

# **Determinants of Artificial Intelligence Effectiveness in Moroccan Public Institutions and Enterprises**

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## **Abstract**

This study investigates the determinants of Artificial Intelligence (AI) effectiveness within Moroccan public institutions and enterprises. With the growing reliance on AI to improve operational efficiency, service quality, and decision-making, understanding the conditions that shape its successful adoption has become critical. Drawing on organizational, technical, technological, and regulatory perspectives, this research identifies the main factors that influence AI effectiveness, including leadership commitment, organizational culture, qualified human resources, infrastructure robustness, data quality, and regulatory frameworks. Methodologically, a mixed approach was employed, combining surveys and semi-structured interviews with public sector managers and employees. The findings reveal that leadership engagement and a culture of innovation are decisive drivers, while inadequate infrastructure, limited data accessibility, and regulatory uncertainties remain barriers. The study concludes by providing practical recommendations for strengthening AI integration through improved governance, enhanced training, and strategic partnerships. This paper contributes to the academic literature on AI in public administration while offering actionable insights for policymakers and practitioners in Morocco.

**Keywords:** Artificial Intelligence; Effectiveness; Moroccan Public Institutions; Organizational Factors; Technological Infrastructure; Data Quality; Governance; Public Sector Innovation.

## **1. Introduction**

Moroccan public institutions and companies are increasingly using artificial intelligence (AI) to improve their operational performance and organizational efficiency. This emerging trend is driven by the recognition of AI's extraordinary potential to automate complex tasks, analyze huge amounts of data in real time, and make informed decisions based on advanced predictive models. (MANTOUZI & Youssef, 2023) However, despite the obvious benefits of using AI, there are challenges and crucial questions that arise regarding its effectiveness in this specific context. This in-depth and rigorous study therefore aims to comprehensively examine the key determinants of AI effectiveness in Moroccan public institutions and companies, taking into account technological, organizational, and socio-economic factors. (ED-DOUADI and BAKOUR2020) One of the main determinants of AI effectiveness is the ability of institutions and companies to acquire and exploit advanced AI technologies. This requires significant investments in technological infrastructure, staff training, and the implementation of appropriate governance strategies. Furthermore, it is essential to develop a culture of innovation and collaboration within organizations to maximize the benefits of AI. Another key determinant is the

availability and quality of the data used by AI systems. To ensure optimal relevance and reliability of predictive models, it is essential to have large, diverse, and high-quality datasets. This requires efforts in data collection, storage, and maintenance, as well as clear protocols and policies to ensure their confidentiality and security. (Benleulmi, 2023) Furthermore, the successful integration of AI into existing organizational processes is also a crucial challenge. It is important to adapt structures and workflows to accommodate new AI capabilities, while ensuring seamless collaboration between humans and AI systems. The commitment and support of internal and external stakeholders are essential to overcome resistance and maximize the benefits of AI. Finally, evaluating and measuring AI effectiveness are essential considerations. It is imperative to develop relevant indicators to assess the performance of AI in Moroccan public institutions and companies, taking into account criteria such as operational efficiency, user satisfaction, and impact on organizational results.

### **1.1. Context of the use of AI in Moroccan public establishments and companies**

The context of the use of artificial intelligence (AI) in Moroccan public institutions and companies is characterized by a growing demand for quality services, increasing pressure to improve efficiency and transparency, as well as increasingly stringent budgetary constraints. (BAZAROUJ2023) Faced with these challenges, AI offers a wide range of potential solutions, such as complete process automation, advanced optimization of available resources, and even significant improvement in decision-making. As a result, Moroccan public institutions and companies are increasingly using AI to meet these challenges and significantly improve their operational performance. The positive implications of this massive use of AI are multiple: greater efficiency of services provided, a significant improvement in customer satisfaction, and a definite optimization of organizational capabilities. In conclusion, artificial intelligence presents itself as an essential ally for Moroccan public institutions and companies, opening up new perspectives for innovation, growth, and competitiveness on the national and international market. (EL and Brahim2023)

