The Challenges of Applying Artificial Intelligence Solutions within 3rd World Countries Financial Sector

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Abstract: Current study was carried out in order to highlight the most common challenges of adopting artificial intelligence within financial sector in 3rd world countries taking Jordan as an example. Challenges included (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers, Cost and Affordability, Acceptance). Quantitative methodology was adopted, and a questionnaire was self-administered by (272) managers and leaders within the financial and banking sector, which includes (320) companies operating throughout the Kingdome Jordan as a 3rd world country. SPSS was used to screen and mitigate collected primary data. Results of study indicated that acceptance of the main hypothesis "Challenges in 3rd world countries may hinder the adoption of AI solutions in the financial sector" with R= 0.959 and a variance of (92%). Among the sub-variables chosen as controllers of study. It was seen that all of them played a role in hindering the applicability of AI in Jordanian financial sector. The highest in influence was (acceptance) with beta=0.612 being significant at 0.05 level. Study recommended giving priority to creating a strong data infrastructure in terms of collection and storage, and focusing on data exchange operations between different financial institutions. It is expected from current study to form as an indicator that explains any possible failure in adopting AI in finances. Interested parties may find in the current study as an approach to locate the weaknesses and work towards strengthening them.

Keywords: Artificial Intelligence, Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers, Cost and Affordability, Acceptance, 3rd World Country, Disparities, Unequal Access.

1. INTRODUCTION

During recent years, it has been observed that there is a noticeable development in the use of technology and artificial intelligence in the financial sector, especially in developing countries, as the latter have paid attention to the importance and role of artificial intelligence in providing real, information that is more accurate and the ability to manage this sector (Quddus, 2020). Ali et al. (2020) point out that it is normal to face challenges related to the application of artificial intelligence in developing countries, some of which may be related to infrastructure, financing and investment, and the costs associated with artificial intelligence, in addition to the obstacles associated with legal regulations and legislation in terms of information security and trust. Khan et al. (2020) argued that the applicability of AI in the financial sector is seen to be of high sensitivity. This sector is known to have strict regulations as it is unusually monitored by the government; entering this sector with new technologies like AI would not be something that can passes easily. It is for sure will face multiple challenges that are concerned with the place of application, level of readiness, ability to digitization and level of resistance presented by individuals (Kou et al., 2019).

2. PROBLEM STATEMENT AND LITERARY GAP

Challenges related to change – no matter of its type – is considered to be expected. People often prefer to stay static rather than moving to a more dynamic environment especially when it comes to work and tasks required by them (Mishra and Kaushik, 2021). The financial sector today is becoming more complicated with all the development including electronic payments, blockchain, cryptocurrency and natural language processing (Chang et al., 2020). As much as AI invaded many sector like medicine and education, it is taken for granted that AI will invade the financial sector (Ali et al., 2020). Many have spoken to challenges that may hinder the adoption of AI in the financial sector. Many of them connected these challenges to trust and data privacy. However, these challenges may take a leap into including infrastructure and other elements. There appeared an obvious lack in addressing challenges of AI in financial sector within developing countries (3rd world countries). This leads to asking questions like "would challenges of adopting AI in finances within developing countries be any difference from developed countries?" wouldn't be the culture and language barriers as

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a challenge? What about the cost and expenses? These questions may form the overall literary gap of current study.

3. LITERATURE REVIEW

3.1. Artificial Intelligence in Financial Sector

The world has witnessed during the last few years an undeniable transformation and development in the field of financial services that was attributed to the adoption of technology in finances (Al-Mushayt, 2019). Artificial intelligence has emerged in the financial sector as a crucial tool that has enhanced and developed the nature of financial services and practices in organizations, and has also ensured a more efficient and positive customer experience (Fernández, 2019).

Malali and Gopalakrishnan (2020) believes that artificial intelligence has been able to provide many positives to organizations at the financial level, as it has provided different capabilities to organizations that have led to improving the financial strategy, increased the organization's ability to predict and confront risks, in addition to providing informed opinions that support decision-making processes.

