Exploring Artificial Intelligence Readiness in the Public Sector Organization

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ABSTRACT

This research aims to explore the readiness of Artificial Intelligence (AI) in one of the public sector organizations in Pakistan. Artificial Intelligence adoption remains challenging for many businesses, with numerous organizations struggling to implement AI technologies effectively. A case study was conducted in one of Pakistan public sector organizations to achieve this objective. The data was collected in one of the public sector organization through semi-structured interviews with the management of this organization. The readiness of AI was explored through factors like people's readiness, strategies and policies, process readiness, technology readiness, and organizational environment readiness. These are the essential factors regarding AI readiness in the organization. The findings of this case study reflect that this organization is well prepared for AI implementation, and efforts made by the management regarding the critical aspects, like people, policies, technology, and the required environment for AI implementation, will help them successfully implement AI in the organization.

INTRODUCTION

Today, Artificial Intelligence (AI) is widely addressed in academia, the business world, and many industries, including manufacturing, agriculture, pharmaceuticals, transportation, logistics, and automobiles (Colins et al., 2022). Even the event industry is feeling the effects of this shift, with trade publications discussing how AI is changing the face of event management (Uren et al., 2023). These studies point out potential uses for artificial intelligence in things like chatbots, facial recognition, matchmaking, and service robots, and they predict benefits like increased efficiency, lower costs, and better returns on investment. However, deploying AI in the events sector has been challenging, and the adoption of AI in event

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enterprises has been relatively gradual; readiness must be ensured before its implementation (Hradecky et al., 2022). Readiness checks the organization's ability to use Artificial intelligence in such systems. The organizational readiness to reduce the failure factors of technological change, such as Artificial Intelligence. Readiness models assess an organization's initial stage and facilitate the development process. Tailoring these models to specific contexts and technologies is crucial. In the public sector, AI readiness significantly enhances the potential for effective implementation and the realization of AI benefits. Organizations must build foundational AI readiness by addressing key factors such as processes, people, IT infrastructure, and the work environment. Therefore, a comprehensive evaluation of these aspects is essential (Jöhnk et al., 2019; Ali et al., 2024).

Further research in organizational readiness for artificial intelligence technology adoption gauges organizational readiness for digital innovations. Further, the factors of readiness are resource, process, technological, data, strategic vision, readiness, and innovation valence. Further gap analysis of organizational readiness to multiple AI technologies to limit our thinking and top management decision-making support (Alami et al., 2022; Amed et al., 2014; Ali et al., 2023). There is a need for research to explore the readiness of AI in the context of public sector organizations, as most researchers consider it critical before implementing (Desouza et al., 2020). There is a lack of research regarding AI readiness in developing countries like Pakistan. The factors already explored are related to strategic alignment, resources, data management, human resource skills, and capabilities. The factors examined in the context of developed countries can't be generalized in the context of developing countries. There is a dire need for research regarding exploring these factors in the context of developing countries like Pakistan. According to (Ali & Khan, 2024) recently explored AI readiness factors in the context of developing countries like Pakistan. There is a need of research in exploring readiness through these factors. This research addressed this gap through the following research question: *What is the perception of management of the public sector organization regarding the AI readiness of their organization?*

Literature Review

AI has been conceptualized as machines simulating human intelligence, encompassing thought processes and decision-making capabilities. This perspective aligns with the definition of AI as the capability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings, including reasoning, discovering meaning, generalizing, or learning from past experiences (Hjaltalin, 2024). Organizational AI readiness is influenced by major factors such as people readiness, strategies and policies, process readiness, technology

