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Measuring the readiness of Ecommerce Small and Medium Enterprises (SMEs) to use Artificial Intelligence: Example of Moroccan SMEs

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ABSTRACT

Artificial intelligence (AI) is a key factor in driving business success due to its increasing significance in facilitating large-scale data processing, producing insights, and automating repetitive processes. The implementation of AI technology has the potential to boost organizational effectiveness, save costs, and improve consumer experiences, resulting in increasing growth and competition. The adoption of AI in Small and Medium Enterprises (SMEs), especially in developing nations like Morocco, is still at a low level. This paper uses an expanded innovation-business ecosystem framework and human inventiveness to analyze the elements that influence AI adoption in Moroccan e-commerce SMEs. The study highlighted manager/ownership culture, monitoring environment, qualified advantages, maximal management support, and AI expertise as key predictors of AI adoption among Moroccan e-commerce SMEs. Although the study's sample size is small, additional research is required to investigate other issues that could hinder Moroccan e-commerce SMEs' adoption of AI and financial growth. The study's conclusions offer insightful information that might support e-commerce SMEs and the Moroccan government in spreading awareness of AI, a critical step towards technological advancement in a historically conservative corporate environment.

Keywords: ***Artificial Intelligence, Moroccan e-commerce SMEs, Financial growth, Decision-making.***

I. INTRODUCTION

Mid-sized enterprises have exhibited a pronounced inclination towards the assimilation of artificial intelligence (AI) into their operational paradigms, positioning themselves as prospective early adopters with substantial growth potential [1]. These enterprises frequently seek out AI-based software providers specializing in addressing specific business exigencies. Empirical studies

conducted by Dell Technologies and Intel have indicated that companies investing in AI have witnessed an average upsurge of 18% in customer expenditures [2]. Nonetheless, a considerable proportion of European startups, 40% hold the view that AI ventures are not harnessing the technology to its maximal efficacy. This outcome underscores the paramount importance for small and medium-sized enterprises, where investments bear significance, to gain a comprehensive grasp of AI for realizing its potential dividends [3].

Undeniably, businesses are zealous about fostering innovation through the infusion of novel AI-based technologies. With a projected valuation of 89.9 billion euros by 2025, an astronomical leap from 4.06 billion euros in 2016, the global artificial intelligence market exhibits considerable promise. Moreover, the period between 2015 and 2019 witnessed a staggering 270% escalation in the integration of AI-based technologies [4]. Despite these promising trajectories, the term "AI-based technological deployment" remains overarching and susceptible to manifold interpretations. To adequately apprehend the enormity of this phenomenon, a return to the fundamental tenets of AI and a profound comprehension of its foundational principles and applications becomes imperative. This facilitates a comprehensive understanding of AI's implications and enables the realization of its full potential.

Research endeavors in the domain of artificial intelligence entail the development of systems capable of analyzing and processing data through mathematical formulations [5]. These efforts draw inspiration from the workings of natural intelligence. The array of tasks encompassed within the realm of artificial intelligence includes critical thinking abilities, language translation, voice recognition, and visual perception, among numerous others [6]. AI has already imparted considerable impact across diverse industries. Contrary to prevailing notions and portrayals in science fiction, AI has yet to assume humanoid form and is far from attaining the complexity requisite for surpassing human intelligence [7].

The early era of AI is steeped in Data Science, characterized by intensive human-algorithm interaction [8]. Subsequently, AI can be categorized into two main types. The first category, "general artificial intelligence," pertains to the hypothetical intelligence of computers capable of comprehending or learning any cognitive task achievable by a human. The second classification of artificial intelligence, "narrow artificial intelligence," encompasses specific facets of human intelligence and perception, such as facial or vocal recognition [5]. Presently, AI is operationalized through two modes: deep learning rooted in extensive datasets, continuously evolving through analysis of petabytes of unstructured data, and expert systems that facilitate the advancement of intelligent and interactive environments [9].

With the surge of automation, these technologies have permeated domains ranging from targeted marketing to smart home devices. The future heralds positive transformations in numerous industries through AI integration. Within the realm of small and medium-sized enterprises, AI is poised for deployment in strategies encompassing document analysis, fraud detection, marketing endeavors, and sales optimization [10]. Across all its manifestations—cognitive, descriptive, predictive, or prescriptive—AI mandates prodigious computational power. Amidst the exponential data upsurge, a tremendous potential emerges for harnessing information to stimulate innovation and catalyze the creation of novel products and services [11]. The efficacy of AI is intrinsically linked to the quality of data it ingests, engendering a heterogenous approach to data processing. Firms must first organize their data and ensure adherence to pertinent regulations before delving into the spectrum of AI tools at their disposal [3].

Beyond the foundational fabric, a conducive environment is requisite for the efficacious implementation of artificial intelligence. Comparable to humans, AI requires time for learning and devising solutions to challenges [5]. Ergo, its triumph hinges upon the level of confidence businesses vest in this innovative technology. Allowing these learning curves to mature before deploying applications and reaping desired outcomes is pivotal. Furthermore, competent individuals are indispensable for steering the trajectory of AI, as the underlying predicament often lies in the misalignment between IT and business

spheres concerning data-driven strategies and expectations from AI initiatives [12].