Milana and Ashta (2021) added that artificial intelligence was able to organize the concept of data in the financial sector, as it contributed to organizing the data analysis process faster and more accurately compared to human work. As for Kumar et al. (2023), authors pointed out that artificial intelligence in the financial sector constitutes an effective tool for managing financial risks and guiding investment decisions in the interest of organizations and stakeholders.

3.2. Artificial Intelligence Infrastructure in 3rd World Countries

The adoption of AI in many sectors within developing countries might not be as expected. There is a weak adoption of AI in all fields including education, medicine, trade, marketing and financial sector (Mhlanga, 2021). This malfunction of low AI adoption within 3rd world countries is attributed to man challenges that stands in the face of adoption. The most vivid and common factor is the financial factor (Mollura et al., 2020). Adopting AI in developing countries means to have the needed capital in terms of financing, developing and getting the aid from the right resources (Shukla et al., 2019). Developing countries are known for being poor and living on the international financial aids, and in addition to the need of expertise and other tools and devices that have to exist in order to support the processes of adopting AI in many field including finances.

According to Kaplan and Haenlein (2020), the development of artificial intelligence did not happen by chance. Rather, there were many challenges that faced the countries that developed this concept (Goralski and Tan, 2020). At the level of developing countries, the concept of artificial intelligence has been and still facing many challenges; these countries usually lack the necessary infrastructure in order to manage this type of technological development. In addition, there is a scarcity of individual experiences and skills related to artificial intelligence, which results in weak networks and servers related to the Internet, in addition to weak experiences related to data and learning. Automation, which led to a brain drain to developed countries in order to reach a better level of expertise (Tan and Taeihagh, 2020). From another point of view, Leal Filho et al., (2023) found that one of the challenges associated with the weak adoption of artificial intelligence in developing countries is the lack of capital necessary to invest in long-term artificial intelligence development programs. Akhtar et al., (2023); Hernandez (2023); Abioye et al., (2021) and Aly (2020) presented the most common challenges of AI adoption in the financial sector that included:

3.2.1. Limited Infrastructure

One of the most prominent challenges of adopting AI in the financial sector is infrastructure. Within developing countries, there is a lack of reliable infrastructure, the reason for which may vary depending on the drivers, such as poor data collection and storage, and the inability to access high-quality data. In addition, the lack of infrastructure for adopting artificial intelligence in developing countries is represented by the weak access to high-speed Internet, leading to limited Internet access in many remote areas in developing countries. Slow internet and lack of fast network access can cause frequent outages and high connection costs for AI algorithms to function properly in the financial sector. In addition, artificial intelligence algorithms require computing power capable of processing the huge amount of data available. Developing countries face many challenges in this field, including the need for computer infrastructure and a qualified workforce with experience in this field.

3.2.2. Lack of Technical Expertise

The lack of valid infrastructure means that there is a lack in the professional expertise in the field. This means that since individuals do not have the valid infrastructure to apply and adopt AI in the financial sector, then they must lack the valid training and skills in this field. In addition to that, the idea of AI within developing countries is still not widely spread. This means that there is a limited amount of knowledge regarding AI and the concept of seeking foreign help to intensify their knowledge of AI means extra cost that has to be paid which is already not available. Among the reasons that have limited skills and expertise in the field of AI in third world countries is the tendency of these countries to rely on ready-made technology, such as purchasing artificial intelligence solutions, instead of developing them locally. This is in addition to the legal and ethical challenges related to security and privacy and the need for a legal framework in these countries to deal with these challenges.