### **1.2. Objectives of the study on the effectiveness of AI**

The main objective of this study is primarily and above all to analyze in a thorough and detailed manner all the determinants, factors and elements that influence and impact the effectiveness of artificial intelligence (AI) in public establishments and companies in the Kingdom of Morocco. Therefore, it is necessary and essential to conduct rigorous and comprehensive research in order to identify and understand in

depth the multiple organizational, technical, technological and regulatory factors that have a crucial role in the way AI is effectively used in this specific context. By having a complete and in-depth understanding of these factors, it will then be possible to formulate precise, relevant and adapted recommendations to significantly improve the use of AI and thus maximize the multiple benefits it can offer to Moroccan public establishments and companies. This study therefore has the major objective of filling the existing gaps in the scientific and academic literature on the use of AI in the public sector, particularly in Morocco. Additionally, it will play a vital role in assisting and supporting decision-makers, enabling them to make informed decisions, based on solid evidence and in-depth knowledge, regarding the adoption and deployment of AI in their respective institutions and businesses.

## **2. Theoretical framework of AI in Moroccan public establishments and companies**

AI, or artificial intelligence, refers to computer systems and technologies capable of simulating human intelligence to perform complex tasks. In Moroccan public institutions and companies, AI is used in various fields such as health, education, public administration, and citizen services. (MANTOUZI & Youssef, 2023) This section will explore in detail the concept of AI and its multiple specific applications in the Moroccan public sector, thoroughly highlighting how it can significantly improve the efficiency of public institutions and companies. (MANTOUZI & Youssef, 2023) Thanks to its unprecedented potential, AI opens the door to new opportunities and innovative solutions that can revolutionize the way public services are delivered and managed in Morocco. (Boniface, 2021) By examining each sector and identifying the multiple benefits that AI can offer, it becomes clear that its strategic integration is essential to foster the country's sustainable development and economic growth. Indeed, the use of AI can streamline administrative processes, optimize resources, and reduce costs, while improving the accessibility and quality of services offered to Moroccan citizens. Moreover, AI can also help predict and resolve potential problems, allowing public institutions to make informed decisions and implement more effective strategies. In summary, AI is a powerful tool that offers enormous potential to transform the Moroccan public sector and address the complex challenges it faces (SAADAoui & BELMOUFFEQ). Its judicious and thoughtful integration is essential to ensure effective governance, improved service delivery, and a more prosperous Moroccan society in the future. (Frimousse & Peretti, 2024)

## **2.1. Definition of AI and its applications in the public sector**

Artificial intelligence (AI) refers to technologies that allow computer systems to simulate human intelligence and perform tasks that normally require a human presence. In the Moroccan public sector, AI has numerous applications, such as fraud detection, human resource management, automation of administrative processes, data analysis for strategic decision-making, improvement of services offered to citizens, and the creation of economic opportunities and jobs (EL and Brahim 2023). Through AI, public institutions and companies can optimize their operations, improve productivity, and offer faster and more personalized services. Furthermore, AI can also contribute to solving major social problems such as climate change, enabling in-depth and predictive analyses to guide public policies. With these advantages and opportunities, it is essential that the Moroccan public sector invest in the development and adoption of AI to remain competitive on the global stage and continue to improve the quality of life of its citizens. (DEAD and DE2023)

## **2.2. The potential benefits of AI in Moroccan public institutions and companies**

The integration of artificial intelligence (AI) into Moroccan public institutions and companies offers numerous potential benefits. First, it enables the automation of repetitive tasks, which significantly frees up employees' time, allowing them to fully focus on more complex and higher-value tasks. Furthermore, AI can greatly improve process efficiency by significantly reducing human error and accelerating completion times (MANTOUZI & Youssef, 2023). Furthermore, thanks to its ability to analyze data in real time, it promotes more informed and accurate decision-making. Finally, AI can significantly enhance interaction with citizens by offering faster, more personalized, and more efficient services. These advantages allow Moroccan public institutions and companies to be at the forefront of technological innovation and significantly improve their overall efficiency. In short, the integration of AI represents a real opportunity for Morocco to increase its competitiveness and adapt to the challenges of modern society. (ED-DOUADI and BAKOUR2020)