readiness, and organizational environment. Organizations consist of fundamental elements, but they also have subfactors. According to (Ali and Khan, 2024) identified the following five key readiness through SLR. These factors are related to: (i) People readiness, (ii) Strategy and policies; (iii) Process readiness; (iv) Technology readiness; and (v) Organizational environmental readiness. The current study for AI readiness factors found the criteria that show how ready an organization is to create an AI readiness framework, as well as the most critical factors. Prepared organizations set specific goals for AI adoption, demonstrating their intention to reap benefits from various AI applications. This research identifies the five key factors of AI readiness for public sector organizations, each with subfactors that delve into organizational readiness for AI implementation. This research identified five crucial readiness factors that can foster successful AI implementation. These are the five key AI readiness factors for public sector organizations in Pakistan: (i) People readiness, (ii) Strategy and policies, (iii) Process readiness, (iv) Technology readiness, and (v) Organizational environment.
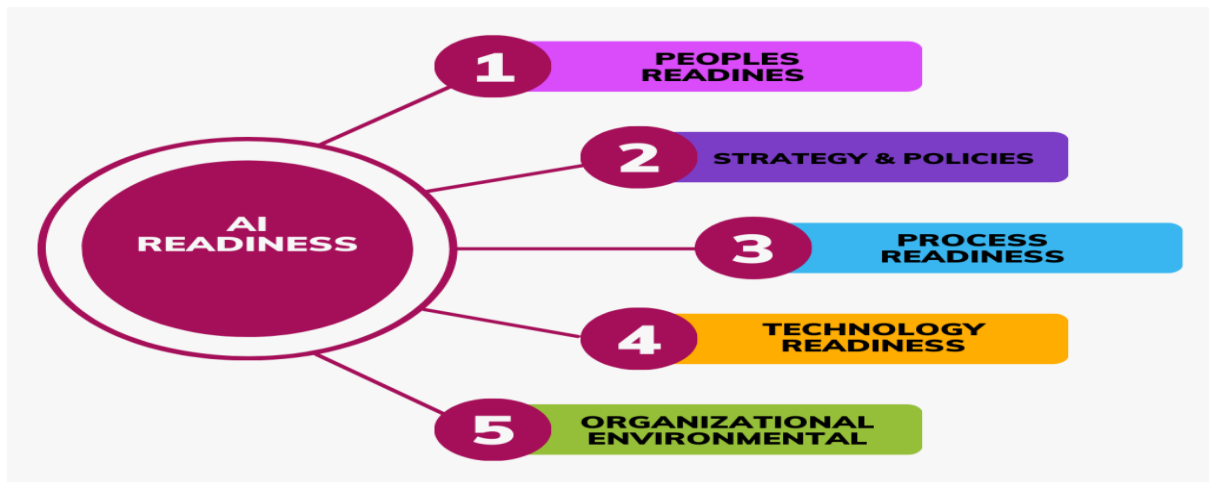
Figure 1: *AI Readiness Factors adopted from Ali & Khan (2024)*

AI readiness in the public sector organization is explored through a case study of one of Pakistan public sector organization. The details of the methodology are discussed in the next section (Ali & Khan, 2024).

Methodology

Case study methodology provides a structured approach to exploring contemporary phenomena within real-life contexts. Adopting AI in the public sector varies based on strategic objectives, necessitating a case-based evaluation of readiness components (Lokuge et al., 2019). Purposive sampling, a widely used non-probability technique, enables researchers to select individuals with direct knowledge of the research problem. Given its suitability for qualitative case studies, purposive sampling was chosen to target individuals assessing AI readiness in organizations

(Draper & Swift, 2011). Additionally, snowball sampling is employed when participants recommend others with relevant experience in AI implementation, adoption, deployment, or planning, ensuring a comprehensive data collection process (Draper & Swift, 2011). The data collection includes upper, middle, and lower management and important IT-related staff in the organization. All interviews were recorded, transcribed, and analysed according to the process recommended by (Yin, 2009). According to (Yin, 2009) qualitative case studies primarily rely on interviews for data collection. Additionally, (Marshall and Rossman, 2014).

Table 1: Interview Details Organization A

Organization	Interviewee	Code	Designation	Documents	Time
	Interviewee 1	CR 1	Project Manager IT	Process flow chart	1:08 minutes
	Interviewee 2	CR 2	Senior manager Planning	Planning manual	55 minutes
Organization A	Interviewee 3	CR 3	CEO, Head SPAI	Project policy	48 minutes
	Interviewee 4	CR 4	Assistant Project SPAI, IT	Documents	46 minutes
	Interviewee 5	CR 5	Technical Manager IT	Publish material	51 minutes
	Interviewee 6	CR 6	Admin & HR SPAI	AI material	42 minutes
	Interviewee 7	CR 7	Project Engineer SPAI	AI Documents	1:21 minutes

Case Analysis

Organization A is one of the public sector organizations responsible for planning and research in technology management in the country. It leverages AI to address local challenges, supports technology park initiatives, and offers high-value shared services to industry partners. AI readiness in the organization was explored through interviews. The next part of this study will discuss the AI readiness explored in terms of the five critical factors discussed in the literature review.

People Readiness

In order to explore the people-related readiness, one of the senior managers said:

"*We planned to improve the skills of our new staff, internally and externally, and also planned a strategy for project feasibility. Additionally, we conducted a first training to check the skills required before AI implementation*".

Trainers primarily focus on equipping employees with AI tools and exploring their application potential within the unique context of public sector organizations. Most employees in the organization recognized the efforts made by management regarding upskilling and reskilling necessary for AI implementation.

Strategy and Policies

Vision and strategic goal refer to the formulation of achievable targets that a specific organization expects from artificial intelligence and a strategic roadmap leading to them. One of the senior officials said:

"A well-defined strategic goal is essential for successful AI implementation, and we made sufficient efforts in this regard".

