

REVIEW PAPER ON IT CAPABILITIES AND SMES CORPORATE ENTREPRENEURSHIP IN THE UAE

¹Hussain Abduljabbar , ²Samer Ali Al-shami, ³Hayder Adil, ⁴Nursaiba Binti Mansor

^{1,2} Institute of Technology Management and Entrepreneurship
Universiti Teknikal Malaysia Melaka,

³Faculty of Business Administration, Dijlah University College

⁴Faculty of Technology Management and Technopreneurship,
Universiti Teknikal Malaysia Melaka

¹mu7amy@gmail.com, ²Samshami79@gmail.com, ³nusaibah@utem.edu.my

ABSTRACT: *Small and Medium-sized Enterprises (SMEs) are vital to the UAE's economy, contributing significantly to job creation and GDP growth. However, the role of Information Technology (IT) capabilities in SMEs and its impact on corporate entrepreneurship and innovation remain largely unexplored in the UAE. This review paper addresses this gap by examining the advantages and challenges related to IT capabilities for UAE-based SMEs. The UAE aims to transition into an innovation-driven economy, recognizing the pivotal role of knowledge and innovation in economic growth. SMEs, comprising a substantial portion of UAE companies, are integral to this transformation. However, they often encounter hurdles in fully harnessing IT's potential due to constraints like limited resources, skills shortages, and cybersecurity concerns. This paper underscores the significance of IT capabilities in fostering innovation and corporate entrepreneurship among SMEs, emphasizing IT's positive influence on productivity, growth, and competitiveness. Additionally, it provides insights into how SMEs can leverage IT to overcome these challenges through government support, industry collaborations, and partnerships with IT service providers. In conclusion, embracing IT as a strategic enabler for innovation and corporate entrepreneurship is crucial for SMEs in the UAE to enhance market share, competitiveness, and contribute to the evolving knowledge-based economy.*

Keywords: SMEs, UAE, Information Technology, Innovation, Corporate Entrepreneurship

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are widely acknowledged as pivotal components of a country's economy, particularly in terms of job creation and the development of Gross Domestic Product (GDP) [1]. Consequently, governments invariably prioritize this sector and engage in extensive discussions about its advancement, a discourse well-documented in both developed and developing nations. The fostering of entrepreneurship activities through innovation has been identified as the linchpin for nurturing sustainable SMEs. As articulated by [1], an entrepreneur possesses the willingness and capacity to transform novel ideas or inventions into successful innovations. The notion that entrepreneurship fuels economic growth constitutes an interpretation within endogenous growth theory, an ongoing subject of debate in academic economics. The realm of production now manifests as a fusion of tangible and intangible productive forces. Traditionally, tangible productive forces, such as land and labor, were perceived as the primary factors of production, while the intangible set of productive forces was contingent upon 'technical facts' and 'social organization.' Presently, the technological revolution, with information technology at its core, has precipitated a radical transformation, yet the role of information technology in innovation development and its impact on corporate entrepreneurship have not garnered sufficient attention, especially within SMEs in developing countries—a focal point of this research [2].

Small and Medium Enterprises (SMEs) constitute a significant economic driver in advanced economies and transitional ones alike [3]. According to [4], SMEs contribute approximately 56% of the Gross Domestic Product (GDP) in numerous European countries [5]. The 39th Summit of the Great Eight (G-8) Nations in Northern Ireland formally endorsed the significance of SMEs, emphasizing their

substantial contribution to employment and economic dynamism in the world's most industrialized nations (G-8 Summit, 2013). The United Nations Industrial Development Organization (UNIDO) in 2015 documented research findings from various countries, underscoring the pivotal roles of SMEs. Firstly, SMEs play a vital role in development by sustaining a diverse and robust private sector, generating income, reducing poverty, and furnishing compelling statistics—they constitute over 90% of global businesses and contribute between 50% to 60% of global employment. Secondly, they are essential contributors to long-term social stability, providing opportunities for sustainable livelihoods through simple processing activities. Finally, SMEs serve as the breeding ground for entrepreneurship development, innovation, and risk-taking behavior, laying the groundwork for enduring growth dynamics and the transition to larger enterprises [5].