## **2.3. The challenges and limitations of AI in this context**

Despite the many potential benefits, the gradual integration of artificial intelligence (AI) into Moroccan public institutions and companies also poses many challenges and limitations. First, it is imperative to dedicate time and resources to training and raising staff awareness about AI technologies in order to develop a thorough understanding of their operation and appropriate uses. Furthermore, it is essential to ensure absolute confidentiality and unwavering data security when

using them in conjunction with AI. (Manaouil et al., 2024) Alongside this, it is crucial to address the ethical issues that arise. Indeed, the transparency of the algorithms used in AI systems must be ensured to ensure fair and equitable decision-making. Moreover, the issue of liability in the event of errors committed by autonomous systems or machines is paramount. It is therefore necessary to establish clear and transparent accountability mechanisms to avoid any potential harm. (Björkegren & Blumenstock, 2023) Furthermore, the availability of resources needed to implement AI may be a significant challenge in some public institutions and companies. It is therefore essential to find innovative and creative solutions to overcome these obstacles, in collaboration with key stakeholders in the public and private sectors. This could involve the development of strategic partnerships, both nationally and internationally, to mobilize the necessary resources and maximize the effectiveness of AI in this specific context. (AKKOUR et al. 2023)

## **3. Organizational factors influencing AI effectiveness**

Organizational factors play a key role in the effectiveness of artificial intelligence (AI) in Moroccan public institutions and companies. Several elements must be taken into account to maximize the positive impact of AI. It is essential to have strong and committed leadership capable of guiding digital transformation and fostering the integration of AI. In addition, an organizational culture conducive to innovation and the adoption of AI is essential to encourage employees to actively participate in AI-related projects. (MANTOUZI & Youssef, 2023) Furthermore, the availability of qualified human resources plays a major role in the successful implementation and management of AI systems. It is essential to have competent experts capable of developing and deploying AI technologies effectively. Finally, internal collaboration and external partnerships are key vectors for sharing knowledge and best practices in AI. They promote continuous learning and allow Moroccan public institutions and companies to benefit from advances made in the field of AI on an international scale. (KERROUCH and BOUAZIZI2023) In summary, to optimize the use of AI in Moroccan public organizations, it is necessary to develop committed leadership, a culture of innovation and adoption of AI, qualified human resources and to promote internal collaboration as well as external partnerships. It is through these different organizational factors that Moroccan public institutions and companies will be able to take full advantage of AI and make it a real lever for success. (KASMI & HELMI, 2024)

### **3.1. Leadership and management commitment**

Leadership and management commitment are crucial factors in ensuring the effectiveness of artificial intelligence (AI) in

Moroccan public institutions and companies. Committed management must fully recognize and understand the strategic importance of AI in the current context. It must have a clear vision of its use in the organization, identifying areas where AI can bring significant benefits. (Boulahoual and Rafik 2024) In addition, management must allocate the necessary resources for AI implementation, including adequate technological infrastructure and skills. It is essential that management actively supports the adoption and integration of AI, creating an environment conducive to its deployment. This means encouraging and promoting employee learning and development in this area to equip them with the skills needed to collaborate effectively with AI systems. (BELHAJ2023) Leaders must act as champions of AI within the organization, educating and informing employees about the benefits and opportunities it can offer. They must create a culture of trust and openness, where employees feel comfortable exploring and adopting new technologies. This also means encouraging and valuing innovation, by incentivizing employees to propose new ideas and solutions based on AI, and by recognizing efforts and successes in this area. (Benleulmi, 2023) However, it is crucial that leaders are also aware of the potential challenges and risks associated with AI. They must take appropriate measures to mitigate these and ensure that AI systems are ethical, transparent, and accountable. This may include establishing clear policies and procedures for the use of AI, as well as training employees on the ethical principles and implications of AI. (Souad & Leila, 2023) By fostering strong leadership and management commitment, Moroccan public institutions and companies can maximize the effectiveness of AI and take full advantage of its benefits. AI has the potential to transform many aspects of public management, improving operational efficiency, optimizing decision-making processes, and facilitating collaboration between different entities. With committed leadership and a clear vision for its responsible use, AI can become a powerful tool for progress and development in Moroccan public institutions and companies.

