondents, are the following:

- i. Leadership qualities, interdisciplinary knowledge, skills and performance, multitasking, problem-solving, creativity, criticality, objectivity, adaptability, organisation, teamwork, negotiation, time management, and effective communication.
- ii. Identifying and managing risks, planning, strategic management, initiating and executing or implementing finance and technology related projects, facilitating human resource management, and proffering advanced technology-based lasting solutions to a range of problems confronting finance and technology sectors.

Table 1: Roles played by the FinTech professional

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agreed	104	26.0	26.0	26.0
Agreed	91	22.8	22.8	48.8
Neutral	74	18.5	18.5	67.3
Strongly Disagreed	96	24.0	24.0	91.3
Agree	35	8.8	8.8	100.0
Total	400	100.0	100.0	

Source: Author's Field Survey, 2024

As evident in the Table 1 above, 104 (26.0%) respondents strongly agreed; 91 (22.8%) agreed; 74 (18.5%) of them indicated 'neutral'; 96 (24.0) of them strongly disagreed; and 35 (8.8) disagreed. It is quite clear from the responses that the roles identified by the research are upheld by the respondents to be indeed carried out by the FinTech professional. This submission is based on the statistical relevance of the leading responses in terms of the recorded ratios for strongly agreed and agreed.

Table 2: Extent of the FinTech professional's contribution to finance and technology management, national development, and nation-building

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Very High Extent	142	35.5	35.5	92.3
High Extent	113	28.2	28.2	42.0
Neutral	59	14.8	14.8	56.8
Very Low Extent	55	13.8	13.8	13.8
Low Extent	31	7.8	7.8	100.0
Total	400	100.0	100.0	

Source: Author's Field Survey, 2024

Obviously, the Table 2 shows 142 (35.5%) for very high extent, 113 (28.2%) for high extent, 59 (14.8%) for neutral, 55 (13.8%) for very low extent, and 31 (7.8%) for low extent. The responses substantiate the claims of the research that the FinTech professional contributes significantly to risk management in finance and technology sectors, national development, and nation-building. The extent of the contribution is proven to be very high.

It is important to note that the research objectives are met; its questions answered and the problem addressed. The findings on these aspects of the research reflect the views of some extant studies. Among such studies are those of Auwul et al. (2023b), Bonsu et al. (2023), Chowdhury (2023), Fahmida-E-Moula et al. (2023), Hossain et al. (2023), Slapničar et al. (2022), Giuca et al. (2021), Thach et al. (2021), UK Finance (2019), The Chartered Institute of Internal Auditors (2018), and Makeri (2017). These studies have been engaged with concisely in the 'Related Literature' section of the essay. In particular, the roles of

cybersecurity experts identified by Makeri (2017) aptly apply to the FinTech professional. The present study steps beyond that to identifying the other strategic roles played by this professional, which are other than those played by the cybersecurity professional. The findings also reflect the adopted theories.

The implication is that the FinTech professional plays cybersecurity roles, and finance and technology management roles that are outside the confine of the responsibilities of the cybersecurity professional. The present study also determines the extent to which the FinTech professional contributes to finance and technology management, national development, and nation-building. The extent, which is found to be very high, underscores the important yet neglected contributions of the FinTech professional to different spheres of society.

Conclusion

The study has two major concerns. First, it concerns itself with presenting and ascertaining the roles played by the FinTech professional in risk management in finance and technology sectors, national development, and nation-building. Second, it is concerned with determining the extent to which the FinTech professional contributes to risks management in finance and technology sectors, national development, and nation-building. It is realized that FinTech profession is integrative, multifaceted, innovative, problem-solving, demanding, and driven by financial and technological concerns and measures for addressing critical issues of national interests. Its professional strategically contributes to risk management, cybersecurity, accounting, finance, economic growth, development, public affairs, strategic governance, multidisciplinary and multitasking professionalism, and interdisciplinary collaboration.

Given the foregoing, the study submits that the FinTech professional plays a critical role in risk management and nation-building, thereby contributing enormously to these all-important sectors of every nation. It evidently demonstrates that the FinTech professional plays crucial multifarious roles in risk management in accounting/finance, technology and cybersecurity sectors, economic growth, national development, public affairs, and strategic governance. Through the roles, this professional contributes significantly to these spheres, among others, at a high very extent. The overall implication of doing so is playing a critical, multifaceted and enormous role in nation-building. Therefore, the study concludes that the FinTech professional is a strategic risk manager, leader, builder and an agent of change in society.