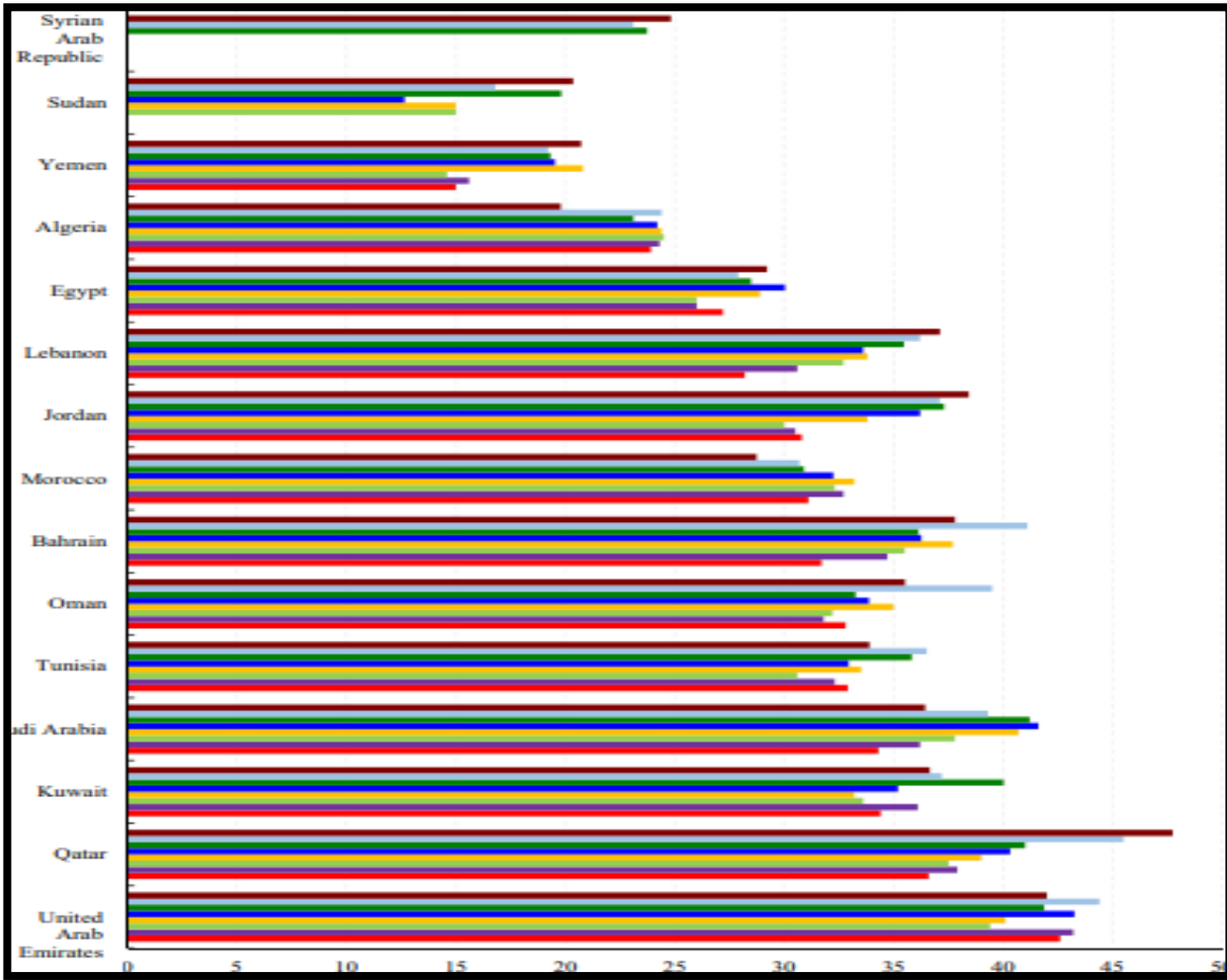
2. The SMEs in Gulf Arab Countries

In an increasingly competitive global landscape, the substantial presence of small and medium-sized enterprises (SMEs) significantly influences national economies, both in terms of their sheer numbers and the proportion of the workforce they engage [6]. Particularly in emerging economies, SMEs constitute the predominant share of businesses and are the primary generators of employment. They wield a considerable impact on these nations' economic dynamics, serving as the driving force behind their growth. Within the Gulf Arab region, SMEs play a pivotal role in the private sector, constituting 90% of all commercial activities [6]. Furthermore, in the Gulf region, SMEs account for over 80% of the total workforce and contribute to 60% of the gross domestic product (GDP) [6]. Consequently, bolstering the competitive edge of SMEs in emerging markets assumes paramount importance for the overall economic progress of these regions. The development of SMEs hinges significantly

on their innovation capabilities, which act as the primary catalyst for their growth. Nonetheless, despite the importance of innovation, there have been no significant alterations in the innovation scores and rankings of Arab countries, as revealed by the Global Innovation Index [7].

Notably, the United Arab Emirates stands out as the only Arab country that saw an improvement in its score, rising from 39.4 to 43.2, and its ranking improved from 41 to 35; however, it did not attain the status of an innovation achiever among high-income countries [7]. In 2018, the innovation scores of Arab countries demonstrated minimal changes, with most countries scoring slightly lower compared to the

previous year [7]. The United Arab Emirates maintained its status as the highest-ranking Arab nation, with a score of 42.6 and a ranking of 38. Egypt showed the most notable improvement in its ranking, moving up to 95 [7]. Tunisia was recognized as an innovation achiever in 2018 among low-middle income countries, indicating that it outperformed in terms of innovation relative to its developmental stage. Egypt, Jordan, and Morocco were the only Arab countries identified as performing in line with expectations for their developmental levels, while the rest of the Arab nations fell short of expectations according to the Global Innovation Index [7].