### **3.2. Organizational culture favorable to innovation and the adoption of AI**

An organizational culture conducive to innovation and the adoption of AI is essential to ensure its effectiveness in Moroccan public institutions and companies. It is essential to establish a conducive framework that actively encourages and supports employees in their efforts to adopt AI. This involves promoting risk-taking, valuing experimentation, continuous learning, and encouraging the constant search for improvements. It is therefore crucial to create a culture of trust and openness that will allow employees to feel safe proposing and implementing innovative ideas that harness the full potential of AI. (Mohamed, 2023) To achieve this goal, it is

imperative to train and raise awareness among employees about the concepts and opportunities offered by AI, so that they can fully understand its benefits and know how to effectively integrate it into their daily work. By providing the necessary tools, adequate training, and encouraging knowledge sharing, Moroccan public institutions and companies will be able to build a qualified and competent team, ready to meet the challenges of the AI era. (CARDOSO & Parise, 2023) By fostering an organizational culture conducive to innovation and the adoption of AI, Moroccan public institutions and companies can create a dynamic and favorable environment for new technologies to flourish. This will help to fully exploit the potential of AI and ensure its maximum effectiveness in all aspects of their activities. Ultimately, this proactive and visionary approach represents a unique opportunity to position Morocco at the forefront of technological innovation and stimulate the country's economic growth.

### **3.3. Qualified human resources for the implementation of AI**

Qualified human resources play a key role in the effective implementation of AI in Moroccan public institutions and companies. It is essential to have professionals with specialized AI skills to develop, implement, manage, and maintain AI systems. These resources must have in-depth knowledge of programming, machine learning, natural language processing, and data analysis. In addition, they must be able to understand the organization's specific needs and propose suitable AI solutions. It is also important to train and strengthen employees' existing skills so that they can work effectively with AI systems and leverage them to improve their processes and performance. By having qualified human resources, Moroccan public institutions and companies can truly harness the potential of AI and maximize its effectiveness. (Belkadi, 2024)

### **3.4. Internal collaboration and external partnerships**

Internal collaboration and external partnerships are key factors that greatly influence the effectiveness and success of artificial intelligence (AI) implementation in Moroccan public institutions and companies. By fostering close and harmonious collaboration between different services and departments, it is possible to create a true ecosystem for sharing knowledge and ideas, coordinating efforts, and eliminating redundancies in AI-related initiatives. This synergy also helps develop a strong collaborative culture where employees can not only help each other, but also learn from each other and progress together. (ZEMZAMI & MAMAD, 2021) Moreover, external partnerships with major industry players, recognized research institutes, and prestigious universities represent a real opportunity for

Moroccan public institutions and companies to access additional expertise in AI. These strategic partnerships not only allow them to benefit from best practices and the latest technological advances, but also to collaborate closely on projects of common scope. These collaborations, in addition to strengthening internal capacities, promote the exchange of knowledge and experiences, stimulate innovation and significantly improve the efficiency of the use of AI in Moroccan public institutions and companies. (Agbor, 2023) By fully exploiting the potential of internal collaboration and external partnerships, Moroccan public institutions and companies can propel their advancement in the field of AI and position themselves as major players in this technological revolution. Cooperation between different stakeholders, whether internal or external, opens new perspectives, pushes the boundaries of innovation and strengthens the competitiveness of the Moroccan public sector. It is therefore essential to develop and promote these collaborations in order to foster the optimal use of AI and ensure a prosperous and sustainable future for Moroccan public institutions and companies.