In myriad developing countries, E-commerce SMEs serve as the economic bedrock and engines propelling economic expansion and growth. Despite their substantial contributions, the adoption of innovative technologies, specifically Artificial Intelligence (AI), among SMEs remains limited, particularly within African nations like Morocco [5]. Despite governmental endeavors to catalyze digital transformation, Morocco persists as a developing nation, trailing behind industrialized counterparts in AI adoption. E-commerce SMEs constitute a prevalent business archetype in Morocco, constituting a massive portion of the nation's economic activity. Nevertheless, the adoption of AI technology within E-commerce SMEs remains circumscribed, and scant research probes the challenges and prospects encountered by AI-embracing e-commerce SMEs, especially within African developing contexts like Morocco.

The integration of AI technology holds the potential for augmenting the competitiveness, ingenuity, and efficiency of E-commerce SMEs through the automation of repetitive tasks, the extraction of insights from voluminous data troves, and the enhancement of decision-making processes. However, unlocking these advantages necessitates substantial investments in infrastructure, expertise, and resources. E-commerce SMEs grapple with distinctive impediments to AI adoption, including limited access to capital, deficient technical skills, and resistance to change. As such, this article aims to scrutinize the determinants influencing AI adoption in Moroccan e-commerce enterprises. The findings of this study will furnish insights into the quandaries and opportunities associated with AI utilization within e-commerce SMEs of developing nations, thereby illuminating policymakers and executives about strategies to amplify AI integration and digitization within Moroccan e-commerce SMEs.

To this end, our study has undertaken a comprehensive review of pertinent literature. Subsequently, the employed methodology for the exploratory study is elucidated, spotlighting the challenges and predicaments confronting Moroccan SMEs. This research's amalgamated outcomes and contributions will be expounded upon.

II. BACKGROUND

The confluence of potent forces including globalization, market evolution, and the enduring ripples of the financial crisis has triggered a profound transformation in the global economy. This has precipitated considerable developmental barriers, particularly impacting small and medium-sized enterprises (SMEs), thereby instigating a disconcertingly unpredictable local economic landscape. In the face of escalating competition, these entities now grapple for survival, a predicament that jeopardizes their very existence [13]. Amidst the backdrop of the fourth industrial revolution, the relentless pursuit of competitiveness remains the lodestar for enterprises navigating these formidable challenges.

The rapid and pervasive advancements in digital technology, coupled with ancillary innovations like artificial intelligence (AI), big data, biotechnology, robotics, and the Internet of Things (IoT), have undeniably engendered a seismic upheaval in the business sphere. This revolution is poised to reverberate across numerous societal dimensions, encompassing workforce dynamics, organizational frameworks, environmental concerns, and the overarching structure of diverse economic sectors. In response, Moroccan E-commerce SMEs are recognizing the profound potential in embracing this revolutionary tide, actively seeking to harness apt digital technologies to expedite their growth [14].

The ongoing revolution in the digital realm, driven by the rapid progression of digital technology and its allied innovations such as artificial intelligence (AI), big data, biotechnology, robotics, and the Internet of Things (IoT), is catalyzing a profound transformation in the business milieu. This paradigm shift is anticipated to exert far-reaching effects on an array of societal aspects, spanning dynamics within workplaces, organizational paradigms, environmental considerations, and the fundamental architecture of various economic sectors. Consequently, Moroccan E-commerce SMEs are diligently endeavoring to adopt pertinent digital technologies that can propel their advancement. These enterprises discern the

immense potential entailed with the adoption of this revolutionary wave.

Within the sphere of AI, a multitude of technologies empower E-commerce SMEs to effectively perceive their operational milieu and respond with precision, thereby enhancing efficiency and fostering superior business growth. However, the integration of AI within Moroccan E-commerce SMEs necessitates a deliberate and discerning approach to squarely confront this challenge. The comprehensive potential of AI manifests through a diverse spectrum of functionalities, encompassing process automation, and optimization (e.g., data mining), support for prediction and decision-making, and seamless interaction with diverse systems [15].

The genuine incorporation of AI into business transcends the realm of uncomplicated process enhancement; it entails the formation of novel organizational frameworks, process redesign, implementation of innovative services, a fresh outlook on customer relations, and the rejuvenation of business models. This dynamic catalyst not only reshapes the competitive landscape but also generates hitherto unthinkable opportunities for innovative visionaries. Moreover, AI wields significant geostrategic implications, as the digital era confers power upon those who possess the means to harness data through AI algorithms [16].

Companies are required to make substantial investments in AI, foster innovation, generate profits, and enhance risk management to realize a successful transition into the intelligent era. Businesses stand at the precipice of a substantial transformation during this era of intelligent evolution. Effectively embracing this paradigm shift mandates a strategic realignment of corporate resources, prioritizing innovation and AI investments to fully embrace this transformation, eventually maximizing gains and operational efficiency. Managers play an integral role in this process, necessitating a comprehensive understanding of AI's fundamentals, encompassing both its promises and limitations, to perceive future avenues for productivity enhancement and novel revenue streams.

In emphasizing the unique attributes, challenges, and opportunities inherent within these enterprises, the profound impact AI can exert upon the organizational fabric of Moroccan SMEs becomes evident. By accentuating these distinctive features, we pave the way for these entities to optimally harness the potential of AI.

E-commerce SMEs constitute a pivotal component of the productive fabric, wielding considerable influence over economies in both developed and developing nations. A staggering 95% of the Moroccan economy finds its foundation within SMEs.