Source: Index (GII) [7].

3. Problem Statement

The United Arab Emirates (UAE) comprises seven emirates and is in the process of formulating strategies to evolve into prominent commercial and industrial hubs within the Middle East and North Africa [8][9]. Notably, the UAE has already achieved recognition in the Global Competitiveness Report by the World Economic Forum [10] as an innovation-driven economy, where innovation contributes to more than 30% of economic activity, with knowledge serving as the primary driver of growth. Despite its abundance of hydrocarbon resources, the UAE government, guided by Vision 2021, acknowledges the imperative to transition toward a

diversified knowledge-based economy to ensure sustained long-term economic growth and provide employment opportunities for its burgeoning young population[11]. A knowledge-based economy is characterized by rapid innovation [12], making it an innovation-driven economy where change is the only constant, and the pace of change accelerates with each passing year.

Moreover, an innovation-driven economy hinges not solely on the total expenditure on Research and Development (R&D) but also on efficient investment allocation and the formulation of an effective innovation strategy. In such an economy, possessing robust science, technology, soft, and

entrepreneurial skills is crucial for developing and disseminating new products and innovative processes. Notably, innovation is not exclusive to large corporations; dynamic small and medium-sized enterprises (SMEs) also play a vital role in the innovation landscape, contributing fresh and valuable ideas to the domain [13]. In the UAE, SMEs constitute a remarkable 92% of the total number of businesses and contribute to approximately 50% of the GDP, while over 200,000 UAE-based SMEs are responsible for over 85% of jobs within the private sector, according to the UAE Ministry of Economy (2013, p.66).