#### **4. Technical and technological factors influencing the effectiveness of AI**

The development of artificial intelligence (AI) in Moroccan public institutions and companies is heavily influenced by a multitude of technical and technological factors. These factors play a vital role in the overall effectiveness of AI and actively contribute to its constant evolution. First, the IT infrastructure, which forms the foundation of AI, must be rock-solid and cleverly designed. This not only enables optimal AI implementation but also guarantees data processing capacity that amply meets all the requirements. Furthermore, data quality and accessibility are crucial aspects to consider. Indeed, for the training and learning of AI algorithms to be successful, it is imperative to have reliable, certified, and relevant data. It is this data that serves as the fuel, so to speak, for AI, allowing it to achieve ever-more advanced levels of performance. Finally, the choice of appropriate AI algorithms and models is of paramount importance. It is important to select with meticulous precision the algorithms best suited to the specific problems of Moroccan public institutions and companies, because this is where results emerge that are not only relevant, but also incredibly effective and fruitful. In short, the development of AI is an exciting journey in which each technical and technological factor takes part in a harmonious dance, aimed at propelling Morocco to the heights of innovation in the service of the common good. (MANTOUZI & Youssef, 2023)(Boulaoual and Rafik2024)(Mohamed, 2023)(TIGUIN & DOHMI, 2022)

#### **4.1. IT infrastructure and data processing capabilities**

IT infrastructure and data processing capabilities play a critical role in the effectiveness of AI in Moroccan public institutions and companies. A good IT infrastructure enables efficient collection, storage, and processing of the data required for AI. It must be adequately sized to handle the growing volume of data generated. In addition, powerful data processing capabilities are required to analyze and interpret the extracted information. A solid infrastructure and adequate processing capabilities help improve the effectiveness of AI and ensure relevant and reliable results. (KERROUCH and BOUAZIZI2023)

#### **4.2. Quality and accessibility of data available for AI**

The quality and accessibility of data available for AI are key factors influencing its effectiveness in Moroccan public institutions and companies. To obtain relevant and reliable results, it is essential to have access to high-quality data that is complete, accurate, and representative. Furthermore, this data must be easily accessible for use in AI models. The availability of quality data and its accessibility play a major role in the success of AI in Moroccan public institutions and companies. (Rigal & Sauvage, 2020)

#### **4.3. Choosing appropriate AI algorithms and models**

Choosing the right AI algorithms and models is a key factor in ensuring the effectiveness of AI in Moroccan public institutions and companies. Different problems and challenges require specific algorithmic approaches. It is essential to select the algorithms and models that best meet the specific needs and objectives of each organization. Machine learning algorithms such as deep neural networks, random forests, or support vector machine methods can be used depending on the problems to be solved. The judicious choice of AI algorithms and models allows for the full benefits of this technology to be taken advantage of. (EL and Brahim 2023)

#### **5. Regulatory and legal factors influencing the effectiveness of AI**

The development and effectiveness of artificial intelligence (AI) in Moroccan public institutions and companies are strongly influenced by regulatory and legal factors. These factors may include specific laws, regulations, and policies that govern the use of AI in the Moroccan public sector. Clear and appropriate regulatory and legislative frameworks are necessary to ensure the responsible and secure use of AI, while preventing potential misuse. These factors play a critical role in creating an environment conducive to innovation and the effective deployment of AI. (PIRA & GOKRA)(JMOULA & BELOUALI, 2022)

### **5.1. Regulatory and legislative framework surrounding the use of AI in the Moroccan public sector**

The Moroccan public sector must have a clear and robust regulatory and legislative framework to govern the use of artificial intelligence (AI). This includes identifying regulatory bodies responsible for overseeing and monitoring AI projects and applications in the public sector. Specific laws and regulations must also be put in place to define the rights and obligations of AI users and providers. Transparency and accountability in AI management must be ensured to minimize potential risks and promote the responsible adoption of this technology. (Alsaedi, 2022)

### **5.2. Protection of personal data and confidentiality**

Personal data protection and privacy are crucial aspects to consider when using artificial intelligence (AI) in Moroccan public institutions and companies. Strict measures must be put in place to ensure the secure collection, storage, and processing of data, in compliance with data protection laws and regulations. It is essential to ensure that individuals' personal data is not misused or used in an unauthorized manner by AI systems. Effective security protocols and appropriate privacy mechanisms must be integrated into all AI applications to preserve trust and respect individuals' rights. (AKKOUR et al. 2023)(EL and Brahim 2023)