3.2.3. Language and Cultural Barriers

Language and cultural barriers play an active role in creating challenges that hinder the adoption of AI in developing countries. For example, language, as most applications and AI solutions exist in English as the primary language, and are not developed in other languages, this can be an obstacle in countries with limited English language capabilities. Culture, values and beliefs can also affect the adoption of AI in developing countries. The source of these cultural obstacles is usually skepticism about the capabilities of AI or the presence of concerns related to security and data privacy. In addition to the lack of awareness and education in this field,

and the urgent need for a strong infrastructure capable of directing attention towards adopting AI in financial operations in all its forms.

3.2.4. Cost and Affordability

It is widely known that adopting AI in any sector is considered to be of high cost and an expensive move by any organization. This Obstacle play a role in increasing the limit of using AI in the financial sector as organizations and government finds it very expensive to adopt AI in all its resources. On the one hand, developing the infrastructure will be very expensive due to the need for the necessary technologies, tools, hardware and software in order to benefit from AI, and installing and maintaining the equipment and devices will also be expensive. On the other hand, there is a human cost represented in the need for work teams specialized in this field and qualified to train various cadres on AI software, noting that the cost of hiring experts is usually very high.

3.2.5. Acceptance

Digitization and digital transformation are concepts that require a lot of attention and efforts in order to be applied in the best way possible. Often organizations face many troubles in managing digital transformation as they face resistance from individuals who are still convinced with the profitability of human force. This play a role in increasing the need for resistance management in order to smooth the process of moving from the conventional work to a business that is based on AI. There is also the dilemma of societal acceptance, given that society is the last user of AI in financial services. The transition to AI in the financial sector may face societal rejection combined with doubt and uncertainty in the ability of AI to protect data and maintain security and privacy. The social influence will also be strong if the percentage of people who reject this principle is very large. On the other hand, policies and regulations play a role in making the transitional phase difficult, and there may be an urgent need to develop laws and policies that regulate the use of artificial intelligence, protect the rights of users, and enhance transparency and accountability.

3.3. Hypotheses Development

Manda and Ben Dhaou (2019) aimed at revealing the level of response of developing countries to the challenges and opportunities associated with the Industrial Revolution 4.00, the study focused on the initial requirements to accept the opportunities and challenges of the Industrial Revolution 4.00, which included expertise, infrastructure, and potential job disruption. The study found that developing countries faced many challenges related to digital development and technological transformation, and most of these challenges were related to infrastructure, workforce training, and the lack of cooperation in this field.

In a study by Aly (2020), the main aim was to identify the relationship between digital transformation and artificial intelligence and its impact on economic development in developing countries. The study adopted a quantitative approach by analyzing data analysis and standard modeling by employing World Bank data in order to arrive at significant indicators. The study reached the conclusion that there is a positive impact between economic development in developing countries and the use of artificial intelligence and digital transformation in the development process. This impact has been different because there are many adaptations in developing countries that hinder the adoption of AI such as infrastructure, regulatory frameworks, lack of resources, poor operational efficiency, limited access to AI technologies, and concerns about job displacement and inequality.

Pedro et al. (2019) found that there are many challenges associated with employing artificial intelligence in developing countries. Such challenges included ethical challenges related to privacy and data security, in addition to the lack of fairness and equity in access to artificial intelligence applications, and the goals of training and qualification required in order to employ artificial intelligence as a means for sustainable development. There are also obstacles related to acceptance and rejection by individuals working to deal with artificial intelligence technologies and resistance to change towards digital transformation. The researchers explained that there is a need to address these challenges in order to employ and harness the full potential of artificial intelligence in the service of sustainable development.

Sharma et al. (2020) also explored the possible AI challenges in the financial sector within developing countries. Authors found that among the possible challenges that may hinder the employment of AI in financial sector included regulatory compliance as the financial sector is subject to strict regulation and guidelines, some AI services in financial matters might not be accepted or authorized. In addition, the researchers found challenges that included ethical considerations, the degree of availability and accuracy of information and data, the lack of existing skills and experience regarding dealing with artificial intelligence from a financial point of view, in addition to weak infrastructure and the need for radical solutions to provide an infrastructure capable of dealing with AI.