However, despite SMEs' dominance in terms of quantity and employment generation, their production of high-value added products/services and exports remains relatively low, largely due to a lack of innovation. In a world where the emphasis on innovation continues to grow, only half of SMEs engage in some form of innovative activities [15]. The competitive landscape facing SMEs today necessitates increased focus on enhancing their innovativeness and, consequently, their competitiveness. Thus, innovation has become a crucial prerequisite for SMEs to thrive in both local and global markets [16]. SMEs that prioritize innovation tend to exhibit higher productivity, growth rates, and profitability compared to their less innovative counterparts [17].

One of the key reports shedding light on innovation is the GE Global Innovation Barometer [18], a comprehensive global survey encompassing the insights of over 3,200 executives across 26 countries. The UAE is among the countries included in this global survey. However, it primarily focuses on multinational and global corporations operating in the UAE, as well as large state-owned entities in sectors like energy, environment, aerospace, transport, and logistics. Therefore, it does not provide a comprehensive representation of the attitudes toward innovation within small and medium-sized enterprises. Nevertheless, the report underscores the UAE's robust awareness of and positive attitude toward innovation, emphasizing that innovation has evolved into a global endeavor that necessitates collaboration, amalgamation of talents, ideas, insights, and resources worldwide, while also requiring localization to address specific market needs.

Regarding the role of government in fostering innovation, the executives interviewed in the survey anticipate governments to establish frameworks that support key drivers of innovation. The top expectations from businesses in terms of government support include streamlining bureaucracy and reducing red tape (87%), ensuring adequate protection for business confidentiality and trade secrets (86%), and aligning educational curricula with business needs (85%) [18]. It's worth noting that while the report portrays a positive picture of innovation behavior among firms in the UAE, especially large private enterprises and state-owned entities, it provides limited insights into small and medium-sized enterprises.

Another significant report is "Entrepreneurship: An Emirati Perspective" [19], which delves into the relationship between entrepreneurship and firm performance in the UAE, with a specific focus on small and medium-sized enterprises. This report places particular emphasis on the Emirati population and utilizes data from the GEM Adult Population Survey (APS). The study paints a challenging picture of innovation within Emirati-owned and managed SMEs, suggesting that,

in light of heightened international competition, offering unique and innovative goods and services is crucial for competitive advantage among SMEs. However, the survey reveals that a significant proportion of Emirati entrepreneurs perceive their products and services as not being viewed as innovative by their customers, indicating a potential lack of continuous improvement efforts and a competitive edge post-launch.

The dynamic nature of the business environment has heightened the reliance on Information and Communication Technologies (ICTs) to attain and sustain competitiveness, enhance profitability, and thrive in the ever-evolving market [20]. This trend has spurred technology-based innovation activities [21], designed to achieve greater efficiency and superior performance [22]. However, despite widespread ICT adoption across various sectors, multiple surveys have reported project failures. For instance, in 2012, Gartner reported that fewer than 30% of information systems projects, including Business Intelligence initiatives, met their intended business objectives [23]. Furthermore, 55% to 75% of enterprise resource planning (ERP) projects failed to achieve their intended objectives, with 74.1% exceeding costs and 50% not realizing sufficient benefits [24]. More recently, a KPMG study found that 70% of businesses encountered project failures in 2014, with 50% failing to attain their intended goals [25].

Existing literature provides evidence that Information Technology (IT) capabilities can significantly impact innovation performance [26]. IT capabilities refer to a firm's ability to harness and deploy IT-based resources and leverage them to improve various indicators of firm performance [26][27]. However, the mechanisms through which IT capabilities influence innovation performance remain somewhat elusive. Research suggests that exploring the processes through which firms employ IT capabilities to enhance innovation performance in dynamic business environments can enhance our understanding of these mechanisms [28]. Recent studies propose that the impact of IT capabilities on firm-level outcomes should be investigated while considering other organizational resources as intermediaries and business environments as moderators (e.g., [28][29]). Consequently, this research draws upon the corporate entrepreneurship (CE) literature to examine the mechanisms linking IT capabilities, innovation performance, and firm competitive advantage.