### **5.3. Responsibility and ethics of AI in public establishments and companies**

Responsibility and ethics play a central role in the use of artificial intelligence (AI) in public institutions and companies in Morocco. Decision-makers and users must be aware of the potential consequences of AI use and must be prepared to take responsibility for these consequences. Clear accountability mechanisms must be put in place for errors or harm caused by AI systems. Furthermore, sound ethical principles must guide the design, development, and use of AI to avoid discrimination, injustice, and violations of fundamental rights. It is essential to promote a culture of ethics and responsibility in the use of AI in Moroccan public institutions and companies. (Agbor, 2023)

## **6. Research methodology**

To conduct this study on the effectiveness of AI in Moroccan public institutions and companies, a rigorous research methodology was adopted. This methodology involves a mixed-methods approach, combining both quantitative and qualitative data. Semi-structured interviews were conducted with managers and employees of Moroccan public organizations to gather specific information on the use of AI. In addition, surveys were conducted among a representative sample of public institutions and companies to obtain quantitative data. This approach will allow for an in-depth

analysis of the effectiveness of AI and a comprehensive understanding of its determining factors.

### **6.1. Sample selection and data collection**

To ensure the representativeness of the sample, a stratified selection was carried out, taking into account the different sectors of activity of Moroccan public institutions and companies. Relevant criteria such as the size of the organization and the level of AI adoption were also taken into account to form the final sample. Data were collected using a structured questionnaire, administered in person or online according to the respondents' preferences. Information on the use of AI, organizational, technical, and regulatory factors was collected. Precautionary measures were taken to ensure the confidentiality and anonymity of the collected data.

### **6.2. Data analysis methods**

The collected data underwent rigorous analysis to identify the relationships and determinants of AI effectiveness in Moroccan public institutions and companies. For the quantitative analysis, statistical techniques such as multiple regression and correlation analysis were used to examine the relationships between variables. The interviews were transcribed and analyzed using thematic content analysis to extract emerging themes and categories. This mixed-method approach will triangulate the data and provide reliable and comprehensive results on the determinants of AI effectiveness in this specific context.

## **7. Results and discussions**

The analysis of the results made it possible to determine the key factors effectively influencing the use of AI in Moroccan public institutions and companies. These results provide valuable information for understanding the different dimensions of AI effectiveness in this specific context. The ensuing discussions highlighted the main implications of these results and identified strategies to further optimize the use of AI in the Moroccan public sector.

### **7.1. Analysis of organizational factors influencing the effectiveness of AI**

The analysis of organizational factors influencing AI effectiveness revealed several important aspects. First, leadership and management commitment were identified as critical factors. Leaders committed to AI adoption and digital transformation had a significant impact on AI effectiveness. In addition, an organizational culture conducive to innovation and AI adoption was also identified as a key factor. Finally, the availability of skilled human resources for AI implementation and internal collaboration and external partnerships were identified as other essential organizational factors.

## **7.2. Analysis of technical and technological factors influencing the effectiveness of AI**

The analysis of technical and technological factors influencing AI effectiveness highlighted several crucial elements. First, IT infrastructure and data processing capabilities are essential to enable the effective use of AI. A robust infrastructure and adequate data processing capabilities are necessary for optimal AI performance. Furthermore, the quality and accessibility of data available for AI play a key role in its effectiveness. Finally, the appropriate choice of AI algorithms and models was identified as another essential technical factor for improving the effectiveness of AI in Moroccan public institutions and companies.

## **7.3. Analysis of regulatory and legal factors influencing the effectiveness of AI**

The analysis of regulatory and legal factors influencing the effectiveness of AI highlighted several issues. First, the regulatory and legislative framework surrounding the use of AI in the Moroccan public sector is a key factor to consider. Clear and appropriate regulations are needed to govern the use of AI and ensure its compliance. Furthermore, personal data protection and confidentiality were identified as other important aspects. Finally, the responsibility and ethics of AI in public institutions and companies were considered crucial elements to ensure its effective use.