Through research analysis, several distinctive traits emerge within Moroccan SMEs, including:

- Centralized and tailored management strategies. • Preference for simplified information systems as opposed to comprehensive ones.
- Agility in the innovation processes.
- A close-knit workplace culture that fosters interaction between subordinates and supervisors.
- Adaptive management approaches that swiftly respond to new challenges.
- Expeditious and effective troubleshooting mechanisms.

These attributes collectively contribute to the distinctiveness of Moroccan SMEs, underscoring their adaptability and pivotal role in nurturing the economic progress of the nation.

The evolution of entrepreneurship takes multifaceted routes. Some individuals venture into entrepreneurship due to financial capacity, while others inherit entrepreneurial endeavors from familial legacies. However, resources alone do not guarantee inherent ambition, a willingness to embrace risks, or mastery in managing them. Small business proprietors often shoulder multiple roles encompassing management, direction, and active participation in production. This complexity underscores the challenge of striking a balance between ownership and control; successful growth can potentially entail relinquishing control or facing financial pitfalls, while the aspiration for expansion

and financial autonomy perpetually presents an intricate and formidable dilemma.

Nevertheless, the expertise acquired by entrepreneurs, their acumen, and the knowledge amassed through professional experiences and personal educational growth serves as the bedrock upon which triumphant entrepreneurial journeys are built. These foundational elements empower business proprietors to adeptly navigate the intricacies of the commercial realm, significantly augmenting their prospects for enduring success.

Moroccan E-commerce SMEs confront an array of obstacles that impede their expansion and development. These challenges stem from internal and external forces, collectively limiting their meager contribution of a mere 10% to the nation's GDP. These enterprises grapple with a diverse array of predicaments, including intricate legal and administrative requisites, financial and economic constraints, alongside ethical and moral quandaries. Internally, several issues warrant focused attention:

- Managerial behavioral norms, especially within family-run SMEs, precipitate challenges in corporate governance.
- Management of human resource issues.
- Rigid and linear organizational frameworks.
- Challenges in liquidity management.
- Absence of a comprehensive management control system.
- Lack of a strategic blueprint.
- Difficulties in budgetary and financial management.
- Inadequate methodologies for inventory management.
- Insufficient utilization of information technology.

To what extent can the deployment of AI serve as a remedy within this demanding context, effectively enhancing efficiency, fostering enhanced collaboration, and serving as a veritable catalyst for corporate growth? The embracement of AI principles could potentially hold the key to addressing these challenges, enabling Moroccan E-commerce SMEs to embark on a trajectory of enhanced success and sustainable expansion.

III. METHODOLOGY

Amidst a tapestry woven with aspirations, apprehensions, and dreams, the discourse surrounding artificial intelligence (AI) emerges as a prominent focal point of our era. While musings on intelligent machines are far from novel, tracing their origins to the 1950s, particularly within Alan Turing's pioneering works [14], it is within the past decade that computers have achieved the computational prowess necessary to transcend a multitude of tasks that previously resided within the realm of science fiction.

One of the architects of AI, Marvin Minsky, succinctly encapsulates it as "the creation of computer programs that engage in tasks which currently require human-like cognitive abilities, including perceptual learning, memory organization, and critical reasoning" [15]. Divergent from the well-established realm of big data, which relies on immense computational power, AI empowers the deployment of techniques or self-governing ecosystems to grapple with the vast expanse of data.

The contemporary landscape has democratized this AI progression through the advent of "clouds," enabling businesses to harness these capabilities remotely at minimal expense. Consequently, algorithms evolve at an accelerated pace, effectively addressing an expanding array of challenges faced by SMEs, as depicted in Figure 1.

At the crux of AI lies "data," a resource attainable through a plethora of applications, websites, and interconnected entities. Although data is often readily available, swift processing precedes any meaningful extraction of insights. It is imperative to note that data acquisition and utilization are bound by a stringent legal framework: Morocco's Law 09-08 and the RGPD (General Data Protection Regulation) for enterprises conducting transactions within the European Union impose a web of regulations upon business operations.

The qualitative investigative methodology embraced in this endeavor facilitates exhaustive scrutiny of the determinants influencing the adoption of AI within Moroccan e-commerce SMEs. This

approach ensures a meticulous examination of the sector, allowing dissection of the influence of ownership structures on AI adoption. The selection of twenty-two E-commerce SMEs across diverse industries enriches the spectrum of analysis. Engaging in semi-structured interviews with SME proprietors and managers has yielded profound insight into their cognizance, perspectives, and attitudes toward the implementation of AI.

