

DOI: 10.5281/zenodo.21105594

## DIGITIZATION AND SAUDI BUSINESSES: AN EVALUATIVE STUDY

Faisal Mohammed Maghamis<sup>1\*</sup>

<sup>1</sup>Department of Business Administration, College of Business Administration, Majmaah University,  
Majmaah 11952, Saudi Arabia, Email: f.maghamis@mu.edu.sa Orcid ID: <https://orcid.org/0009-0004-7712-6872>

Received: 03/11/2024

Accepted: 03/12/2024

Corresponding Author: Faisal Mohammed Maghamis  
(f.maghamis@mu.edu.sa)

### ABSTRACT

Saudi Arabia has a special socio-economic landscape with the majority population being under thirty-five years of age. This makes the region attractive for digital business based economic development with the aid of new technologies, particularly when aligned with the Vision 2030 plan. This study adopted a mixed methods design to identify three factors that affect the success of digital businesses in the Kingdom of KSA viz., technology readiness, financial support systems, and regulatory landscape. Quantitative data was collected from 300 micro-entrepreneurs and economic actors between the ages of 25-35 years. Qualitative data comprised 24 semi-structured interviews with a selected subgroup. The study devised seven hypotheses to examine the relationships between the three factors and digital business performance. Data analysis comprised descriptive and inferential statistics, including multiple regression and moderation tests, and thematic analysis for qualitative data. Results indicated that both technology readiness and supportive regulatory environment are optimization factors in ensuring the success of digital businesses in KSA. Moderate but positive impacts were observed on access to finance and the availability of VC. Qualitative data emphasized persistent issues such as infrastructure shortages, complex licensing norms, and inadequate VCs that thwarted growth of businesses. The study concluded with recommendations for government agencies, financial institutions, and academic institutions to foster scalable digital entrepreneurship and help achieve the economic diversification target spelt out in Vision 2030.

---

**KEYWORDS:** Digital Entrepreneurship, Vision 2030, Technology Readiness, Regulatory Environment, Financial Access.

---

## 1. INTRODUCTION

The world economy has radically changed due to increased digitization of commerce. Its effects on competition, supply chain restructuring, and previous entrants' access to markets have been extensively discussed among scholars (Westerman et al., 2014; Porter & Heppelmann, 2015). Economies the world over, especially the emerging ones, have been steadily moving towards transformation to knowledge economies with digitization aiding the process, without their having to pass through some of the traditional stages of economic development (Masongsong et al., 2024). In the Gulf region, KSA plays a key role in this context since its national development plan, Vision 2030, pledges a bold and far-reaching national transformation across all sectors, scaling down oil dependency, and supporting the switch into a diversified, knowledge-driven economy (Wang et al., 2023). This is supported by three major elements: i. digitally empowered young generation as entrepreneurial change agents, ii. digital economy and, iii. technology-driven small and medium enterprises (SMEs). Saudi Arabia has a youthful workforce that can be a healthy bedrock for digital entrepreneurship given that Saudi youth are denizens of the tech-world, an advantage over the preceding generations (Gurcan et al., 2023). However, demographic potential alone is not sufficient to ensure successful entrepreneurial outcomes. There are several systemic factors that need to interact as well, such as access to modern technological infrastructure, availability of appropriate financial solutions, and clarity and support of the legal and regulatory framework for digital trade. Although academia and policymakers have been increasingly interested in digital transformation as a continuous phenomenon, there are few peer-reviewed empirical studies on the interconnections of the three dimensions - technological, financial, and regulatory - that shape digital business success in KSA. While previous research has explored the issues in large manufacturing settings (Sjödén et al., 2018; Adamczak et al., 2023), comparatively few studies have examined the experience of young entrepreneurs in the context of the Gulf Cooperation Council (GCC) economies. To fill this gap, the current study aimed to systematically examine the experience of Saudi enterprises in the context of digitization and the associated challenges and growth opportunities, especially those affecting the age group of 25-35 years.

## 2. LITERATURE REVIEW

### 2.1. Conceptualizing Digitization and Digital Business Performance

According to Zaki (2019), digitization is defined as

the process of converting analog information to digital forms and the incorporation of digital technologies in organizational processes, products, and service delivery methods. According to scholars, digitization (technical encoding of information), digitalization (the introduction of digital processes in organizations), and digital transformation (the revolution of business models and value creation logic through digital means) should be considered different aspects of this process (Vărzaru & Bocean, 2024). However, in this study, the term digitization has been used to encompass entrepreneurial activities which include any or all three. Digital business performance encompasses many aspects such as financial performance, innovation output, market expansion, and customer interaction possible with digital technologies (Wang et al., 2023). Some studies have established that the more digital technologies are adopted, the more competitive, cost-efficient, and adaptable to the market an organization is (Porter, 1985; Iansiti & Lakhani, 2014). Westerman et al. (2014) coined the term 'digital masters' to distinguish between organizations that are competent in digital skills and those that perform and are led well in digital skills in the public sector. They believe that a truly competitive advantage is achieved if both aspects are integrated.