Mhlanga (2020) tried to examine the possible challenges of inclusion between AI and digital financial sector. Author indicated that there appeared many challenges that are connected with involving AI in the digital inclusion of the financial sector. Such challenges included the lack of equity in access to AI services between different geographical regions, weak infrastructure, lack of skills and experiences. In addition to the presence of the element of fear of replacement (job displacement). This has led to an increase in the level of resistance to change from individuals.

3.4. Aim, Questions and Objectives of Study

Launching from literary gap and hypotheses development. The current study was carried out as an approach to identify challenges of artificial intelligence adoption in financial sector within 3rd world countries taking Jordan as an example. The main question of study is:

"What are the main challenges that are faced by 3rd world countries like Jordan that hinder the adoption of full AI in the financial sector?"

Answering the main question of study can be done through achieving the following set of objectives:

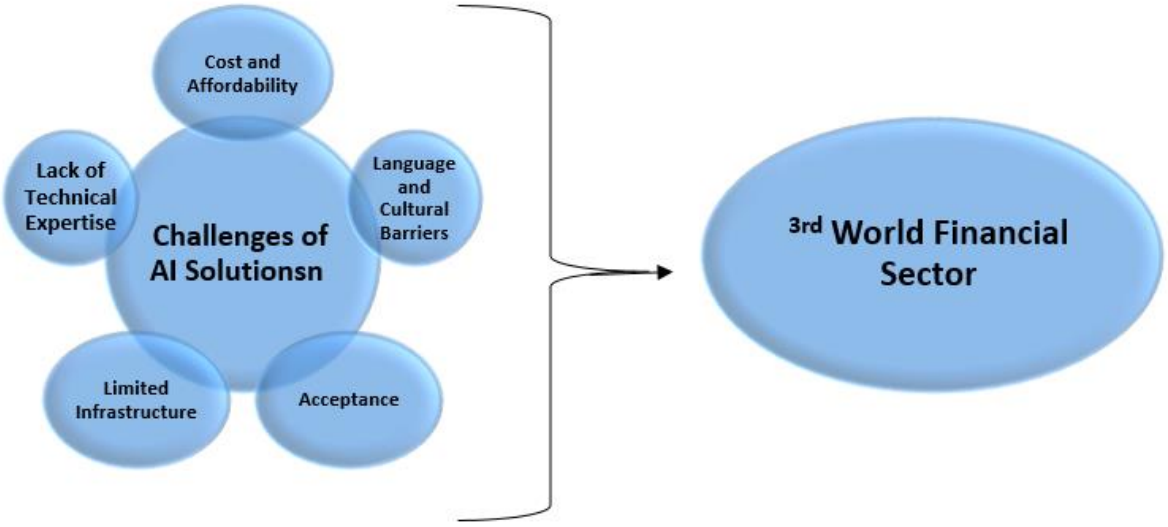

Fig. (1). Study Model (Akhtar et al., 2023; Hernandez, 2023; Abioye et al., 2021; Aly, 2020).

- Identify the level of AI adoption in financial sector in Jordan
- Highlight the main challenges of adopting AI in financial sector
- Identify possible solutions for challenges

It worth mentioning here that current study was carried out through the underpinning theory of **"**Digital Divide Theory**"** which appeared in the mid of 1990s. This theory focuses on the different level of accessing digital technologies by social groups in terms of location, resources, background and equal access (Vassilakopoulou and Hustad, 2023).