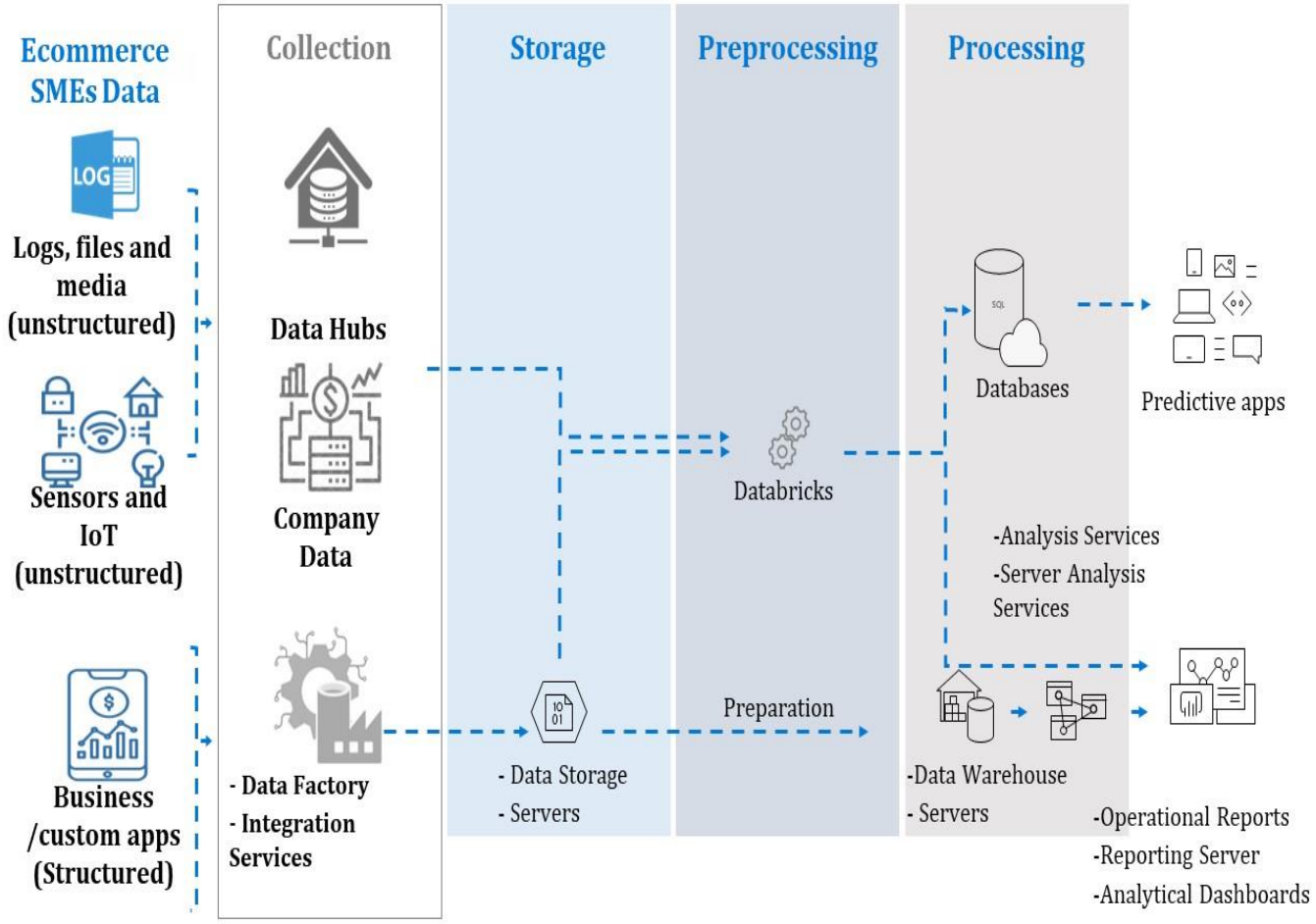

Figure 1. AI importance for data management in a Moroccan E-commerce SME

The study employs an advanced technology-business environment paradigm to investigate the data, recognizing the intricate interplay of technical, managerial, environmental, and social facets that shape decisions regarding technology adoption. Concurrently, the influence of individual innovativeness is duly acknowledged, acknowledging that the proclivity of SME owners/managers to embrace AI technology is intricately interwoven with their personal traits and experiential background. In totality, the qualitative case research methodology deployed in this study facilitates a comprehensive exploration of the factors underpinning AI adoption within Moroccan e-commerce SMEs. The utilization of diverse information sources and analytical frameworks lends robustness and credibility to the conclusions drawn.

Data procurement for the study was executed through semi-structured interviews conducted with executives from 20 Moroccan e-commerce SMEs, meticulously selected based on criteria encompassing size, market positioning, and operational scope. Employing a guide replete with adaptable inquiries, the objective was to delve into an intricate and thought-provoking subject. The intent was not to pursue statistical representativeness

but rather to delineate the gamut of potential factors associated with the subject matter at hand.

This empirical investigation is distinguished by its methodology grounded in responding to open-ended inquiries using content analysis structured around thematic elements. This approach involves prioritizing the significance conveyed by nodes within each statement. Subsequently, content analysis entails identifying the recurrently emerging concepts linked to each theme. For this purpose, the recent iterations of NVivo are recommended, especially conducive for thematic and discourse analysis. Nvivo is adeptly employed to dissect the dialogues amassed from interactions with the interviewees.