### 2.2. Technological Dimensions of Digital Business

An entrepreneur's technology arsenal is a key component of digital businesses. Lenka et al. (2017) cite the development of digitalization competencies like system integration, connectivity and the use of data analytics as key factors for creating value in service-oriented firms. Sjödén et al. (2018) showed that the requirement for 'smart factories' in manufacturing is based on the maturity of the digitalization of the business. It is well established that adequate infrastructure affects outcomes and intentions. Lack of broadband internet, cloud computing, cyber security, and platforms for digital transactions are among the challenges faced by Saudi entrepreneurs. According to Saeed et al. (2023), businesses are wary of cybersecurity threats in their efforts to digitize. As more people engage in online activities, the risks of malafide activities increases. Failure to address this issue can affect investments and growth in the context of digitalization. The use of digital marketing tools is another important technological aspect. Shpak et al. (2020) demonstrated that the digitalization of marketing activities, including social media marketing, customer targeting, and eCommerce, significantly impacts expanding food market penetration and income generation for small and

medium businesses. Thus, there is significant opportunity for young entrepreneurs to develop new businesses in Saudi Arabia where the use of social media is among the highest in the world.

### **2.3. Financial Dimensions: Access And Support Structures**

The ability to obtain capital is a recognized challenge for entrepreneurs, and this issue is becoming increasingly significant in the digital economies. Open innovation processes (OIPs) supported by digital platforms require investments from organizations that participate in the process, and many startups lack the capital needed to make them happen. Urbinati et al. (2020) demonstrated that many transactions that would benefit an organization's innovation processes, often assisted with digital platforms, require investments that few startups would be able to arrange on their own. Moreover, Mulgan (2006) pointed out that little financial support is available for social and economic innovations in ecosystems at an early stage when they are not really growing. Dynamics of the Saudi financial ecosystem for startups in the digital space have shifted considerably over the past few years. The target of Vision 2030 to establish a strong private sector also partly contributed to this change. However, the reach of VC schemes is still unevenly distributed. These challenges are greater for early-stage companies in metropolitan areas or in industries beyond fintech and e-commerce. Bianchi et al. (2016) pointed out that having external consultants and dedicated research functions which require financial resources, greatly affects the innovation performance. This indicates that funding budget inefficiencies aggravate the negative impact of funding on innovation. Some useful resources include microfinancing, government-backed loan guarantees, and programs to promote entrepreneurship. Fan et al. (2023) demonstrated that access to financial resources impacts the link between intentions for digital transformation. In addition, such access can help sustainably innovate manufacturing companies. This finding highlights the important role of financial support in promoting technology-driven growth.

### **2.4. Regulatory Dimensions: Environment And Policy Clarity**

Regulations impact entrepreneurial activities and sustenance of digital businesses. Research has shown that unclear, overly complicated, and rapidly changing regulations stifle entrepreneurial activities by making compliance more expensive and

increasing the uncertainty of doing business (Hai et al., 2021; Yufriadi et al., 2024; Jaloliddin, 2023; Gurcan et al., 2023). On the other hand, regulations that are clear, appropriate, and conducive to innovation can ease investment and scale obstacles. Ponsignon et al. (2019) identified the importance of quality management principles during the digital transformation of companies. They showed that regulatory frameworks that situate quality assurance in digital practices as complements (not adversarial) help drive transformation. In the context of international trade, Azmeh et al. (2020) concluded that the harmonization of regulations in multiple jurisdictions enhances cross-border digital trade and the ambition of Saudi entrepreneurs to participate in regional and global trade. Grubic and Jennions (2018) further stated that companies wanting to adopt sophisticated strategies to switch to digital services would require regulatory clarity on data privacy, remote monitoring, and service delivery. However, Saudi Arabia's Vision 2030 regulatory reform initiative, the new National Data Management Office, and recent changes in the Commercial Registration process have created a favorable regulatory climate for entrepreneurs, although challenges exist in terms of effectiveness of reforms.

### **2.5. Hypothesis Development**

**Based on the above theoretical and empirical evidence, the following hypotheses are formulated for this empirical investigation:**

- H1:** Technological readiness correlates positively with digital business performance among Saudi entrepreneurs aged between 25 and 35 years.
- H2:** There is positive correlation between technological readiness and digital business performance of Saudi entrepreneurs aged between 25 and 35 years.
- H3:** The correspondence between access to digital infrastructure and digital business performance is positive. The availability of financial support is positively related to digital business performance.
- H4:** Venture Capital has a positive correlation with Digital Business Performance.
- H5:** A supportive regulatory environment correlates positively with digital business performance.
- H6:** Clarity in policies and compliance with regulations is directly proportional to digital business performance.
- H7:** There is a positive relationship between the regulatory environment and digital business

performance, but this relationship is strengthened with higher technological readiness.

### 3. METHODOLOGY

#### 3.1. Research Design

The sequential explanatory mixed methods design in this study consisted of gathering quantitative data, followed by qualitative data. This design is particularly effective when addressing long-established complex social inconsistencies which may include interdisciplinary concerns such as social phenomena that may relate to digital entrepreneurship (Urbinati et al., 2020). The use of mixed methods was also justified by the acknowledgment that entrepreneurial experience is measured through objectively defined business-related success and is also closely defined subjectively through experienced obstacles and facilitators.

#### 3.2. Sample And Participants

The quantitative sample included 300 Saudi entrepreneurs in the age range of 25 to 35 years.

Participants were recruited through both purposive and snowball sampling within entrepreneurship networks, incubator programs, and professional associations located in Riyadh, Jeddah, and Dammam. This age group was selected as it was theorized this was the group of digital natives entering the labor market and contributing the most to it. During the 14-week data collection period, a structured questionnaire was distributed both digitally and in paper format.

