Design and Development of a Maturity Model for Performance Evaluation of Managers with a Modern Technology Approach in Bank Melli Iran (Fuzzy Delphi Method)

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Objective: Industry 4.0 or the digital revolution is changing the way we live, altering the interaction between customers and banks, inevitably implying that both existing business techniques and financial management are not exempt from this change. The main objective of this research is to design and develop a maturity model for the performance evaluation of managers in Bank Melli Iran with a modern technology approach.

Methodology: This research is applied-developmental in terms of purpose, exploratory in nature, and descriptive-survey with a mixed exploratory approach in terms of data collection method. The qualitative approach is based on the fuzzy Delphi method. In the qualitative section of the research, a purposeful sample of 15 participants was selected, including academic experts and some senior managers of Bank Melli.

Findings: The statistical population in the quantitative section includes 180 experts and employees of Bank Melli, with a sample size of 120 estimated using random sampling. Data in the qualitative section were collected through semi-structured interviews guided by general directions and then analyzed using the fuzzy Delphi method to develop the conceptual model of the research. In the model testing phase, the research hypotheses were developed and tested using factor analysis and path analysis models with SPSS and PLS software.

Conclusion: The research results indicated that the model consists of four main factors: management tasks, conceptual skills, technical skills, and human skills, described by 22 indicators and 104 sub-indicators.

Keywords: *Performance Evaluation; Maturity of Performance Evaluation; Modern Technologies; Bank Melli Iran.*

1   Introduction

The growth of knowledge and information technology security in developing countries is increasing, and information and communication technology (ICT) plays a vital role in the global economy (Robbins, 2009). These changes have been widely adopted by various banks, like other industrial companies, manufacturing companies, the healthcare sector, the financial sector, and the educational system in their daily operations. The dynamism of events in the current financial world makes financial banks dependent on this technology (Scott et al., 2017). Banks around the world are changing their operational programs to offer advanced services to customers. Additionally, customers are becoming familiar with banks that are perceived as advanced (Chai et al., 2016; Shimels & Lessa, 2023; Singh et al., 2022).

For example, O-Bank in Taiwan has no physical branches and offers a variety of services through an application and a 24x7 video focus (Singh et al., 2022). Service systems and information systems have been integrated into banking policies in the field of infrastructure (Benlhabib & Berrado, 2022). These technological innovations include infrastructural advancements, the presence of skilled support staff, and superior database management systems. Performance management is a method by which many of these goals can be achieved. Financial institutions hold significant importance in the economic structure of societies (Magomaeva et al., 2020). New technological structures create new forms of banking, and this process always occurs in a complex environment that, on one hand, increases the demand for cost standardization and, on the other hand, drives the demand for innovative responses to customer needs (Diener & Špaček, 2021).

When banks provide comprehensive electronic banking services, their operating costs decrease, and their profits increase (Lasmini et al., 2020). Issues of compatibility and integration related to the insufficient sharing of data in business units due to information silos, along with the investment of time and money in legacy systems that are incompatible with new analytical technologies, act as a strong deterrent or a prevalent problem toward achieving higher analytical maturity. The main problem in banking is that traditional financial service providers have not yet fully implemented digitization. As a result, they often offer an incomplete range of services and face strategic and operational barriers in the digital transformation process (Chai et al., 2016). Since the primary goal of any

organization is to maintain its survival and position, banks must continually focus on revenue generation, customer satisfaction, and, most importantly, gaining market share. They must evaluate the performance of their employees and managers, particularly in light of the ever-increasing growth of new technologies. In other words, success in targeting new technologies and going through the necessary steps to achieve desired results alone will not lead to the success of banks. The criteria for achieving goals must be continuously evaluated. Unlike reputable service providers, new and innovative competitors with new concepts, products, and services exist and, above all, with a modern multi-channel approach in terms of distribution, communication, and marketing, get closer to customers. Various ways. As a result, multi-channel business models, like the German company N26, have gained significant market share (Motondi & Bula, 2020). Continuous improvement of bank performance creates a massive synergy force that can support growth programs, development, and the creation of banking excellence opportunities (Aho, 2012). Governments, banks, and institutions are always striving to achieve this goal (Chai et al., 2016; Wagacha & Maende, 2017).