Recommendations

The following recommendations are made:

- i. The FinTech professional should be consistently consulted, partnered with, and involved in all public activities of every society and organisation.
- ii. More research studies should be carried out on the FinTech professional as well as the field itself.

- iii. Public awareness about the field of FinTech and its professionals by all agents of socialization would keep the public abreast of information about the importance of this emergent profession and the place of its professional in various endeavors.
- iv. The Department of FinTech should be created and sustained in all tertiary institutions across the globe.

References

- Adenusi, D. A., Adekunle, A. U., Ekuewa, J. B., & Ayediran, O. R. (2019). Challenges and way out of cyber security issues in Nigeria. Paper presented at the *1st International Conference of Villanova Polytechnic*, themed "New trends in science, technology, management and social sciences in Africa," held at Villanova Polytechnic, Imesi-Ile, 10th & 11th July.
- Akkermans, J., Chipulu, M. Ojiako, U. & Williams, T. (2020). Bridging the fields of careers and project management. *Project Management Journal*, vol. 00(0), 1–12. DOI: 10. 1177/ 8756 9728 20910605.
- Alam, A. (2024, Jan. 12). Financial management in the real estate sector: Strategies and challenges." Accessed from <https://www.linkedin.com/pulse/financial-management-real-estate-sector-strategies-aqeel-alam-fca-f8tlf>.
- Ashley, C. (2019). Understanding functionalist theory, one of the major theoretical perspectives in sociology. <https://www.thoughtco.com/functionalist-perspective-3026625>.
- Auwul, M. R., Hakim, M. A., Dhonno, F. T., Shilpa, N. A., & Abedin, M. Z. (2023). Knowledge mining from health data: Application of feature selection approaches. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (217-231). https://doi.org/10.1007/978-3-031-18552-6_1
- Auwul, M. R., Hakim, M. A., Dhonno, F. T., Shilpa, N. A., Sohag, A., & Abedin, M. Z. (2023). Using machine learning using outlier modification rule for improvement of the performance of classification algorithms in the case of financial data. In M. Z. Abedin & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (75-92). https://doi.org/10.1007/978-3-031-18552-6_1
- Bertalanffy, L. (1968) *General systems theory*. Braziller.
- Beyerlein, M. M., Freedman, S., McGee, C., & Moran, L. (2003). *Beyond teams: Building the collaborative organization*. Jossey-Bass/Pfeiffer.
- Boitan, I. A. (2019). Cyber security challenges through the lens of financial industry. *International Journal of Applied Research in Management and Economics*, 2(4), 33-38.
- Bonsu, M. O., Roni, N., & Guo, Y. (2023). The impact of big data on accounting practices: Empirical evidence from Africa. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning* (47-76). Springer Nature's International Series in Operations Research & Management Science, 336. https://doi.org/10.1007/978-3-031-18552-6_1
- Centre for European Policy Studies– (2018, June). Cybersecurity in finance getting the policy mix right! Report of a CEPS-ECRI Task Force.
- Chartered Institute of Internal Auditors (2018). Cyber security. December.
- Chinoy, E. (1967). *Society: An introduction to sociology*. Random House.
- Chowdhury, E. K. (2023). Integration of artificial intelligence technology in management accounting information system: An empirical study. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (35-46). https://doi.org/10.1007/978-3-031-18552-6_1