For the qualitative phase, a purposive subsample consisting of participants from the quantitative phase ( $n = 300$ ) was selected to achieve maximum variation with regard to business sector, location, business maturity, and gender. The interviews were semi-structured and were conducted at the researcher's office or via teleconferencing depending on interviewee preference. These interviews were conducted in Arabic and the translation of the audio recordings from Arabic to English was done by two bilingual research assistants. Demographic data for the quantitative sample is summarized in Table 1.

**Table 1: Demographic Characteristics of the Quantitative Sample (N = 300).**

| Characteristic    | Category               | Frequency (n) | Percentage (%) |
|-------------------|------------------------|---------------|----------------|
| Age               | 25–28 years            | 112           | 37.3           |
|                   | 29–32 years            | 126           | 42.0           |
|                   | 33–35 years            | 62            | 20.7           |
| Gender            | Male                   | 185           | 61.7           |
|                   | Female                 | 115           | 38.3           |
| Education         | Bachelor's Degree      | 154           | 51.3           |
|                   | Master's Degree        | 108           | 36.0           |
|                   | Doctoral Degree        | 38            | 12.7           |
| Business Sector   | Technology & IT        | 93            | 31.0           |
|                   | Retail & E-commerce    | 72            | 24.0           |
|                   | Finance & FinTech      | 65            | 21.7           |
|                   | Manufacturing          | 40            | 13.3           |
|                   | Other                  | 30            | 10.0           |
| Business Maturity | Startup (<2 years)     | 99            | 33.0           |
|                   | Growth (2–5 years)     | 132           | 44.0           |
|                   | Established (>5 years) | 69            | 23.0           |

Note: N = 300. Percentages May Not Sum To 100 Due To Rounding.

#### 3.3. Instrumentation

The survey instrument consisted of 48 items across six constructs viz., (a) Technological Readiness (8 items, Lenka et al., 2017), (b) Digital Infrastructure Access (7 items), (Digital Business Performance (10 items of DBP of revenue, market growth, innovation, and customers, Wang et al., 2023). All items used a 5-point Likert scale for responses, where (1) indicated Strongly Disagree and (5) indicated Strongly Agree.

To check the content validity, a panel of experts comprising 4 professors and 2 experts reviewed the instrument. Cronbach's Alpha was used to check for reliability which indicated a reasonable range of (76–89) for all items. Construct validity was tested with

confirmatory factor analysis. The fit indices were good (CFI= 94, RMSEA= 06). Twelve open-ended questions were used to conduct the semi-structured interviews.

#### 3.4. Data Analysis

Quantitative data in the study was analyzed using IBM SPSS Statistics Version 27 software. Descriptive statistics which included means, standard deviation, and frequency distribution, were applied to understand the characteristics of the sample. Directional hypotheses were tested using Pearson correlation analysis and multiple linear regression. For testing moderation, hierarchical regression

analysis with product term interaction was performed. The statistical significance for the analyses was established at  $p < .05$ , along with reporting the effect size in terms of standardized beta coefficient values.

For analyzing the qualitative data, reflexive thematic analysis by Braun and Clarke (2006) was utilized through the six-phase process of familiarization, code generation, theme development, review of themes, theme definition, and report writing. Prolonged engagement, peer debriefing, and member-checking were adopted to ensure analytical rigor in qualitative data analysis, with the latter being conducted among eight participants. NVivo 12 software was used for coding and retrieval processes systematically. Finally, findings from both types of data were triangulated where qualitative themes were compared with the predictor variables that were found statistically significant in multiple regression analysis.

## 4. RESULTS AND DISCUSSION

### 4.1. Descriptive Statistics

Descriptive statistics of the variables are summarized in Table 2. Results showed that the

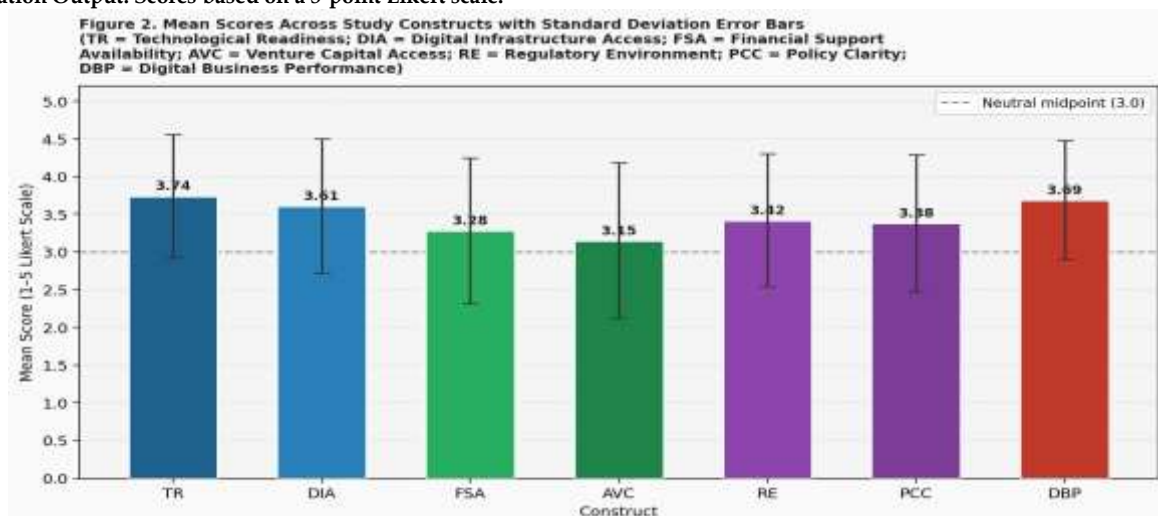
participants had moderate to high degree of readiness in technology use ( $M=3.74$ ,  $SD=0.82$ ), that is, most respondents felt ready to use technology. In comparison, subjects showed slightly low accessibility to digital infrastructure ( $M=3.61$ ,  $SD=0.89$ ), pointing to the existing gap in digital infrastructure between regions and sectors in the country.