3.5. Model and Hypotheses

In order to present the study aim and problem in a more cohesive approach; research was able to build the following model from which study hypotheses were formulized:

From above model, following set of hypotheses was extracted:

Main Hypothesis:

H: Challenges in 3rd world countries may hinder the adoption of AI solutions in the financial sector

H1: Limited infrastructure in 3rd world countries may hinder the adoption of AI solutions in the financial sector

H2: Lack of technical expertise in 3rd world countries may hinder the adoption of AI solutions in the financial sector

H3: Language and cultural barriers in 3rd world countries may hinder the adoption of AI solutions in the financial sector

H4: Cost and affordability in 3rd world countries may hinder the adoption of AI solutions in the financial sector

H5: acceptance and change resistance in 3rd world countries may hinder the adoption of AI solutions in the financial sector

4. METHODS AND MATERIALS

4.1. Methodological Approach

It was chosen that the quantitative methodology to be the main method adopted in current research. It was best suited to collect primary data from a larger sample size and mitigate the collected data through statistical means. A survey design was the chosen tool for study, research build a questionnaire on Likert 5point scale and it appeared in two main sections. The first took into perspective demographics of study sample. While the other section presented statements related to study's constructs including (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers, Cost and Affordability, Acceptance). Questionnaire statements were extracted from previous studies like (Akhtar et al., 2023; Hernandez, 2023; Abioye et al., 2021; Aly, 2020). The questionnaire was uploaded online through Google Forms in order to be self-administered by study sample. As in the following Table **1**:

Table 1. Distribution of Statement of Study Variables.

Variable	# of Statements
Challenges of AI Solutions	
Limited Infrastructure	5
Lack of Technical Expertise	5
Language and Cultural Barriers	5
Cost and Affordability	5
Acceptance	5
3rd World Financial Sector	8
Total	33

4.2. Population and Sampling Techniques

Population of study consisted of managers and leaders within the financial and banking sector, which includes (320) companies operating throughout the Kingdome Jordan as a 3rd world country. A convenient sample of (300) individuals was chosen to represent the study population. After application process, researcher was able to withdraw (272) analyzable questionnaires which were suitable for statistical processing. This indicated a response rate of (68%) as accepted from a statistical perspective.

4.3. Statistical Processing

Statistical package for social sciences v. 23rd was chosen to be the main software dealing with collected primary data. The main goal was to run statistical tests on the data including (frequency and percentage, mean and standard deviation, multiple and linear regression). Concerning the reliability and consistency of study tool, researcher employed Cronbach's Alpha and results indicated that Alpha value for all variables was higher than 0.70 indicating that the tool was reliable and consistent. As in the following Table **2**:

Table 2. Alpha Value.

variable	α
Limited Infrastructure	0.83
Lack of Technical Expertise	0.878
Language and Cultural Barriers	0.932
Cost and Affordability	0.876
Acceptance	0.891
3rd World Financial Sector	0.914

5. RESULTS AND DISCUSSION

5.1. Demographics

Frequency and percentages were run in order to identify the demographics of respondents. As Table **3** below presented, it was seen that majority of respondents were males forming (58.1%) of the sample who held BA degree forming (44.9%) of the sample. In addition to that, descriptive statistics showed that majority of respondents had an experience in the field that that ranged between 5-7 years forming (41.9%).

Table 3. Demographic Statistics.

Gender			
	Male	158	58.1
	Female	114	41.9
Educational Level			
	Diploma	117	43.0
	BA	122	44.9
	MA	22	8.1
	PhD	11	4.0
Experience			
	2-4	81	29.8
	5-7	114	41.9
	8-10	61	22.4
	+11	16	5.9
	Total	**272**	**100.0**

5.2. Questionnaire Analysis

Table **4** below presented mean and standard deviation of study's statements according to responses. It was seen that all variables scored higher than mean of scale 3.00 indicating that they were well received by respondents. The highest mean 3.91/5.00 was scored by (3rd World Financial Sector) compared to the lowest 3.77/5.00 scored by (Limited Infrastructure).

Table 4. Descriptive Statistics.