TABLE I. DESCRIPTION OF THE COLLECTED DATA FROM THE MOROCCAN E-COMMERCE SME

SME Code	Size	Creation year	Interviewee	Experience in years	City	Activity
SME 1	Medium	1992	Manager	10	Agadir	Agri-food
SME 2	Medium	1997	Manager	12	Agadir	Agri-food
SME 3	Small	2001	Manager	7	Agadir	Insurance
SME 4	Medium	2000	Manager	11	Agadir	Tourism
SME 5	Medium	1991	Owner	32	Agadir	Agri-food
SME 6	Medium	1993	Owner	30	Marrakech	IT Services
SME 7	Medium	1985	Manager	7	Marrakech	Tourism
SME 8	Medium	1989	Manager	8	Marrakech	Studies and consulting
SME 9	Medium	1980	Manager	15	Marrakech	Tourism
SME 10	Medium	2004	Owner	19	Marrakech	Tourism
SME 11	Medium	1990	Manager	15	Marrakech	Tourism
SME 12	Small	2001	Owner	22	Marrakech	Tourism
SME 13	Medium	1994	Manager	5	Casablanca	Agri-food
SME 14	Medium	1997	Manager	12	Casablanca	IT Services
SME 15	Medium	1984	Manager	20	Casablanca	Textile
SME 16	Medium	1983	Manager	17	Casablanca	Textile
SME 17	Medium	1990	Manager	11	Casablanca	Textile
SME 18	Medium	1988	Manager	9	Casablanca	Insurance
SME 19	Small	2003	Owner	20	Tangier	Textile
SME 20	Small	1999	Manager	10	Tangier	Textile
SME 21	Small	2010	Owner	13	Tangier	Agri-food
SME 22	Small	2008	Manager	7	Tangier	Studies and consulting

The formulation of thematic lexicons stood as a pivotal facet of this analytical endeavor, constituting an indispensable phase in this process. The overarching objective encompassed the aggregation of conceptually akin elements, harmoniously assembling them into lexicons that would serve as analytical tools. This stratagem was methodically executed through a bifurcated approach, meticulously orchestrating the creation of a diverse array of lexicons while intuitively assigning them apt titles that comprehensively enveloped the entirety of the study's focal domains. The determination of a concept's prevalence rested not upon the count of instances but rather the breadth of measurements applied.

The attributes characterizing the scrutinized sample, encompassing twenty e-commerce enterprises, of which sixteen were of medium scale and six were classified as small businesses, are systematically presented in Table 1.

Within the purview of the ongoing investigation, a cohort of twenty-two E-commerce SMEs willingly

offered their participation in the survey, with owner-managers graciously sharing their experiences with the research team. Cognizant of ethical considerations, codes were discreetly assigned to individual units of analysis, safeguarding the identities of the participants. Table 1 further delineates the coded nomenclatures attributed to the businesses along with the pertinent particulars.

IV. Analysis of the Empirical Results

A. *Specificities of Moroccan Ecommerce SMEs*

The advent of the internet and other digital technologies has altered business environments all around the world, including Morocco. Small and medium-sized businesses (SMEs) have adopted e-commerce increasingly to broaden their customer base and compete in the global economy. These findings offer insights into the potential and challenges encountered by Moroccan e-commerce SMEs. By looking at their distinctive traits and the difficulties they encounter within the Moroccan setting, it is possible to comprehend the particularities of Moroccan e-commerce SMEs. These particulars help these E-commerce SMEs in the e-commerce sector to shape their strategy and operations. The following details draw attention to several important particulars:

- Localization and Cultural Factors: Moroccan e-commerce SMEs frequently emphasize localization by configuring their goods, services, and marketing plans to fit the regional market. To develop a unique and pertinent online shopping experience, they draw on their knowledge of Moroccan culture, language, and consumer preferences. Offering goods that are tailored to Moroccan preferences and customs as well as offering customer support in the regional tongue are examples of localization.
- Focus on Niche Markets: Moroccan e-commerce SMEs usually pursue niche markets to set themselves apart from more established rivals. They can capitalize on their distinctive offerings and cultivate a devoted clientele by catering to niche markets like those for artisanal goods, traditional handicrafts, or regionally sourced goods. These E-commerce SMEs frequently highlight the nation's rich cultural heritage and work to market Moroccan goods both domestically and abroad.
- Entrepreneurial Agility and Adaptability: Moroccan E-commerce SMEs engaged in e-commerce have a prominent level of this trait. Their capacity to quickly respond to market trends, adopt innovative technology, and modify their tactics in response to client input and shifting consumer preferences is frequently what sets them apart. They can take advantage of new chances and successfully compete in the dynamic e-commerce landscape because of their adaptability.
- Limited Digital Infrastructure: Morocco has a limited digital infrastructure, which presents problems, particularly in rural areas. While internet accessibility has increased in urban areas, certain areas still lack high-speed connectivity and internet usage. By adapting their online platforms for low bandwidth and looking into innovative ways to reach customers in underserved areas, e-commerce SMEs must traverse these constraints.
- Payment and Logistics Constraints: Moroccan e-commerce SMEs frequently experience payment and logistics problems. Some customers might not have access to credit cards or digital wallets as methods of online payment. To satisfy a range of client preferences, E-commerce SMEs must offer alternative payment options including cash on delivery or mobile payment options. Furthermore, fast, and successful order fulfillment necessitates the use of trustworthy and affordable coordination services, which necessitates careful coordination with organization suppliers.
- Environment Regulations: The Moroccan e-commerce regulatory environment poses difficulties for SMEs. Compliance with tax rules, data privacy legislation, and consumer protection requirements can be difficult and time-consuming. E-commerce SMEs must manage these rules, stay up to date on changes, and make sure they have the right

mechanisms in place to protect consumer rights and adhere to the law.

- Lack of digital knowledge and skills: The success of e-commerce SMEs depends heavily on their ability to use digital tools. However, certain E-commerce SMEs in Morocco can run into issues with access to training programs and digital literacy. By filling this gap, we can enable E-commerce SMEs to take advantage of e-commerce efficiently by helping, coaching, and training to improve digital capabilities.