Without reviewing and gaining awareness of the progress and achievement of goals, identifying challenges facing the bank, obtaining feedback, and understanding the level of implementation of formulated policies, and identifying areas that require serious improvement, continuous performance improvement will not be possible. Achieving these goals is not possible without measurement and evaluation. Anything that cannot be measured cannot be controlled, and anything that cannot be controlled cannot be managed. The main issue in all banking analyses is performance, and its improvement requires measurement, hence a bank without a performance evaluation system is inconceivable. Given that performance evaluation has a significant impact on the behavior and motivation of managers in any bank and provides for the growth and flourishing of the bank, it is therefore necessary to plan for the design and development of a maturity model for the performance evaluation of managers with a modern technology approach.

2   Methods and Materials

Since the present study aims to design a model for the maturity of performance evaluation of managers with a modern technology approach, it extends the existing body of knowledge and is considered a type of fundamental research

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that explores the relationships between phenomena. Therefore, the research method, in terms of its goal, is fundamentally a fundamental one. The main factors and characteristics of the components affecting the maturity of performance evaluation of managers with a modern technology approach, extracted from the depth of the research literature, theoretical foundations, and exploratory interviews on the subject, were identified with the help of the Delphi technique and using the viewpoints of experts and elite opinions and their scoring by consensus of experts. Since the Delphi method is conducted with the participation of individuals who have specialized information on the research topic, the selection of qualified members for the target group, known as the Delphi panel, is one of the most crucial stages of this method. In this research, the panel members include 15 academic and professional banking industry experts selected based on their level of education, familiarity with research methods, research background, and experience in evaluating managers' performance with a modern technology approach (teaching, professional work,

or both). The demographic information of the panel members is summarized in Table 1. Sampling was done in a non-probabilistic and intentional manner, aligning with the study's purpose. The presentation and receipt of questionnaires and the explanation of the questions and objectives of the study to the experts were mainly conducted in person, and in some cases through email and telephone contact.

3   Findings and Results

Based on the conceptual model of the research, a total of four categories of factors were identified and categorized as components influencing the maturity of performance evaluation of managers in Bank Melli Iran with a modern technology approach, using meta-synthesis. These factors were further divided into finer components for developing the questionnaire and gathering expert opinions. The analysis levels of factors, components, and items are summarized in Table 1.

Table 1

Summary Information on Factors (Variables) and Items

Dimensions	Components	Number of Measures	Total
Management Tasks	Capital Planning	2	40
	Organizing	5	
	Strategy/Management	17	
	Supervision and Control	8	
	Managerial Infrastructure	8	
Conceptual Skills	Assessment of Digital Competencies	6	36
	Demographics	3	
	Globalization	3	
	Sustainability	3	
	Market	5	
	Knowledge and Product	5	
	Customer	11	
Technical Skills	Innovation	2	30
	Technology Application	5	
	Digitization	3	
	Technical Infrastructure	3	
	Technology Security	3	
	Technology and Regulations	14	
Human Skills	Human Resources	8	25
	Human Infrastructure	3	
	Participation	2	
	Cultural Infrastructure	12	
Total Number of Items		131	

In the first Delphi phase, a questionnaire containing the extracted indicators was distributed among the expert group members, requesting their views on each indicator. In this research, a threshold value of 0.7 was considered. Based on

the results, indicators below 0.7 were excluded from the research process. These excluded indicators include non-existent knowledge, customer proximity, human uncertainty factor, experts (internal), experts (external), aging, and

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environmental sustainability. Other excluded indicators include organizational dependency, bank cooperation, lack of cooperation/capability of banks in cooperation, dependency on providers, concern for reputation, risk aversion, corporate culture/tradition, lack of resources, design of financial control levels, consumer protection laws, and the application of regional laws and regulations. Additionally, indicators related to outdated IT infrastructure, digital and electronic computing, licensed software, online digital scanning for appropriate content, and external verification/certification for information data security were also excluded. Ultimately, according to the results, the remaining indicators below 0.7 were removed from the research process, which includes indicators of human resource friendliness, human resource age structure, open communication, and cooperation.

In the next phase, the first Delphi step questionnaire was given to the experts, and the definite average of the first round was provided to the experts to inform them of the average of each indicator in the previous stage. According to Cheng Lin et al., if the difference between the two stages (first and second steps) of the survey is less than the threshold (0.1), the expert consultation process is stopped, indicating consensus on the research indicators.