4. Advantage of Information Technology

Information technology (IT) capabilities offer substantial advantages to small and medium-sized enterprises (SMEs) in the UAE, particularly in enhancing their innovation capabilities. The UAE, with its vision of transitioning into an innovation-driven economy, recognizes the pivotal role that innovation plays in driving economic growth and competitiveness. Here are some key advantages of IT capabilities for SMEs' innovation capabilities in the UAE:

- 1. Efficient Data Management:** IT systems enable SMEs to efficiently manage and analyze vast amounts of data. With proper data analytics tools, SMEs can gain valuable insights into market trends, customer preferences, and emerging opportunities, allowing them to make data-driven decisions and identify areas for innovation.

2. **Enhanced Communication and Collaboration:** IT infrastructure facilitates seamless communication and collaboration among SME employees, partners, and customers. This fosters idea sharing and creativity, essential components of the innovation process. Collaborative tools and platforms enable geographically dispersed teams to work together effectively.

3. **Market Research and Competitive Analysis:** IT capabilities empower SMEs to conduct in-depth market research and competitive analysis. Access to real-time market information enables SMEs to identify gaps in the market, emerging technologies, and areas where innovation can give them a competitive edge.

4. **Automation and Efficiency:** Automation through IT systems streamlines repetitive tasks and processes, freeing up human resources for more creative and strategic endeavors. This efficiency allows SMEs to allocate more time and resources to innovation projects.

5. **Global Reach:** IT capabilities provide SMEs with the means to expand their reach beyond local markets. E-commerce, digital marketing, and online presence enable SMEs to tap into international markets and access a wider customer base, fostering innovation through exposure to diverse customer needs and preferences.

6. **Adaptation to Market Changes:** Rapid changes in customer demands and market dynamics require agility and adaptability. IT systems provide SMEs with the tools to quickly adapt to changing circumstances and modify their products, services, or processes in response to market shifts.

In conclusion, IT capabilities empower SMEs in the UAE to enhance their innovation capabilities by providing efficient data management, fostering collaboration, supporting market research, increasing automation, extending global reach, and enabling rapid adaptation. These advantages position SMEs to thrive in the evolving landscape of the UAE's innovation-driven economy.

5. Navigating IT Challenges: Unleashing Corporate Entrepreneurship in UAE SMEs

In the United Arab Emirates (UAE), Small and Medium-sized Enterprises (SMEs) play a significant role in driving economic growth, job creation, and innovation. However, these SMEs encounter various challenges that affect their ability to harness Information Technology (IT) capabilities, which in turn restricts their corporate entrepreneurship efforts and overall competitiveness in the market.

Limited IT Resources: One of the foremost challenges facing SMEs in the UAE is the limitation of IT resources. Many SMEs operate on tight budgets, and allocating funds for advanced IT infrastructure and technologies can be a formidable task. This limitation restricts their ability to leverage IT for innovation and growth. In a rapidly evolving technological landscape, where digital transformation is often a key driver of corporate entrepreneurship, SMEs with restricted IT resources find it challenging to keep pace with larger competitors.

Skills Shortage: Acquiring and retaining skilled IT professionals is another pressing issue. While there is a growing demand for IT talent in the UAE, the supply of qualified personnel does not always meet these demands. This skills shortage poses a significant hurdle for SMEs in

recruiting IT experts who can drive innovation and effectively manage IT systems. Without access to a competent IT workforce, SMEs struggle to implement and leverage cutting-edge technologies.

Cybersecurity Concerns: As SMEs increasingly rely on digital technologies for their operations, they become susceptible to cybersecurity threats. Cyberattacks, data breaches, and other security vulnerabilities can have devastating consequences for smaller businesses. SMEs may lack the expertise and resources required to establish robust cybersecurity measures, making them attractive targets for cybercriminals. These concerns not only affect IT capabilities but also hinder corporate entrepreneurship by diverting resources towards safeguarding against potential threats instead of innovation.