Statement	μ	σ
3rd world countries often face challenges related to poor infrastructure and limited resources	3.735	.977
It is widely known that internet in 3rd world countries is unreliable which increases the challenges	3.680	.936
Most 3rd world countries are adapted to outdated technologies in internet	3.842	.868
There must be a robust infrastructure that supports facing the challenges of AI adoption in finances	3.930	.929
Most fintech are hindered by inadequate infrastructure and implementation	3.706	.902
Limited Infrastructure	3.779	.712
There is an apparent lack in skilled workforce within fintech in 3rd world countries	3.882	.820
Adopting AI in finances means having expertise in AI technologies and data analytics	4.007	.901
3rd world countries face shortage of professionals with the needed technical skills to AI in finances	3.882	.881
It is challenging to adopt, implement, and maintain AI systems in finances	3.989	.874
Facing expertise challenges must be based on hiring expert professionals which can be considered costly	3.640	.946
Lack of Technical Expertise	3.880	.726
Language can be seen as a barrier in using AI AI systems in finances	3.993	.819
Not all AI systems are supported with the needed languages	3.860	.873
AI-based finances experts must be at least bilingual in order to use such technologies	3.919	.930

There are challenges related to language and algorithms in AI systems	3.996	.923
AI algorithms aren't always applicable or accurate when applied to third world countries' financial systems.	3.739	.938
Language and Cultural Barriers	3.901	.796
Adopting AI-based financial systems can be costly	3.853	.842
Building an infrastructure that supports financial affairs can be expensive on 3rd world countries	3.702	.915
Adopting technologies, talents and expertise can be challenging from a financial perspective	3.717	.903
Limited resources of 3rd world countries might hinder the Implementation of AI solutions in finances	3.893	.941
3rd world countries may face challenges related to allocating funds for AI implementation in the financial sector.	4.055	.833
Cost and Affordability	3.844	.726
It is expected that 3rd world countries may face resistance when adopting AI in financial sector	3.930	.900
There might be challenges related to building trust and acceptance from stakeholders, consumers, financial institutions, and regulators	3.790	.923
There is always a place for skepticism when it comes to adopting a new technology in 3rd world countries	3.746	1.001
Lack of acceptance is attributed to lack of awareness, bad experiences, and low knowledge in AI solutions	3.864	.815
Lack of trust is attributed to the generation of job security after adopting AI solutions in finances like job displacement	3.882	.842
Acceptance	3.843	.750
Third-world countries are often limited in access for technology and internet connectivity	3.934	1.078
Some 3rd world countries are hindered by the ability to implement and maintain AI systems in the financial sector.	3.915	.947
It is widely known that 3rd world countries are limited in data availability which effects the utilization of AI algorithms in the financial sector	4.077	.832
There is an undeniable influence of inadequate regulatory and legal frameworks related to AI adoption	3.971	.905
Political and legal environment of 3rd world countries are based on uncertainties and instability	3.838	.923
The weak infrastructure may open the gate of risks of ethical implications and privacy concerns	3.768	1.006
Adopting AI solutions in 3rd world countries requires investments in infrastructure, software, and skilled personnel which are limited in some 3rd world countries	3.890	.817
3rd world countries are known for change resistance especially when it comes to technology transformation	3.886	.849
3rd World Financial Sector	3.910	.729

5.3. Multicollinearity Test

The Variance Inflation Factor (VIF) and Tolerance were computed for the independent variables in order to assess the presence of multicollinearity among them. The subsequent findings appeared in Table **5** below. The presented data demonstrates that the Variance Inflation Factor (VIF) values were below 10, however the Tolerance values exceed 0.10. This observation implies the lack of multicollinearity (Gujarati & Porter, 2009).

Table 5. Multicollinearity Test.