Table 2

Results of the Second Round of Fuzzy Delphi for Conceptual Skills

Dimension	Component	Measure	Fuzzy Mean	Definite Mean Second Round	Definite Mean First Round	Difference
Conceptual Skills	Customer	Customer Attitude	0.567	0.817	0.967	-0.028
		Customer Acceptance	0.583	0.833	0.967	0.000
		Modern Customer	0.550	0.800	0.950	0.006
		Customer Age Structure	0.567	0.817	0.950	0.022
		Customer Usage Behavior	0.467	0.717	0.933	-0.033
		Customer Expectations	0.567	0.817	0.933	-0.011
		Customer Knowledge	0.550	0.800	0.967	0.022
		Existing Knowledge	0.517	0.767	0.933	0.006
		Customer Behavior Change	0.483	0.733	0.933	-0.055
	Knowledge & Product	Product and Bank Complexity	0.517	0.767	0.917	-0.028
		Management Perception	0.517	0.767	0.933	-0.039
	Market	Market Condition	0.567	0.817	0.967	-0.023
		Market Uncertainty	0.633	0.883	0.983	0.050
		Market Power	0.600	0.850	0.983	0.055
		Market/Competitive Pressure	0.617	0.867	0.983	0.011
		Market Development Response	0.533	0.783	0.983	-0.033
	Digital Competence	Availability of Resources	0.500	0.750	0.950	-0.023
		Qualified Staff for Managing Digital Infra	0.533	0.783	0.933	-0.044
		Staff Training in Digital Workflow Skills	0.600	0.850	0.967	-0.027
		Skills in Analyzing Digital Media/Systems	0.533	0.783	0.967	-0.017
		Digital Regulations for Banking	0.500	0.750	0.933	-0.044
		IT Awareness	0.550	0.800	0.950	-0.044
	Demographics	Aging	0.483	0.733	0.933	0.006
		Productive Population	0.517	0.767	0.933	0.033
	Globalization	International Customers	0.483	0.733	0.933	-0.027
		Innovations	0.533	0.783	0.917	-0.039
		Wealth Creation	0.517	0.767	0.917	0.000
	Sustainability	Informed Customers	0.550	0.800	0.933	-0.022
		Resource Scarcity	0.583	0.833	0.967	0.083

According to the results in Table 2, all indicators related to conceptual skills have a mean difference of less than 0.1. Therefore, it can be concluded that a consensus has been reached, and the Delphi process for conceptual skills is complete.

Table 3

Results of the Second Round of Fuzzy Delphi for Management Tasks

Dimension	Component	Measure	Fuzzy Mean	Definite Mean Second Round	Definite Mean First Round	Difference
Management Tasks	Capital Planning	Financial Resources	0.600	0.850	0.983	0.083
		Long-term Investments	0.567	0.817	0.983	0.017
	Organizing	Structure (Open)	0.483	0.733	0.933	0.017
		Use of Digital Products for Automated Plans	0.550	0.800	0.967	0.016
		Use of Digital Tools for Data Analysis	0.517	0.767	0.967	-0.011
		Use of Integrated Digital Capabilities	0.500	0.750	0.950	-0.011
	Strategy/Management	Fintech (Partners)	0.567	0.817	0.983	0.017
		Fintech (Collaborators)	0.550	0.800	0.933	0.017
		Fintech (Non-Competitors)	0.517	0.767	0.950	0.033
		Fintech (Competitors)	0.550	0.800	0.950	0.000
		Reaction Speed	0.517	0.767	0.950	-0.023
		Digital Strategy	0.617	0.867	1.000	0.050
		Transparency	0.567	0.817	0.967	-0.034
		Available Resources	0.533	0.783	0.950	0.000
		Resource Allocation	0.633	0.883	0.967	0.078
		Costs	0.600	0.850	1.000	0.045
	Supervision & Control	Decision-making Process	0.600	0.850	0.983	0.000
		Disruption	0.533	0.783	0.950	0.034
		Information Risk Assessment	0.533	0.783	0.950	-0.027
		Current Systems Control	0.500	0.750	0.950	-0.028
		Regulation Implementation	0.483	0.733	0.900	-0.011
	Managerial Infrastructure	Operations & Processes	0.550	0.800	0.967	0.016
		Digital Strategy	0.517	0.767	0.900	-0.044
		Organization	0.517	0.767	0.950	0.027
		Governance	0.583	0.833	0.967	0.022
		Vision	0.550	0.800	0.967	-0.056
		Leadership	0.617	0.867	0.967	-0.011
		Compliance & Security	0.533	0.783	0.950	0.017
		Digital Business Model	0.600	0.850	1.000	0.017

According to the results in Table 3, all indicators related to management tasks have a mean difference of less than 0.1. Therefore, it can be concluded that a consensus has been reached, and the Delphi process for management tasks is complete.