Policymakers, industry stakeholders, and online E-commerce SMEs themselves must all comprehend these specifics. The ecosystem may be cultivated to promote growth, innovation, and economic development in the digital era by recognizing and tackling these difficulties and utilizing the special qualities of Moroccan e-commerce SMEs.

B. *An examination of the Moroccan e-commerce SME's AI maturity*

The difference in AI among organizations is no longer significant. As a result, the Moroccan corporation is aware of the movement. Despite a very traditional or classical perspective of automation or IT tasks, there is a lack of AI-based functions. Indeed, as illustrated in Figure 2, the phrases employed by businesses refer to information technology in general, rather than emerging smart technologies or artificial intelligence. Furthermore, approximately thirty percent of SME managers say AI is part of their goals. In this regard, at the level of project execution, the interviews have guaranteed a range of profiles among organizations that have implemented projects in AI, as represented by their sector of activity. Others, on the other hand, translate the computerization of their systems into the construction of a website or an account on social networks. Companies with ongoing projects and companies that have not yet begun or do not have initiatives involving AI. Another significant finding was that many businesses were unaware that AI may help them improve their e-commerce activity.

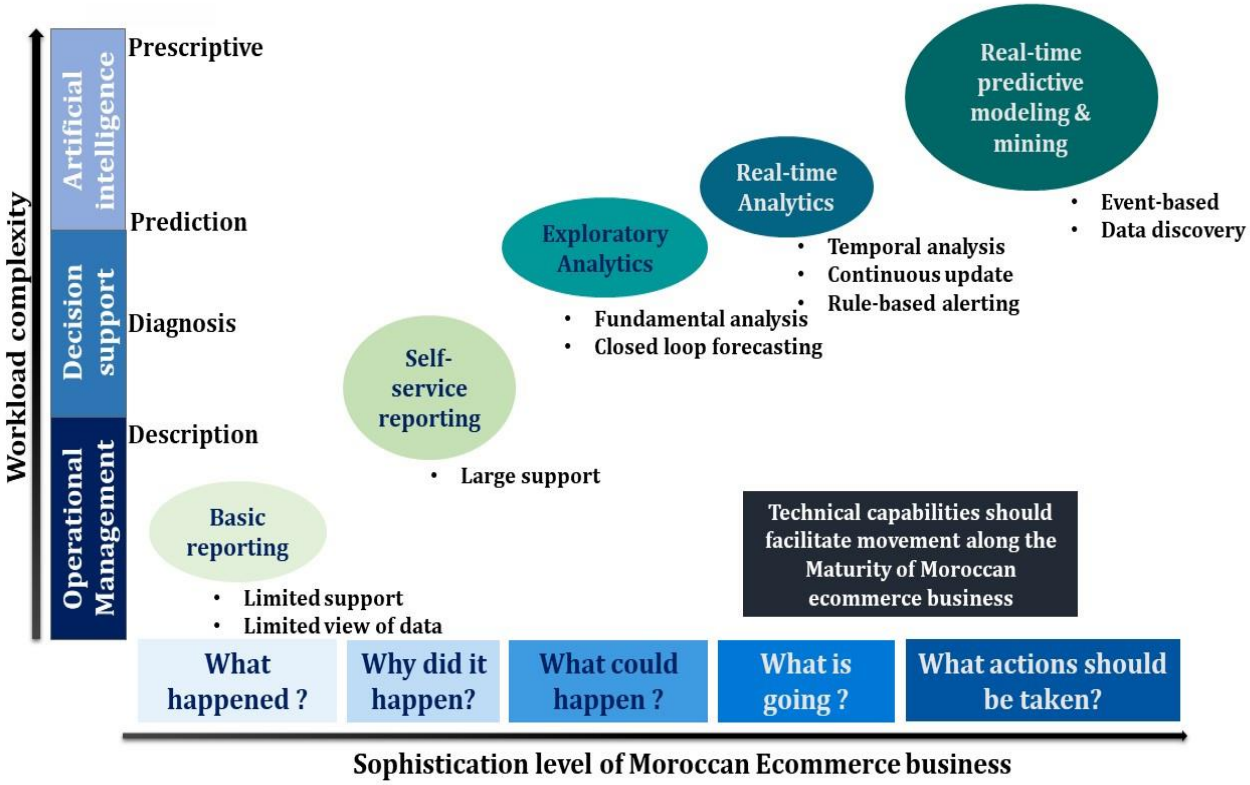

Figure 2. Maturity analysis of Moroccan e-commerce SME

C. *Constraints on Financial Performance for the Adoption of AI in Moroccan E-commerce-Owned SMEs*

The use of technology based on AI is viewed as a promising possibility for Moroccan e-commerce SMEs to improve their performance and obtain a competitive edge in the market. AI may help these businesses streamline their processes, improve decision-making, and increase the standard of their goods and services. Despite the potential advantages offered by AI, the acceptance and implementation of these innovations in Moroccan e-commerce SMEs could prove financially challenging.

The expense of obtaining and applying AI technology might be a significant barrier for small businesses, since they may lack the financial means to invest in costly gear and software. Furthermore, the costs of maintaining and upgrading these technologies can be an enormous expense for e-commerce SMEs with limited resources. The inability to find and retain trained employees with the requisite abilities to run and maintain AI systems might also be hampered by a lack of financial resources.