All participants supported AI adoption, with many emphasizing that a clear strategy aligned with the corporate mission positively influences AI implementation within organizational processes. Numerous AI initiatives depend significantly on the endorsement of senior management, deemed an essential factor in organizational readiness. Executive leadership strongly endorses all AI efforts within the firm, deeming this a crucial element for the integration or deployment of AI.

Another senior official commented:

*"For artificial intelligence projects, top management support is crucial, as it involves the budget from the finance division and the team supporting the activities that need to be done by coordinating resources and engaging people in the organization"...*Similar comments of another manager*:*

"We have an organizational AI strategy and the most effective AI deployment plan". They have a well-planned strategy and policy for implementing AI in the organization.

Processes Readiness

Business process design is a method for creating a new workflow for new changes. It is directly connected to the organization services. Manager Planning was of the view:

"We know the importance of redesigning organizations before AI implementation changes include strategic alignment with departments and developing the system's working capabilities". The AI business process demands development, analysis, automation, and optimization of processes. One of the senior member said:

"Organization Business process integration is increasingly vital, and our management has made sufficient efforts in this regard".

Technology Readiness

Management efforts regarding technology readiness were explored through data governance, data management framework, data accessibility, platform availability, data security, and data privacy. One of the executives said in this regard:

"Data governance ensures data is accurate, accessible, reliable, and fit for purpose and we made conscious efforts in this regard".

Similarly, another manager said:

"Data availability is essential in implementing AI, and we ensure that the right data is provided at the right time to the right person". Similarly, another manager said: *"Suitable IT infrastructure for AI is essential, and we are constantly working on developing and aligning it*

with the current and future needs". This organization has made sufficient efforts regarding technology readiness and has developed strategies for aligning it with its processes.

Organizational Environment

Artificial intelligence is transforming decision-support systems. It enhances business success by analyzing uncertain market changes and facilitating strategic adaptation. Its decision-making capabilities enable businesses to gain competitive advantages in dynamic environments:

One of the senior management members said:

"We collaborate with national vendors and facilitate all employees' transformation. We conduct training for AI projects, provide all tools, systems, and process streamlines for cloud-based, and design AI graphics and units. We also provide all resources for AI adoption and the best knowledge, skills, and environments for working. Yes, we have the best capability for AI adoption".

Organization A has data, skilled technicians, funding, and an AI readiness plan. With strong facilitation mechanisms and trained specialists, the business can apply AI efficiently with a firm foundation and deep understanding of AI dynamics.

Another senior management said:

"Our organization has a collaborative culture at both the international and domestic levels. Organizations need stakeholders who know about AI and how to benefit from it".

AI installation required teamwork. Enterprise collaboration is enhanced via open horizontal and vertical communication. Silos are eliminated in the company's unique structure, encouraging collaboration and innovation. Culture and slack resources affect company AI adoption. New technology is applied based on budget and finances, like previous developments. A substantial budget increases capacity, economic flexibility, and knowledge. Project resources include personnel, time, finance, materials, and equipment. Resource availability affects project success.

Discussion

The conceptual framework for the discussion identifies five public sector AI readiness variables. These elements and the framework's application are discussed, and public sector AI readiness is examined in the case study. This study employed three principal sources for data collection, providing a comprehensive understanding of AI readiness in public-sector organizations. We established the interview guideline based on our study question and essential AI readiness aspects for public sector organizations.

People Readiness

The finding indicates the readiness of individuals, which is crucial for every organization. If an organization does not prepare individuals for AI adoption, it is likely to fail and result in a squandered investment due to insufficient training (Lokuge et al., 2019; Hradecky et al., 2022; Pumplun et al., 2019). Organization A must commit to promoting literary awareness about AI implementation in different processes and provide various workshops and training programs on how to use AI application processes and technology for users, and Organization A must take steps to raise AI awareness for every user. Organizations possess multi-disciplinary skills that facilitate the easy implementation of AI technology. A multi-disciplinary team is crucial for the successful implementation of Artificial Intelligence. Organization A has AI teams providing IT services and a technical team actively implementing AI. People readiness is the training plan for organizational AI readiness factors, like technical and employee AI usage training. Organization A has provided training to our team on how to use new AI technologies and how to implement them. The organization also provides training workshops for management and middle-level management on artificial intelligence, emphasizing the need for specific skills such as data analytics, machine learning, deep learning, and the most essential programming language for near-future AI. The organization continuously develops AI usage guidelines for end users and internal staff.