Variable	Tolerance	VIF
Limited Infrastructure	.341	2.936
Lack of Technical Expertise	.192	5.199
Language and Cultural Barriers	.227	4.406
Cost and Affordability	.318	3.147
Acceptance	.312	3.205

5.4. Hypotheses Testing

5.4.1. Main Hypothesis

Multiple regression was employed to test the main hypothesis arguing, "Challenges in 3rd world countries may hinder the adoption of AI solutions in the financial sector". The results of this analysis indicated a noteworthy F value of 614.646, which was found to be statistically significant at level of 0.05. This finding suggests that Challenges in 3rd world countries may hinder the adoption of AI solutions in the financial sector. Moreover, empirical evidence has shown that a correlation value of r = 0.959 signifies a significant level of correlation. Moreover, the independent variables explain 92% of the variance seen in the dependent variable.

Table 6. Main Hypothesis Testing.

Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.		
		B	Std. Error	Beta			R	R Square
1	(Constant)	-.027	.075		-.355	.723	.959[a]	.920
	Limited Infrastructure	.083	.030	.081	2.742	.007		
	Lack of Technical Expertise	.079	.040	.079	1.992	.047		
	Language and Cultural Barriers	.067	.033	.073	2.018	.045		
	Cost and Affordability	.200	.031	.200	6.500	.000		
	Acceptance	.594	.030	.612	19.743	.000		

Based on the provided coefficient table6, the t-values corresponding to the variables (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural, Barriers, Cost and Affordability, Acceptance) are as follows:

H1: Limited infrastructure in 3rd world countries may hinder the adoption of AI solutions in the financial sector since beta=0.081 is significant at 0.05 level.

H2: Lack of technical expertise in 3rd world countries may hinder the adoption of AI solutions in the financial sector since beta=0.079 is significant at 0.05 level

H3: Language and cultural barriers in 3rd world countries may hinder the adoption of AI solutions in the financial sector since beta=0.073 is significant at 0.05 level

H4: Cost and affordability in 3rd world countries may hinder the adoption of AI solutions in the financial sector since beta=0.200 is significant at 0.05 level

H5: acceptance and change resistance in 3rd world countries may hinder the adoption of AI solutions in the financial sector since beta=0.612 is significant at 0.05 level

5.5. Discussion

Current study was a trial that aimed to explore the nature of challenges that hinder the adoption of AI in financial sector within developing countries taking Jordan as an example. The study adopted the quantitative methodology and distributed a questionnaire on (272) managers and leaders within the financial and banking sector, which includes (320) companies operating throughout the Kingdome Jordan as a 3rd world country. Controllers of study included (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers, Cost and Affordability, Acceptance) as the most common obstacles of AI adoption in financial sector. SPSS was used to analyze primary data; results indicated the acceptance of main hypothesis and proved that the presented challenges may hinder the adoption of AI in financial sector.

As for controllers of study; it was seen through statistical analysis that all controllers were accepted and it appeared that (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers, Cost and Affordability, Acceptance) might hinder the process of adopting AI in financial sector within developing countries. The highest influence was for acceptance as beta=0.612 was significant at 0.05 level. This meant that acceptance and resistance are the main obstacles that play a role in being a challenge to guarantee a smooth transition towards AI within financial sector. Such results agreed with Aly (2020); Pedro et al. (2019) and Mhlanga (2020) who argued that acceptance takes place on many level, it can start within the organization in terms of employees resisting the change. It can also be within the society itself when the individuals refuse to use AI-based financial services. This increases the need for change resistance strategies that would seek to guarantee a smooth transition of individuals from the conventional financial services to the ones that are operated through AI.

Cost and affordability came in the 2nd rank with beta=0.200 being significant at 0.05 level. This meant that if there is a space for acceptance and managing the resistance to change, there would be the obstacle of cost and expenses of adopting AI in the financial sector. The idea doesn't revolve around getting the needed devices, programs or networks. It is more of developing the infrastructure and enhancing the available resources in order to achieve the existence of an IT infrastructure that supports AI applications in all it forms. This can hinder the ability of 3rd world countries as they are known to be of limited resources in terms of finances and natural resources. Such results agreed with Aly (2020) and Pedro et al. (2019) who focused on the financial elements as an obstacle in increasing AI adoption in developing countries.