Innovation Investment: Innovation is a crucial aspect of corporate entrepreneurship. IT often plays a pivotal role in driving innovation through research and development (R&D) efforts. However, SMEs may struggle to allocate resources for innovation initiatives. Investing in IT-driven innovation can be costly, and SMEs with limited budgets may find it challenging to fund projects aimed at developing new products or services. Without adequate investment in innovation, SMEs may miss out on opportunities for growth and competitiveness.

Market Competition: The UAE's business landscape is highly competitive, with both local and international players vying for market share. SMEs often find themselves competing with larger corporations that possess more extensive IT capabilities and resources. These larger firms can leverage IT to optimize their operations, streamline processes, and offer innovative solutions. SMEs, lacking comparable IT resources, may face difficulty in differentiating themselves and maintaining a competitive edge.

Customer Acquisition: Gaining market share in a competitive environment requires effective customer acquisition strategies. In today's digital age, digital marketing and e-commerce play pivotal roles in reaching and retaining customers. SMEs may lack the expertise in these areas, limiting their ability to connect with a broader customer base. Without the IT capabilities to drive digital marketing efforts and enhance the customer experience, SMEs may find it challenging to expand their market share.

Adoption of Emerging Technologies: Staying abreast of emerging IT trends is essential for corporate entrepreneurship and competitiveness. Technologies such as artificial intelligence (AI), blockchain, and the Internet of Things (IoT) offer new opportunities for innovation and efficiency. However, SMEs may struggle to adopt these emerging technologies due to budget constraints and a lack of in-house expertise. This can place them at a disadvantage compared to competitors who embrace technological advancements early on.

Data Utilization: Data-driven decision-making is a cornerstone of corporate entrepreneurship. Data analytics provide valuable insights into market trends, customer behavior, and growth opportunities. Unfortunately, many SMEs underutilize data due to a lack of analytics expertise and the necessary IT infrastructure. This limits their ability to

identify and capitalize on growth prospects, impeding their entrepreneurial efforts.

The challenges related to IT capabilities have a direct impact on SMEs' corporate entrepreneurship endeavors. These challenges restrict their ability to innovate, adopt new technologies, and compete effectively in the market. To address these obstacles, SMEs in the UAE can take several strategic steps:

1. **Government Support:** Collaborating with government initiatives and programs that promote IT skills development and innovation can provide SMEs with much-needed resources and expertise. Governments can play a pivotal role in facilitating access to IT talent and funding for innovation projects.

2. **Industry Collaborations:** Building partnerships and collaborations within the industry can help SMEs share IT resources and expertise. Joint ventures and alliances with larger organizations can provide access to advanced IT capabilities.

3. **Leveraging IT Service Providers:** Outsourcing IT services to experienced providers can enable SMEs to access cutting-edge technologies without the need for significant upfront investments. Cloud-based solutions, in particular, offer scalability and flexibility.

4. **Training and Development:** Investing in the training and development of existing staff can help bridge the skills gap. Offering ongoing education in IT-related fields can enhance the organization's IT capabilities.

5. **Cybersecurity Awareness:** Prioritizing cybersecurity awareness and training can protect SMEs from potential threats. Education and preventive measures are essential for safeguarding IT resources.

In conclusion, the challenges associated with IT capabilities have a profound impact on SMEs in the UAE, affecting their corporate entrepreneurship efforts and competitiveness. Addressing these challenges through strategic partnerships, government support, and a focus on IT skill development can enable SMEs to overcome these obstacles and thrive in a technology-driven business environment. By leveraging IT effectively, SMEs can unlock new opportunities for innovation, growth, and market expansion, ultimately enhancing their corporate entrepreneurship endeavors.

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