Availability of financial support ( $M = 3.28$ ,  $SD = 0.97$ ) and access to venture capital ( $M = 3.15$ ,  $SD = 1.03$ ) had the lowest mean scores of all the predictors considered in this study, the latter was also characterized by the largest standard deviation value, suggesting substantial variance in responses to the level of venture capital availability. Both results reflect findings of the existing literature on the relative immaturity of capital markets in the entrepreneurial environment of the region (Bianchi et al., 2016; Fan et al., 2023). Regulatory environment ( $M = 3.42$ ,  $SD = 0.88$ ) and policy clarity ( $M = 3.38$ ,  $SD = 0.91$ ) were rated moderate, reflecting the prevailing attitudes of cautious optimism alongside some concerns about the complexity of procedures. The mean score for digital business performance ( $M = 3.69$ ,  $SD = 0.79$ ) suggests that the participants viewed digital ventures' performance to be above average.

**Table 2: Descriptive Statistics for Study Constructs (N = 300).**

| Construct/Variable                   | N   | Min  | Max  | Mean | SD   |
|--------------------------------------|-----|------|------|------|------|
| Technological Readiness (TR)         | 300 | 1.20 | 5.00 | 3.74 | 0.82 |
| Digital Infrastructure Access (DIA)  | 300 | 1.40 | 5.00 | 3.61 | 0.89 |
| Financial Support Availability (FSA) | 300 | 1.00 | 5.00 | 3.28 | 0.97 |
| Access to Venture Capital (AVC)      | 300 | 1.10 | 5.00 | 3.15 | 1.03 |
| Regulatory Environment (RE)          | 300 | 1.30 | 5.00 | 3.42 | 0.88 |
| Policy Clarity & Compliance (PCC)    | 300 | 1.20 | 5.00 | 3.38 | 0.91 |
| Digital Business Performance (DBP)   | 300 | 1.50 | 5.00 | 3.69 | 0.79 |
| Innovation Output (IO)               | 300 | 1.00 | 5.00 | 3.56 | 0.86 |

Note: TR = Technological Readiness; DIA = Digital Infrastructure Access; FSA = Financial Support Availability; AVC = Access to Venture Capital; RE = Regulatory Environment; PCC = Policy Clarity and Compliance; DBP = Digital Business Performance; IO = Innovation Output. Scores based on a 5-point Likert scale.



### 4.2. Hypothesis Testing: Quantitative Results

Multiple regression analysis was carried out where digital business performance served as

dependent variable while the six theoretical constructs served as independent variables. Findings from multiple regression analysis showed digital business performance to be statistically significant ( $F(6, 293) = 48.37, p < .001$ ) with an overall ability to explain 49.7% of the variance of the digital business performance ( $R^2 = .497$ , adjusted  $R^2 = .487$ ).

As indicated in Table 3 below, technological readiness turned out to be the best predictor ( $\beta = .412$ ,  $t = 7.23$ ,  $p < .001$ ), thus supporting H1. Digital infrastructure access came out to be the second strongest predictor of digital business performance ( $\beta = .358$ ,  $t = 6.01$ ,  $p < .001$ ), hence supporting H2. Regulatory environment ( $\beta = .317$ ,  $t = 5.34$ ,  $p < .001$ )

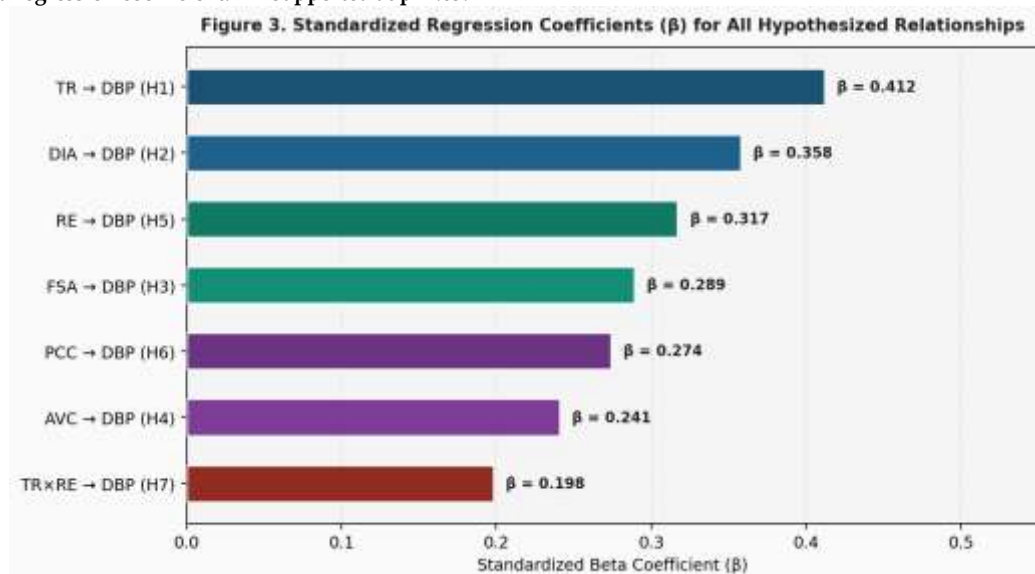
and financial support availability ( $\beta = .289$ ,  $t = 4.78$ ,  $p < .001$ ) were found to be significant predictors of digital business performance, thus supporting H3 and H5 respectively.