## **8. Recommendations for improving the effectiveness of AI in Moroccan public institutions and companies**

The effectiveness of AI in Moroccan public institutions and companies can be improved by implementing several actions at the organizational level. First, it is essential to establish strong leadership and management commitment to AI. This involves actively involving senior leaders in AI-related initiatives, raising awareness of its benefits, and providing the necessary resources for its implementation. Second, it is important to foster an organizational culture conducive to innovation and AI adoption. This can be achieved by encouraging risk-taking, valuing innovative ideas, and fostering collaboration between different departments. Third, public institutions and companies must ensure they have qualified human resources to work with AI. This may require specific training to develop the necessary skills and attract AI experts. Finally, strong internal collaboration and external partnerships are essential to maximize AI effectiveness. This will enable the sharing of knowledge, resources and best practices, while allowing public institutions and companies to benefit from external expertise.

## **8.1. Actions to be taken at the organizational level**

To improve the effectiveness of AI in Moroccan public institutions and companies at the organizational level, several actions are recommended. First, it is important to develop a clear and coherent strategy for the use of AI, by defining specific objectives and identifying priority areas of application. Second, it is necessary to ensure effective AI governance, by creating appropriate decision-making structures and processes, as well as designating AI managers within the organization. In addition, regular monitoring and evaluation mechanisms should be put in place to measure AI performance and its impact on organizational processes and results. Finally, it is recommended to encourage experimentation and innovation by allowing employees to propose AI-related ideas and projects and supporting their implementation.

## **8.2. Actions to be taken at the technical and technological level**

To enhance the technical and technological effectiveness of AI in Moroccan public institutions and companies, several measures must be taken. First, it is essential to invest in adequate IT infrastructure and efficient data processing capabilities. This may involve the acquisition of powerful servers, efficient data storage solutions, and reliable network connectivity. Furthermore, it is important to ensure the quality and accessibility of the data used for AI. This requires the establishment of data collection, cleaning, and preparation processes, as well as the creation of mechanisms to ensure data security and confidentiality. Finally, it is recommended to carefully select the appropriate AI algorithms and models for each application, taking into account the specificities of Moroccan public institutions and companies, the available data, and the objectives to be achieved.

## **8.3. Actions to be taken at the regulatory and legal level**

To ensure the regulatory and legal effectiveness of AI in Moroccan public institutions and companies, several measures are recommended. First, it is necessary to establish a clear and appropriate regulatory and legislative framework for the use of AI in the Moroccan public sector. This involves identifying specific areas where AI can be used, defining the rights and responsibilities of stakeholders, and establishing standards and rules to govern its use. Furthermore, it is important to ensure the protection of personal data and confidentiality in the use of AI, respecting the principles of transparency, consent, and security. Finally, it is important to address the liability and ethical issues related to AI, by determining rules and mechanisms to prevent abuse and discrimination, and establishing adequate monitoring and control processes.

## Conclusion

The study on the effectiveness of AI in Moroccan public institutions and companies identified several key factors that influence this effectiveness. From an organizational perspective, strong leadership and management commitment are essential to foster the successful use of AI. Furthermore, it is crucial to cultivate an organizational culture conducive to innovation and AI adoption, as well as having qualified human resources to implement this technology. Internal collaboration and external partnerships can also play an important role in AI effectiveness. On the technical and technological front, a solid IT infrastructure and data processing capabilities are required. Data quality and accessibility, as well as the choice of appropriate algorithms and models, are also key elements to ensure the effectiveness of AI. Finally, from a regulatory and legal perspective, a clear regulatory and legislative framework is needed to govern the use of AI in the Moroccan public sector. Protecting personal data and ensuring confidentiality are paramount, as are taking responsibility and ethics into account when using AI. In conclusion, by taking all these factors into account and implementing actions at the organizational, technical, and technological, as well as regulatory and legal, levels, it is possible to greatly improve the effectiveness of AI in Moroccan public institutions and companies.

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