Table 4

Results of the Second Round of Fuzzy Delphi for Technical Skills

Dimension	Component	Measure	Fuzzy Mean	Definite Mean Second Round	Definite Mean First Round	Difference
Technical Skills	Technology & Regulations	Data Protection/Security & Integrity	0.517	0.767	0.933	0.028
		Public Infrastructure	0.583	0.833	0.967	0.072
		State of the Art/Integration (Today)	0.517	0.767	0.933	0.000
		Digital Maturity Management	0.567	0.817	0.950	-0.044
		Business Process Automation	0.533	0.783	0.933	-0.028
		Data Availability Support	0.467	0.717	0.917	-0.056
		Data Information Security	0.600	0.850	0.967	-0.016
		Use of Digital Content for Internal/External Communications	0.517	0.767	0.917	0.005

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Dimension	Component	Measure				
	Technology Security	Financial/Personal Data Security in Privacy Policy Framework	0.550	0.800	0.950	-0.011
		Protection Against Digital Threats	0.617	0.867	0.950	0.000
		Content Provision by Digital Platforms	0.517	0.767	0.933	0.006
		Shared Access to Knowledge Base, Content Search on Internet, and Content Evaluation before Use	0.533	0.783	0.967	0.022
	Innovation	Creative Use of Digital Technologies	0.667	0.917	1.000	0.028
		Creating New Methods & Services	0.550	0.800	0.933	0.000
	Technology Application	Use of Digital Products for Automated Banking Functions	0.550	0.800	0.967	0.005
		Use of Digital Tools for Data Analysis	0.500	0.750	0.933	0.000
		Use of Integrated Digital Capabilities in Customer Systems like ERP	0.533	0.783	0.950	-0.011
		IT Active	0.567	0.817	0.967	0.027
		IT Committed	0.517	0.750	0.917	0.000
	Technical Infrastructure	Technology	0.550	0.800	0.933	0.011
		Digital Ecosystem	0.550	0.800	0.983	0.000
		Products & Services	0.550	0.800	0.967	-0.011
	Digitization	Increasing Internet Penetration	0.650	0.900	0.967	0.028
		New Technologies	0.600	0.850	0.967	0.000
		Digital Investment	0.583	0.833	0.983	0.017

According to the results in Table 4, all indicators related to technical skills have a mean difference of less than 0.1. Therefore, it can be concluded that a consensus has been reached, and the Delphi process for technical skills is complete.

Table 5

Results of the Second Round of Fuzzy Delphi for Human Skills

Dimension	Component	Measure	Fuzzy Mean	Definite Mean Second Round	Definite Mean First Round	Difference
Human Skills	Human Resources	Bank Employee	0.633	0.883	1.000	0.045
		Flexibility	0.500	0.750	0.950	-0.011
		Acceptance	0.600	0.850	0.983	0.000
		Human Resource Competence	0.567	0.817	0.983	-0.022
		Human Resource Accessibility	0.617	0.867	0.983	0.000
		Human Resource Transparency	0.550	0.800	0.950	0.000
	Participation	Employee Participation	0.667	0.917	1.000	0.000
		Task Integration	0.517	0.767	0.917	0.027
	Human Infrastructure	Digital Skills	0.600	0.850	1.000	-0.022
		Innovation	0.650	0.900	0.967	0.011
		Customer Insight & Experience	0.583	0.833	0.967	0.000
	Cultural Infrastructure	Digital Culture	0.600	0.850	0.983	0.022
		Knowledge Management/Sharing	0.617	0.867	1.000	0.017
		Empowerment	0.667	0.917	1.000	0.028
		Customer Orientation	0.567	0.817	0.950	-0.011
		Ideation of New Digital Methods & Services	0.567	0.817	0.967	0.016
		Risk-taking	0.517	0.767	0.917	0.000
		Failure Tolerance	0.533	0.783	0.950	0.017
		Change Adaptability	0.617	0.867	0.983	0.016
		Organizational Learning	0.650	0.900	0.983	0.038
		Agility & Flexibility	0.567	0.817	0.950	-0.022

According to the results in Table 5, all indicators related to human skills have a mean difference of less than 0.1. Therefore, it can be concluded that a consensus has been reached, and the Delphi process for human skills is complete.