Hypothesis H7 on the role of technological readiness in enhancing the relationship between regulatory environment and success of digital business was tested using hierarchical regression with an interaction term. Technological readiness turned out to have significant interaction with regulatory environment ( $\beta = .198$ ,  $t = 3.11$ ,  $p = .002$ ). This implies that there is more potential benefit of having a good regulatory environment when technological readiness is also high.

**Table 3: Results of Multiple Regression and Moderation Analysis.**

| Hypothesis | Relationship                     | $\beta$ | t-value | p-value | Result    |
|------------|----------------------------------|---------|---------|---------|-----------|
| H1         | TR $\rightarrow$ DBP             | 0.412   | 7.23    | < .001  | Supported |
| H2         | DIA $\rightarrow$ DBP            | 0.358   | 6.01    | < .001  | Supported |
| H3         | FSA $\rightarrow$ DBP            | 0.289   | 4.78    | < .001  | Supported |
| H4         | AVC $\rightarrow$ DBP            | 0.241   | 3.92    | .001    | Supported |
| H5         | RE $\rightarrow$ DBP             | 0.317   | 5.34    | < .001  | Supported |
| H6         | PCC $\rightarrow$ DBP            | 0.274   | 4.45    | < .001  | Supported |
| H7         | TR $\times$ RE $\rightarrow$ DBP | 0.198   | 3.11    | .002    | Supported |

Note: N = 300. TR = Technological Readiness; DIA = Digital Infrastructure Access; FSA = Financial Support Availability; AVC = Access to Venture Capital; RE = Regulatory Environment; PCC = Policy Clarity and Compliance; DBP = Digital Business Performance.  $\beta$  = Standardized regression coefficient. All supported at  $p < .05$ .



Standardized regression coefficients ( $\beta$ ) for all seven hypothesized relationships, displayed in descending order of effect size. All relationships significant at  $p < .05$ .

#### 4.3. Qualitative Findings: Thematic Analysis

Four general themes were identified from the thematic analysis conducted on the 24 semi-

structured interviews: (a) infrastructure constraints, (b) financial access constraints, (c) regulatory constraints, and (d) alignment with Vision 2030. These themes were consistent with the quantitative concepts identified in this study although they offered specific context not captured by statistical analyses. The four themes, their sub-themes, representative paraphrased quotes, and frequencies are summarized in Table 4.

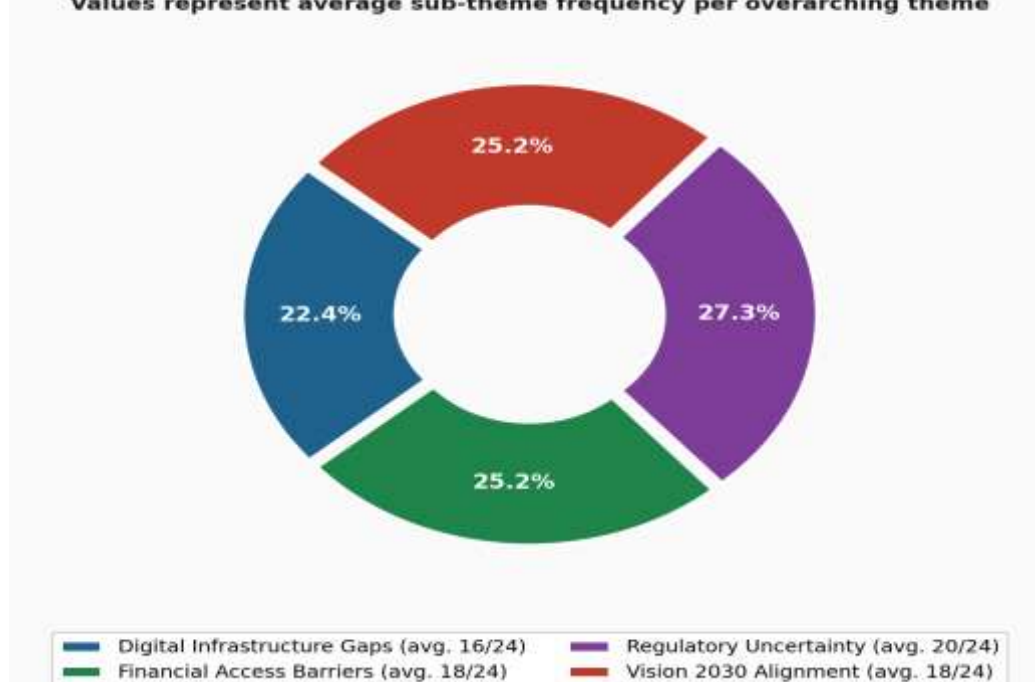
**Table 4: Summary Of Thematic Analysis Findings (N = 24).**