Furthermore, volatile economic conditions and lack of access to financing can exacerbate the financial challenges that these firms face. Several Moroccan e-commerce SMEs compete in highly competitive marketplaces, where they are under intense pressure to cut costs and enhance efficiency. This often creates little room for expenditure on emerging technologies such as AI. Furthermore, these firms may struggle to secure the funding they need to invest in AI due to limited access to financing. E-commerce-owned SMEs' cultural and traditional legacies might potentially be a barrier to AI adoption. Many Moroccan e-commerce SMEs are strongly attached to ancestral beliefs and practices. As a result, they may find it challenging to adopt innovative technology and innovations, such as AI. E-commerce SMEs who hold critical roles in the company may be averse to change and want to stick to their old ways, which might stymie AI adoption.

Although the use of AI within Moroccan e-commerce SMEs may offer significant benefits, cost limitations can be an important impediment to its deployment. To overcome these limits, these companies may need to investigate alternate financing possibilities, such as collaborations and partnerships, as well as engage in development and training initiatives to guarantee they have the human resources needed to operate and maintain AI systems. Furthermore, to remain comparable in the market, e-commerce SMEs might have to conquer their ties to heritage and customs and embrace modern technologies.

One key barrier is the lack of financial resources accessible to many Moroccan e-commerce-owned SMEs. These businesses may lack the funds to make investments in AI technologies, which can be costly for them to acquire and use. Furthermore, the cost of educating employees on how to use such devices can be significant. Another barrier is the unpredictability of AI investment returns. E-commerce SMEs might be hesitant to invest in artificial intelligence technology unless there is convincing proof that they will provide big profits. This can be especially difficult for businesses operating in low-profit margin industries when the advantages of AI deployment may be less obvious. A key barrier might also be a lack of understanding and experience in AI technology. E-commerce SMEs may lack in-house IT teams or personnel with the technical capabilities required to develop and operate AI technologies. As a result, businesses might have to depend on outside experts or suppliers to help them adopt and execute innovative technology, which may prove costly. Furthermore, cultural, and conventional legacies may stymie AI adoption in Moroccan e-commerce SMEs. E-commerce members that hold critical roles in the company may be averse to change, especially if they see innovative technology as a challenge to their position of authority and power. Furthermore, certain conventional procedures might not be readily compatible with AI technologies, making integration of these technologies into current company procedures difficult.

To overcome these limitations, Moroccan e-commerce SMEs may need to devise methods to reconcile the anticipated benefits of implementing artificial intelligence with the financial limits they confront. One viable method is to investigate the

usage of online AI services, which can provide cost-effective solutions while reducing the need for large upfront expenditures. Furthermore, e-commerce SMEs might have to focus on developing in-house knowledge and expertise, via education and training initiatives or by recruiting skilled IT professionals. Furthermore, e-commerce SMEs must recognize the significance of managing change and involve every stakeholder in the implementation process. Proper interaction, instruction, and training may help employees overcome reluctance to change and prepare them for innovative technology. E-commerce SMEs in Morocco may reap the advantages of AI adoption and enhance their financial performance by addressing these obstacles and creating successful strategies.

V. DISCUSSION

The study reveals a considerable discrepancy in opinions about AI and how it affects corporate efficiency. A startling finding shows that while only 20% of employees agree, 75% of executives interviewed warmly favor the incorporation of AI into corporate procedures. Employees' divergent views on AI can be due to their insufficient knowledge of the subject; they frequently perceive it as a difficult technology to apply or worry that robots may someday supplant humans in the workforce. Many workers worry that AI will significantly disrupt several jobs, especially in mid-level roles.

Managers, on the other hand, adopt a more cautious stance and express confidence over AI's favorable effects on conditions at work. Others at the company, meanwhile, continue to view things cautiously. In terms of technology and finances, 50% of managers surveyed acknowledge that AI can be challenging for E-commerce SMEs because they believe it is better suited for larger businesses with well-established information systems, enormous data reserves, and sizable expenditures.

A. *Integrating AI into business strategy*

The study shows that the participant's attitudes toward the development of AI are nuanced and conflicted. Notably, the businesses in our sample show diverse levels of readiness for the adoption of AI, reflecting various and low levels of readiness. Only 15% of managers view AI as a strategic priority, and 60% of employees are unsure of how it will be implemented and used. Most managers have an optimistic outlook on the future of AI, anticipating increases in organizational effectiveness (70%), faster and more accurate decision-making (60%), and company success (75%). Employees, though, continue to adopt a more circumspect attitude.

Our interviews revealed some persistent barriers to AI adoption. Seventy percent of workers share this fear, which is that of the potential dehumanization of work and the loss of social relationships. On the other hand, managers believe that increased control and reporting requirements (80%) and the risk of giving critical skills (such as decision-making, team supervision, and strategic visioning) to AI (60%), as well as concerns about dehumanization and social isolation (40%), are the main risks. The study explores the "What's in it for me?" question concerning artificial intelligence, illuminating a complex landscape of perceptions and concerns among managers and staff.

In contrast to 40% of managers and 70% of employees, the study finds that 60% of managers have substantial worries about the difficulty of efficiently managing work and finding a harmonious balance between human and AI involvement. Additionally, 30% of executives, 35% of managers, and 20% of workers expressed a need for fostering an AI culture in the workforce. Additionally, 45% of executives and managers and 35% of employees said that receiving support and training to develop the necessary abilities is important.