4   Discussion and Conclusion

In this study, through an extensive review of theoretical foundations, the main factors and variables of the model were extracted. Following the implementation of the Fuzzy Delphi method and results from a two-stage survey of panel experts, these factors and variables were refined and adjusted. Modern banking, leveraging new technologies, has opened a new position in the economic system where the players are no longer solely banks. Customers' expectations of the banking system have evolved alongside new technologies, and they now expect different services tailored to their daily work experiences. Traditional banking services are not necessarily the best way to serve these customers, and new players with a better understanding of user needs will enter the financial system. On the other hand, banks, as traditional players in this system, have managed to gain deep trust from their customers over the years and are considered safer places for financial services. Synergy between new and traditional players in this ecosystem can offer the best returns for customers of the financial system, providing both trust and new services that meet their needs. In the banking ecosystem, the architecture of banking systems goes beyond traditional methods, utilizing open banking platforms to enable synergy between banks and new players. In this context, the performance process of managers in achieving the bank's goals must be continuously evaluated.

Given the design of the maturity model for performance evaluation of managers with a modern technology approach, recommendations are provided as appropriate:

Qualified staff for managing digital infrastructure and training employees in skills related to digitizing workflows: Employee creativity is a highly effective skill in a rapidly changing and complex world, providing valuable alternatives for solving common issues. Employee creativity involves introducing new ideas or methods to create or do something. Knowledge creation and innovation require creativity, which necessitates management. Employee creativity is an essential factor enabling organizations to meet the needs of knowledge creation and increase added value. In reality, the maturity of performance evaluation of managers with a modern technology approach is equated with effective creativity. For a bank to succeed in fostering employee creativity, it should:

- Encourage risk-taking and job security in the use of new technologies.
- Provide employees the freedom to achieve goals and innovate in banking technology.
- Create a shared vision in line with technological transformations and acceptance of new technologies.
- Understand the key capabilities of the bank to utilize new technologies.
- Provide a comfortable and attractive working environment to motivate the learning of new technologies.
- Encourage self-managing groups to learn new technologies.
- Availability of resources: This is a crucial factor for assessing digital competencies. In today's world, access to resources is essential for a smart community and citizens. Banks, as elements of a smart city, need to consider this and plan accordingly.

Skills related to the analysis of digital media environments/information systems analysis in banks and IT awareness: It is strongly recommended to focus on the introduction of digital transformation into the value chain of the country's banking business, customer orientation, and service-centricity using digital era technologies and innovations. The introduction of IT through digital platforms in banking business processes, particularly open banking, can be elaborated upon. By analyzing data from digitized business processes and integrating it with metaheuristic algorithms and collective intelligence, the best scenarios can be derived for analyzing behavior resulting from digital transformation in this domain.

Risk-taking/aversion: In banks, the issue of risk in strategic planning is not often seen, but it is better for managers and planners to transparently follow and state this issue in terms of technology and its application.

Reaction speed: One important factor in utilizing technology in banks is the speed of response to changes and developments. Managers should enhance this strategy.

Digitalization strategy: Considering banking competitors, banks should develop a digitalization strategy and allocate the necessary budget.

Transparency: Banks should implement a transparency strategy using technology to build trust in the banking environment.

Corporate culture/tradition: In creating and utilizing technology, a supportive culture is essential. If a change in culture is needed, new values and norms should be created.

Considering the title of this research, the emphasis was on factors related to the effective establishment of the maturity model for performance evaluation of managers with a modern technology approach in Bank Melli Iran. Identifying other individual, group, organizational, and inter-organizational factors, given the increasing importance and role of the maturity model for performance evaluation of managers with a modern technology approach and digitally literate employees in organizations' competitive advantage, is left to future research.