- Fahmida-E-Moula, N. A. S., Shaha, P., Hajek, P., & Abedin, M. Z. (2023). Default risk prediction based on support vector machine and logit support vector machine. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (93-106). https://doi.org/10.1007/978-3-031-18552-6_1
- Giuca, O., Popescu, T. M., Popescu, A. M., Prostean, G., & Popescu, D. E. (2021). A survey of cybersecurity risk management frameworks. In *Soft computing applications: Proceedings of the 8th International Workshop Soft Computing Applications (SOFA 2018)*, vol.18 (240-272). Springer International Publishing.
- Hasan, M., & Hoque, A. (2023). FinTech risk management and monitoring. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (3-16). https://doi.org/10.1007/978-3-031-18552-6_1
- Hossain, S. F. A., Nadi, A. H., Akhter, R., Sohan, M. A. I., Ahsan, F. T., Shofin, M. R., Shabab, S., Karmoker, T., & Paul, K. (2023). Exploring the role of mobile technologies in higher education: The impact of online teaching on traditional learning. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, (197-216). https://doi.org/10.1007/978-3-031-18552-6_1
- Jakka, G., Yathiraju, N., & Ansari, M. F. (2022). Artificial intelligence in terms of spotting malware and delivering cyber risk management. *Journal of Positive School Psychology*, 6(3), 6156-6165
- Kopp, E., Kaffenberger, L., & Wilson, C. (2017). Cyber risk, market failures, and financial stability. *IMF Working Paper*, WP/17/185.
- Luma, A., Abazi, B., Aliu, A., Snopce, H., & Januzaj, Y. (2021). Cybersecurity challenges for organizations. International Conference on Engineering Technologies (ICENTE'21).
- Macfarlane, B. (2005). The disengaged academic: The retreat from citizenship. *Higher Education Quarterly*, 59 (4).
- Makeri, Y. A. (2017). Cyber security issues in Nigeria and challenges. *International Journal of Advanced Research in Computer Science and Software Engineering*, 7 (4), 315-321.
- McNay, I. (2005). Higher education communities: Divided they fail? *Perspectives*, vol.9, no.3.
- Merton, R. K. (1938). Social structure and anomie. *American Sociological Review*, vol.3, no.5, 672-82.
- Nadi, A. H., Hossain, S. F. A., Hasan, A. M., Sofin, M. R., Shabab, S., Sohan, M. A. I., & Yuan, C. (2023). Discovering the role of m-learning among finance students: The future of online education. In M. Z. Abedin, & P. Hajek (eds.), *Novel financial applications of machine learning and deep learning*. Springer Nature's International Series in Operations Research & Management Science 336, 183-196. https://doi.org/10.1007/978-3-031-18552-6_1
- Nwode, G. C., Emeka-Nwobia, Ngozi U., & Nwankwegu, J. A. (2024). Leveraging decision-making artificial intelligence techniques for the implementation of policies on Nigerian indigenous languages. Paper presented at 35th Conference of The Linguistic Association of Nigeria (CLAN), hosted by the Departments of African Languages and English, Al-Qalam University, Katsina
- Nwosu, E. N. (2022). Syntactic rules and research ethics: A critical exposition. *Bangladesh Journal of Bioethics (BJBio)*, 13(3), 44-52. <https://doi.org/10.62865/bjbio.v13i3.49>
- Obinna, N. N., Thuraka, B., & Okusi, O. (2024). Impact of information technology on teaching and learning: A focus on hybrid teaching mode. *African Journal of Humanities and Contemporary Education Research*, 15(1), 119-130. <https://doi.org/10.62154/689nh583>
- Ojiako, C. D., & Nwode, G. C. (2022). Effective language use in interdisciplinary collaboration for employee performance and academic integrity in the university. *Journal of Chinese & African Studies (JOCAS)*, 3(1), 41-50.

- Osuchukwu, C. N., & Danjuma, C. (2022). Research ethics and pragmatic context: An exposition. *Bangladesh Journal of Bioethics*, 13 (3), 28-34.
- Scott, W. R. (2008). Lords of the dance: Professionals as Institutional Agents. *Organization Studies*, 29(2), 219-238. <http://doi.org/10.1177/0170840607088151>
- Siddigi, L. (2020). Why cyber-risk should take centre stage in financial services. World Economic Forum, February 2020, <https://www.weforum.org/agenda/2020/02/cyber-risk-should-take-centre-stage-in-financial-services/>.
- Slapničar, S., Vuko, T., Ćular, M., & Drašćek, M. (2022). Effectiveness of cybersecurity audit. *International Journal of Accounting Information Systems*, 44, 100548. <https://doi.org/10.1016/j.accinf.2021.100548>
- Thach, N. N., Hanh, H. T., Huy, D. T. N., & Vu, Q. N. (2021). technology quality management of the industry 4.0 and cybersecurity risk management on current banking activities in emerging markets-the case in Vietnam. *International Journal for Quality Research*, 15(3), 845-856.
- Thuraka, B., Ogirri, K. O., & Pasupuleti, V. (2024b). Strategic mitigation of depression through critical and positive thinking for mental health. *Asian Journal of Medical Principles and Clinical Practice*, 7(2), 356-67. AJMPCP.122096
- Thuraka, B., Pasupuleti, V., Malisetty, S. & Ogirri, K. O. (2024). Leveraging artificial intelligence and strategic management for success in inter/national projects in US and beyond. *Journal of Engineering Research and Reports*, 26(8), 49-59. <https://doi.org/10.9734/jerr/2024/v26i81228>.
- UK Finance (2019). *Fraud the facts 2019: The definitive overview of payment industry fraud*.
- Watson, K.J., Blackstone, J.H. & Gardiner, S.C. (2007). The evolution of a management philosophy: the theory of constraints. *Journal of Operations Management*, vol.25, 387-402.