| Theme | Sub-theme | Representative Quotation (paraphrased) | Frequency |
|-------|-----------|----------------------------------------|-----------|
|-------|-----------|----------------------------------------|-----------|

|                             |                          |                                                                                                                       |       |
|-----------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------|-------|
| Digital Infrastructure Gaps | Connectivity disparities | Participants noted uneven broadband availability across regions as a key barrier to scaling digital operations        | 18/24 |
|                             | Cloud adoption hesitancy | Several interviewees cited data sovereignty concerns as a reason for slow cloud migration                             | 14/24 |
| Financial Access Barriers   | Limited venture capital  | Early-stage entrepreneurs described the venture capital landscape as underdeveloped compared to global peers          | 20/24 |
|                             | Banking exclusion        | Participants highlighted difficulty obtaining business credit without established financial track records             | 16/24 |
| Regulatory Uncertainty      | Licensing complexity     | Founders mentioned the multi-agency licensing process as time-consuming and non-transparent                           | 22/24 |
|                             | Evolving compliance      | Interviewees expressed concern about rapidly changing digital commerce regulations                                    | 17/24 |
| Vision 2030 Alignment       | Policy optimism          | Most participants acknowledged positive governmental intent and expressed cautious optimism about reform trajectories | 21/24 |
|                             | Skill development        | Training programs linked to Vision 2030 were cited as meaningful but requiring scale-up                               | 15/24 |

Note: Frequency Expressed as Number of Participants (Out Of 24) Whose Interviews Evidenced the Sub-Theme.

**Figure 5. Distribution of Qualitative Themes Across Interview Sample (n = 24)**  
Values represent average sub-theme frequency per overarching theme



Inconsistencies in digital infrastructure emerged as the most dominant theme, which included issues related to broadband internet in various regions as well as reluctance towards embracing cloud computing owing to data sovereignty concerns. Entrepreneurs who operated outside of the three main urban areas expressed their views on poor connectivity issues, supporting the average lower mean score noted for the digital infrastructure access variable in the quantitative data ( $M = 3.61$ ). This finding aligned with Saeed et al. (2023) who discussed cybersecurity and infrastructure challenges as common obstacles to digitally transforming firms in emerging markets.

Lack of financial accessibility ranked as the second most prominent theme, with 20 out of 24 respondents independently identifying the scarcity

of venture capital as an impediment to growth. The banking exclusion sub-theme illustrated the challenge facing first-time entrepreneurs who lacked collateral or credit ratings when attempting to obtain institutional financing. This qualitative finding was supported by the lowest mean score obtained for venture capital access as compared to all other predictors.

Regulatory uncertainty became an issue of practical importance. Multi-agency licensing procedures were unanimously reported by the participants as being highly bureaucratic, time-consuming, and opaque. Frustrations related to licensing procedures were not associated with regulatory principles per se, however, were linked to difficulties involved in implementation – a point that the empirical measures only partly conveyed. Issues

of changes in the regulatory landscape related to digital commerce pointed to the fact that the legislation in the KSA was evolving, although it created immediate strategic uncertainty for companies wishing to invest.

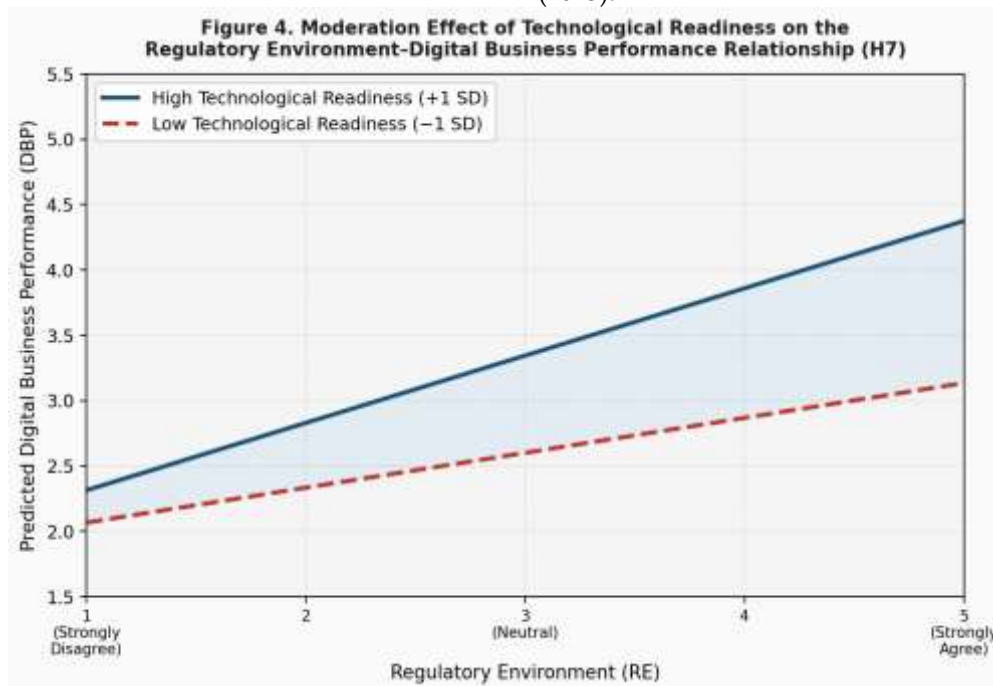
Strangely enough, alignment with Vision 2030 became a reason for optimism for most respondents. The clear commitment of the authorities to diversify the economy, the creation of digital economy committees, and specialized entrepreneurship training programs were noted as positive aspects, even by the participants who reported frustrations with regulation or financing issues. Cautious optimism of this sort holds theoretical interest insofar as it implies that institutional legitimacy of reforms may mitigate the effects of current implementation challenges.