Strategies and Policies

The findings of this study suggest a necessity for certain AI readiness factors in the current literature on AI adoption readiness. Researchers assert that strategies and policies are crucial and facilitate the application of AI. In the absence of strategies and policies, AI is incapable of executing any systems or processes (Pumplun et al., 2019). Evidence indicates that the absence of top management support hinders the scaling up of bottom-up for AI innovation. (Lokuge et al., 2019). The top management team indifference to AI impedes the mobilization of resources and funds necessary for the productization of AI models (Alsheibani et al. 2018). Top management takes the budget allocation for AI implementation in the organization very seriously, not for any specific project but for a different one. Top management is also considered a critical factor in any AI integration. Conversely, organizations have an established strategy and roadmap for incorporating artificial intelligence. Furthermore, Organization A formulates AI plans and policies, considerably obstructing the expansion of indigenous AI innovations, especially in resource distribution and AI model creation. Top management exercises prudence in AI budget allocations, prioritizing strategic financial supervision for effective deployment. Despite enterprises' establishment of AI plans, encompassing risk

management, change management, and communication frameworks, deficiencies persist within these strategies. The nation lacks fundamental regulations, ethical standards, compliance protocols, and standardized training initiatives.

Process Readiness

Existing literature commonly describes adoption and readiness only as two vaguely related concepts. Integrative work to unveil their interdependencies is rare (Uren et al., 2023; Sjöberg and Schill, 2023; Klievink, 2017; Hradecky, et al., 2022; Lokuge et al., 2019). Thus, the readiness concept is often limited to a sequential precursor to the broader adoption concept (Lee et al., 2024). Organization A decides to align its business processes and integrate AI business processes. Additionally, AI readiness requires attention to technology use, data management, algorithm development, leadership awareness, and ethical practices within the organization. AI-process integration describes the necessary linkage between an organization AI strategy and its processes to increase AI readiness. Changes accompanying AI adoption always affect an organization processes. In this respect, the AI process reflects an organization compatibility with AI and is facilitated by a mature process landscape, i.e., standardized and structured processes.

Technology Readiness

According to authors (Lokuge et al., 2019; Kruse et al., 2019; Lokuge et al., 2019), existing literature, data governance is one organizational capability that positively correlates with big data readiness. Organization A has also developed data governance, in which data availability and accessibility, data quality, and data platform are available. Organization A is equipped with data, high-performance computing systems, human resources, technical teams, international specialists, and both technical and human data, which serve as skill sets for the implementation of AI. Organization A possesses high-quality data, including human skill sets and technical equipment suitable for AI implementation. Organization A has some issues with data accessibility from different databases; that is a fundamental issue; most data is easily accessible. Organization A has developed the building blocks of data for AI implementation and has a cluster data platform structure available for use. The organization consistently enhances the data platform within our organization, ensuring that all servers are connected through a network system and that all data platforms are available from a single center.

Organizational Environment

The findings of this study describe the organizational environment in which collaborative work is conducted, including the degree to which organizational structure includes organizational resources, organizational capabilities, and collaborative culture (Davenport, 2018; Hofmann et

al., 2020; Alsheibani et al., 2019; Lokuge et al., 2019; Kruse et al., 2019). Organization A possesses all the necessary organizational environmental resources, like an AI technical team, funding, and a strategic roadmap plan for AI implementation, indicating its capacity to integrate AI effectively. Organization A is a vision-based, highly supportive organization that provides all necessary funds for AI-enabled devices, software, hardware purchases, and AI-related resources. Organization A operates on an AI platform and offers AI-based services to various organizations, which are widely accepted. Organization A has adopted an agile way of working, requiring artificial intelligence adaptability. Organization A has the potential to enhance the AI scale, but certain factors are still in the implementation stage. Organization A allocates a separate project budget for new initiatives and has a dedicated international budget for various activities related to AI solutions. Organization A has human resources available, as well as AI domain experts with a deep understanding of how to determine the feature AI model and make it more understandable. Organization A has the technical resources and AI experts available to implement AI in any system and organization process.

Conclusion

This research aims to explore the AI readiness in one of the public sector organizations in Pakistan. A case study was conducted, and the findings of this case study reflect the readiness of AI in terms of five essential factors. These factors were explored through SLR by (Ali & Khan, 2024) the main authors of this research study. The factors explored for the readiness are aligned with the theory of readiness as suggested by (BJ Weiner, 2009). The findings of this research reflect the AI readiness in terms of people's readiness, strategy and policies, process readiness, technology readiness, and organizational environment. The management of this organization made sufficient efforts regarding people, i.e, developing their skills and capabilities and creating awareness about AI in the organization. They also developed strategies and policies regarding data governance, its security, and management. The efforts made by the management regarding the development of technological infrastructure were also found to be effective in implementing AI shortly in this organization.

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