Generally speaking, and given that other controllers of study were accepted to influential in the analysis including (Limited Infrastructure, Lack of Technical Expertise, Language and Cultural Barriers). The study proved that artificial intelligence has the ability to revolutionize the financial sector by improving the outcomes of the financial sector as a whole and providing information with a high level of accuracy that helps in decision-making processes. In addition, the study found, through the above results, that the use of artificial intelligence within the financial sectors in developing countries is often hampered by limited infrastructure. Such results agreed with Manda and Ben Dhaou (2019) and Sharma et al. (2020)

As an overall result, the study reached the conclusion that the reasons for developing countries' weak adoption of artificial intelligence in the financial sector are related to the presence of various challenges. These challenges are considered a burden on the sector, as weak infrastructure and the low level of digitization in banking services slow down the development of artificial intelligence in the financial field. In addition, there is a clear decline in the level of individuals' awareness of the importance of AI in the financial sector. This leads to problems including rejection, resistance, and weak expertise in the field, which prevents the full application of AI solutions in the financial sector.

6. CONCLUSION

Study proved that the challenges associated with AI adoption could hinder its progress within the developing countries. It was seen that all adopted challenges are common in all developing countries and most of them included the weak infrastructure and the poor connection to the internet. The idea of professional expertise was found to be influential but can be mitigated through continuous training and development. In addition to that, the current study was able to reach the conclusion that, while artificial intelligence in the financial sector is based on a huge amount of useful capabilities in developing countries; it is threatened by the infrastructure that is considered limited. This limitation is attributed to the weakness of the mechanism for collecting and storing data, the limited access to Internet connection, and the sum of computer capabilities linked to individual skills and different experiences. This leads to the realization that it is the duty of developing countries to stand up to these challenges and impose international efforts between governments and various bodies in order to create a supportive environment for AI in the financial sector.

6.1. Theoretical and Practical Implications

Examining the challenges of applying artificial intelligence solutions within 3rd world countries financial sector was based on theoretical and practical implications. From a theoretical perspective, the study connected between AI in financial sector and the theory of Digital Divide Theory, it managed to highlight the influence of differences related to technology access in terms of location, background and financial abilities of the countries. It managed to give a theoretical understanding of how technology adoption may differ within developing countries and highlighted the challenges associated with 3rd world countries.

From a practical perspective, this current research study presented an analysis of the institutional context as a factor in adopting AI solution in the financial sector. In addition to that, it sheds the light on some of the important drivers that may play a role in increasing the adoption possibilities of AI in developing countries. Another practical implication can be summarized in the ability of the study to present recommendations for policy makers in order to give more attention to technological implementation through multiple partnerships with international bodies.

6.2. Recommendations

Based on results and conclusion of study, it is recommended to:

- Giving priority to creating a strong data infrastructure in terms of collection and storage, and focusing on data exchange operations between different financial institutions
- Make various efforts to enhance the level of Internet connectivity and create partnerships with multinational organizations to invest in communications infrastructure at a reliable and reasonable cost.
- An initiative by the governments of developing countries to cooperate in developing and enhancing individuals' skills related to artificial intelligence, such as training and maintenance courses

6.3. Limitations of Study

Current study was limited to Jordan as a developing country with the application taking place on managers and leaders within the financial and banking sector, which includes (320) companies operating throughout the Kingdome Jordan as a 3rd world country. The study was also limited to the fiscal year 2023-2023. The study was limited to opinions and attitudes of respondents, there weren't any employment of financial data of the organizations under study.

6.4. Future Studies

From the discussion and recommendations presented earlier, researcher suggested the following future studies:

- Highlight the requirements of an AI well-built infrastructure that may suit the financial abilities of developing countries
- Examine the influence of partnership with international authorities in order to increase training and development of professional experts on AI solutions in financial sector
- Explore the requirements of a well-built work force that is able to support the digitization of financial sector in developing countries

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