#### 4.4. Technological Readiness as a Primary Performance Driver

In this study, the relationship that shows technological readiness as being the most significant predictor of digital business performance ( $\beta = .412$ ) is congruent with many previous studies. Westerman et al. (2014) have identified that digital capabilities

involving technology utilization, data handling, and automation of processes are essential preconditions for competitiveness in the digital age. Furthermore, Lenka et al. (2017) proved that digital capabilities enable organizations to co-create value especially within the service-intensive industries. In the current analysis, findings are extended to prove the applicability of results to the case of young entrepreneurs operating in the Saudi economy at the nascent stage of its digitization.

In this regard, H7 points towards an interesting moderation effect which gives depth to this insight. In particular, the synergistic relationship between technological readiness and regulation points to the idea that entrepreneurs who have developed adequate technology readiness can better capitalize on the benefits of regulatory change as a business advantage; in turn, those entrepreneurs who are less advanced in terms of technology readiness will stay limited irrespective of the regulatory changes. This finding implies important policy considerations, which point to the necessity of investing not only in development but in technologies in order to realize the policy goals more effectively. This conclusion aligns with the ideas expressed by Gurcan et al. (2023).



#### 4.5. Financial Barriers and the Capital Access Gap

Given the positive yet moderate influence of availability of financial support ( $\beta = .289$ ) and venture capital ( $\beta = .241$ ) on the performance of a digital enterprise, together with the indication that

there is dissatisfaction with the financial aspects demonstrated, it can be argued that there is a structural mismatch between the financing needs of young entrepreneurs in Saudi Arabia and the institutional ability to satisfy those needs. The same results were reported by Fan et al. (2023) who indicated that, in the context of manufacturing

activities, financial limitations were one of the barriers that hindered digitization. Financial deprivation was associated with a lower level of innovation outputs by Bianchi et al. (2016).

Qualitative evidence shows that such a disparity is not due to lack of capital per se, but rather is caused by factors intrinsic to the structure of the financial system, such as collateral obligations, credit history conditions, and industry bias within venture capital investments, all of which put young and first-generation entrepreneurs at a particular disadvantage. Overcoming these structural factors will need deliberate measures, in addition to economic growth in general, such as creating alternative lending models, spreading out accelerators and incubators geographically, and policy support for digital startups.

#### **4.6. Regulatory Environment and the Implementation Gap**

The substantial influence of regulatory environment ( $\beta = .317$ ) and policy clarity ( $\beta = .274$ ) on digital business performance supports the hypothesis that good regulatory environment produces tangible results for businesses. Similar to what was observed by Ponsignon et al. (2019) regarding quality management in the digital world, regulatory alignment to digital business realities considerably reduces the burden of compliance and releases resources of organizations for innovation activities.

Nonetheless, the qualitative analysis suggests an interesting finding that should be accounted for – even though there is no disagreement on the positive direction of reforms and its significance for digital transformation, there are certain difficulties at the implementation level that prevent these benefits from being fully realized. Inefficiency of the administration, communication problems, lack of cooperation between different bodies – all of these lead to partial neutralization of the goodwill of Vision 2030 regulations. Azmeh et al. (2020) also found that the beneficial effects of regulatory harmonization in international digital trade were largely neutralized because of implementation issues.

#### **4.7. Triangulation And Theoretical Contribution**

Triangulating the quantitative and qualitative results in this study demonstrates that there is substantial convergence between the two approaches, and the magnitude of statistical significance of each factor correlates directly with the

extent to which the same factor was emphasized through qualitative data. Technological readiness emerged as the most statistically significant factor, and it was also the enabler most frequently mentioned throughout the interviews; although financial issues represented the least statistically significant of all factors, they were what caused the highest emotional reaction among the participants.

Theoretically, this study provides a multidimensional, contextual digitization model of digital business performance in a transforming Gulf economy, connecting Porter's (1985) framework of competitive advantage processes with the current literature on digitization (Vărzaru & Bocean, 2024; Adamczak et al., 2023). The addition of a moderation effect contributes to the knowledge base of technology and regulation interactions and goes beyond static additive models to propose a more dynamic and contingent view of the success of digital entrepreneurship. The research also meets the challenge of geographically representative evidence-based studies in the literature by contributing empirically grounded learnings from a non-Western country in the process of institutional change during its transformative journey.

### **5. CONCLUSION**

This study aimed to explore the trends, issues, and prospects of the digitization journey of young Saudi entrepreneurs in the era of Vision 2030. Based on a sequential mixed methods design that combines quantitative hypothesis testing and qualitative interpretation of content in the form of thematic analysis, an overall integrated and empirically substantiated understanding was developed on the three levels that can have the most significant effects on digital business performance in the Kingdom: technological, financial, and regulatory. All seven hypotheses were confirmed and were generally found to be positively related to technological readiness, access to digital infrastructure, financial support availability, venture capital access, regulatory environment, policy clarity, and digital business performance. The technology readiness criterion proved to be the most important predictor and showed a synergistic moderation effect when combined with the regulatory environment.