In the present study, after examining the factors and characteristics influencing the effective establishment of the maturity model for performance evaluation of managers with a modern technology approach in Bank Melli Iran, 104 factors were summarized and integrated. It is recommended that future researchers investigate the feasibility of extracting factors and characteristics influential in designing the feasibility model and establishing the maturity model for performance evaluation of managers with a modern technology approach within the framework of other behavioral and human resource models. Comparing the factors extracted in this research with those in future studies may validate and confirm the proposed model.

Using blockchain technology as a foundational technology provides trust and transparency in many applications, such as international payments and gaming. Blockchain applications in the Internet of Things, healthcare systems, service supply chains, digital identity, and charitable activities will be significant aspects of modern technology approaches for future researchers.

As with all other social science research, this study faced limitations related to the selection of methods, tools, and concepts. Although some key indicators illustrate the impact of influential factors in the effective establishment of the maturity model for performance evaluation of managers with a modern technology approach in Bank Melli Iran, other variables that might equally impact the effective establishment of this model may have been overlooked. Additionally, in the implementation phase, variables were measured through a designed questionnaire, and the limitation of this tool is that it assesses employees' perceptions of the factors influencing the effective establishment of the maturity model for performance evaluation of managers with a modern technology approach, which may differ from reality. In other words, we cannot conclusively prove that the influential factors we identified, or at least the methods we examined, undoubtedly impact the effective establishment of the maturity model for performance evaluation of managers with a modern technology approach.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Aho, M. (2012). What is your PMI? A model for assessing the maturity of performance management in organizations. PMA 2012 Conf,

Benlhabib, H., & Berrado, A. (2022). A review about maturity models development process, Case of performance management in education. Proceedings of the International Conference on Industrial Engineering and Operations Management; Istanbul, Turkey,

Chai, B. B.-H., Tan, P. S., & Goh, T. S. (2016). Banking Services that Influence the Bank Performance. *Procedia - Social and Behavioral Sciences*, *224*, 401-407. https://doi.org/10.1016/j.sbspro.2016.05.405

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Diener, F., & Špaček, M. (2021). Digital Transformation in Banking: A Managerial Perspective on Barriers to Change. *Sustainability*, *13*(4), 2032. https://www.mdpi.com/2071-1050/13/4/2032

Lasmini, R. S., Budiarti, A. P., Tasman, A., & Susant, F. A. (2020). The relationship between e-banking and financial performance of Go Public Bank in Indonesia. 4th Padang International Conference on Education, Economics, Business and Accounting (PICEEBA-2 2019),

Magomaeva, L., Galazova, S., & Magomaev, T. (2020). Assessment of the Level of Digital Maturity of the Financial Institute, Depending on the Modification of the Available Banking Products and Services. 2nd International Scientific and Practical Conference on Digital Economy (ISCDE 2020),

Motondi, F. O., & Bula, H. (2020). Alternative banking channels and performance of commercial banks in Nairobi City County, Kenya. *International Academic Journal of Economics and Finance*, *3*(6), 47-65. https://ir-library.ku.ac.ke/bitstream/handle/123456789/21776/Alternative%20banking%20channels...........pdf?sequence=1

Robbins, J. (2009). The return on corporate performance management. *Business Intelligence Journal*, *14*(1), 8-13. https://researchportal.tuni.fi/files/2316051/aho.pdf

Scott, S. V., Van Reenen, J., & Zachariadis, M. (2017). The long-term effect of digital innovation on bank performance: An empirical study of SWIFT adoption in financial services. *Research Policy*, *46*(5), 984-1004. https://doi.org/10.1016/j.respol.2017.03.010

Shimels, T., & Lessa, L. (2023). Maturity of information systems' security in Ethiopian banks: case of selected private banks. *International Journal of Industrial Engineering and Operations Management*, *5*(2), 86-103. https://doi.org/10.1108/IJIEOM-10-2021-0014

Singh, R., Bansal, R., & Singh, V. P. (2022). Industry 4.0: Driving the digital transformation in banking sector. *Advances in Industry*, *4*, 51-64. https://www.degruyter.com/document/doi/10.1515/9783110725490/pdf?licenseType=restricted#page=61

Wagacha, K., & Maende, C. (2017). Performance appraisal systems and employee productivity in commercial banks in Nairobi County, Kenya. *International Academic Journal of Human Resource and Business Administration*, *2*(4), 329-346. https://iajournals.org/articles/iajhrba_v2_i4_329_346.pdf