The following can be used to summarize the expectations for AI implementation:

- instruction in AI-related tools and technology.
- fostering collaboration and interaction with intelligent robots through training.
- recognizing the new positions and professions that AI will bring to the workforce.

Additionally, 40% of managers recognize the transformative potential of AI in the workplace and anticipate advantages like increased speed,

flexibility, and productivity, which will result in cost savings and even energy savings. The use of AI in production planning is anticipated to enable more flexible, quick, and agile responses to market demands.

B. *The role of HR in successful AI integration*

The transformation path is driven and facilitated in large part by HR, creating the framework for the adoption of AI. According to the report, 80% of executives, 60% of managers, and 70% of workers emphasize the significance of tackling the problems of AI adoption within SMEs. These difficulties cover several key areas, including:

- Creating a strong framework for AI adoption entails instilling a sense of purpose, increasing staff understanding, assuring job quality, and fostering a happy work environment. Building trust, which includes data ethics and algorithmic integrity, is crucial.
- Managing the skills shortage: Finding and keeping AI talent efficiently while foreseeing changes in employment and skill needs. For exploring this component, a thorough skills library must be created.
- Embracing the new balance between centralization and decentralization, encouraging cross-functionality and openness, and adapting to the changing role of managers are just a few examples of how to prepare for organizational and operational shifts.
- Maintaining the business's social responsibilities throughout the transition: Assisting stakeholders in the AI integration process to uphold moral and responsible behavior.
- Implementing AI within the HR department will guarantee HR's active participation in empowering and supporting staff members during the transformation.
- Special attention and assistance are required for E-commerce SMEs that may not be as well-prepared for AI development, which calls for coordinated efforts from government agencies, trade associations, and professional groups.

By tackling these issues, HR can be at the forefront of promoting the adoption of AI and supporting E-commerce SMEs on their successful and long-lasting transformation journey.

C. *Struggles with performance*

Despite the increasing distractions brought on by a connected world, AI in the workplace gives a fantastic chance to empower employees and improve their productivity. David Kenny, General Manager of IBM, claims that the digitalization of routine work frees people to concentrate on creativity, improving their abilities and access to knowledge.

The promise of speed, flexibility, higher production, lower costs, and energy savings comes with the integration of AI. Businesses may respond quickly to changing consumer expectations by improving their production planning and using more agile techniques. As a result, the introduction of AI forces a thorough rethinking of how work is organized, requiring adjustments to HR departments, the deployment of new training programs, and a reexamination of recruiting standards.

Virtual assistants that perform a variety of tasks, including voice activation, email dictation, and automatic reminders based on contacts or location are examples of how AI emerges. Furthermore, AI-powered chatbots replicate human-like conversations and provide pre-designed responses based on keywords. E-commerce SMEs can use these tools to build interactive knowledge bases that give staff members access to precise data on the business and its main activities.

Previously only available to large organizations, predictive analysis is now available to E-commerce SMEs thanks to AI and machine learning. Cloud-based solutions give businesses the ability to operationalize tools that identify significant links between variables, build and assess analysis models, and improve precise company management, including enhancing product performance and enhancing acquisition strategies. Adopting AI results in a more data-driven strategy for small and

medium-sized organizations, enabling informed decisions and fostering growth in a more cutthroat environment.

D. *Skills and profiles*

Companies are quickly realizing how urgently necessary it is to pursue education and training in areas relevant to AI. Raising employee awareness and predicting future AI skill requirements are crucial. The difficulties of data intelligence are closely related to building dynamic, agile teams who are skilled at combining the appropriate skill sets within project schedules.

Finding the needed abilities in an automated and digitalized market requires ongoing updating to keep up with the rapid technological improvements. Higher levels of digital skills are required due to the ever-increasing pace of technological change, which relates to improved employability and career options for people with all levels of education. In an AI-driven future, businesses must accept this fact if they want to be competitive and flexible.

E. *Limitations and Future Research*

The main limitation of this study is the small sample size, which may limit the generalizability of the findings. Future research could use a larger sample size and include E-commerce SMEs from other sectors and regions to enhance the study's external validity. Additionally, the study did not investigate the financial impact of AI adoption on SMEs. Future research could examine the financial benefits and costs of AI adoption and explore the impact on SMEs' financial growth and sustainability.

VI. CONCLUSION

AI knowledge pertains to the extent of comprehension and awareness regarding AI technology within the cadre of small and medium-sized enterprise (SME) proprietors and executives. A research endeavor conducted within emerging economies such as Morocco has demonstrated that SMEs engaged in E-commerce manifest a greater proclivity for embracing AI technology when they possess heightened AI knowledge. The study furnishes illuminating insights concerning the factors exerting influence on the integration of AI within SMEs operating within the domain of E-commerce. The empirical findings underscore the significance of proprietor/managerial inclinations, managerial endorsement, supervisory milieu, accrued competencies, and AI acumen as pivotal determinants shaping the assimilation of AI technology amidst E-commerce SMEs within Morocco.

This investigation's outcomes underscore that the mitigation of gaps in knowledge and the cultivation of favorable attitudes towards technology assimilation among SME proprietors and managers necessitate the cultivation of a supportive commercial milieu, directed pedagogic initiatives, and consciousness-raising endeavors. Facilitating the proliferation of AI adoption within Moroccan E-commerce SMEs holds the potential to enhance their innovativeness and competitive edge, thereby yielding comprehensive economic expansion and national advancement.

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