The quantitative analysis was supplemented by qualitative analysis highlighting lived experiences at the back of the statistics, describing and documenting an infrastructure access gap, a structural capital gap, and a regulatory experience gap, all of which impede the realization of entrepreneurial potential.

In conclusion, Saudi Arabia's demographic

dividend and the institutional stimulus of Vision 2030 provide a very favorable landscape for digital entrepreneurship. The current study shows that this is not only a promise, but that there are measurable relationships between enabling conditions and the performance of a business. The big problem is not in the vision or the intent; it is in the execution, access to resources, and infrastructure availability.

## 6. RECOMMENDATIONS

**Based on the findings, the following are recommended:**

1. Increasing the number of digital skills training programs, especially for non-metropolitan entrepreneurs where technological readiness scores were the lowest, in the first place, by government agencies and education institutions, would be a great help. The programs ought to be functional, industry-specific, and easily accessible to all.
2. Financial institutions must create funding tools, such as revenue-based financing or platforms that link P2P lenders with entrepreneurs without the need for collateral or first-loss guarantee schemes backed by the Saudi Venture Capital Company to help ensure credit availability for first-generation

entrepreneurs without requiring collateral.

3. Regulatory authorities should streamline the digital business licensing process systematically, create a single-window registration portal, involve a few agencies in standard compliance processes, and institute a regulatory guidance helpline for digital SMEs.
4. Universities and research institutes should prioritize longitudinal research to monitor the development of digital economy projects under Vision 2030 and support the adjustment of policies enacted accordingly.
5. Industry associations should enable peer-learning communities in which successful digital entrepreneurs can support early-stage enterprises by sharing their tacit knowledge and risk management skills which are difficult to memorize in formal courses.

## 7. LIMITATIONS

Though the study makes a valuable and unique contribution to literature and practice in digitalization of an economy, comparisons with other similar situations would have helped highlight the pitfalls that lie ahead for KSA in its transformative journey.

## REFERENCES

- Adamczak, M., Kolinski, A., Trojanowska, J., & Husár, J. (2023). Digitalization trend and its influence on the development of the operational process in production companies. *Applied Sciences*, 13(3), 1393. <https://doi.org/10.3390/app13031393>
- Azmeh, S., Foster, C., & Echavarri, J. (2020). The international trade regime and the quest for free digital trade. *International studies review*, 22(3), 671-692. <https://doi.org/10.1093/isr/viz033>
- Bianchi, M., Croce, A., Dell'Era, C., Di Benedetto, C. A., & Frattini, F. (2016). Organizing for inbound open innovation: How external consultants and a dedicated R&D unit influence product innovation performance. *Journal of Product Innovation Management*, 33(4), 492-510.
- Fan, X., Wang, Y., & Lu, X. (2023). Digital transformation drives sustainable innovation capability improvement in manufacturing enterprises: Based on FsQCA and NCA approaches. *Sustainability*, 15(1), 542.
- Grubic, T., & Jennions, I. (2018). Remote monitoring technology and servitised strategies: Factors characterising the organisational application. *International Journal of Production Research*, 56(6), 2133-2149.
- Gurcan, F., Boztas, G. D., Dalveren, G. G. M., & Derawi, M. (2023). Digital transformation strategies, practices, and trends: A large-scale retrospective study based on machine learning. *Sustainability*, 15(9), 7496. <https://doi.org/10.3390/su15097496>
- Hai, T. N., Van, Q. N., & Thi Tuyet, M. N. (2021). Digital transformation: Opportunities and challenges for leaders in the emerging countries in response to COVID-19 pandemic. *Emerging Science Journal*, 5(1), 21-36. <http://dx.doi.org/10.28991/esj-2021-SPER-03>
- Iansiti, M., & Lakhani, K. (2014). Digital ubiquity: How connections, sensors, and data are revolutionizing business. *Harvard Business Review*, 92(11), 90-99.
- Jaloliddin, R. (2023). Digitalization in global trade: opportunities and challenges for investment. *Global Trade and Customs Journal*, 18(10). <https://kluwerlawonline.com/journalarticle/Global+Trade+and+Customs+Journal/18.10/GTCJ2023043>
- Lenka, S., Parida, V., & Wincent, J. (2017). Digitalization capabilities as enablers of value co-creation in

- servitizing firms. *Psychology & Marketing*, 34(1), 92–100.
- Martín-Peña, M. L., Díaz-Garrido, E., & Sánchez-López, J. M. (2018). The digitalization and servitization of manufacturing: A review on digital business models. *Strategic Change*, 27(2), 91–99.
- Masongsong, A. C., Ulep, S. J., Abante, M. V., Cagang, M. L., & Vigonte, F. G. (2024). Digital transformation of international trade for SMEs in developing countries: Opportunities, challenges. *Challenges (February 27, 2024)*.
- Mulgan, G. (2006). The process of social innovation. *Innovations: Technology, Governance, Globalization*, 1(2), 145–162.
- Ponsignon, F., Kleinhans, S., & Bressolles, G. (2019). The contribution of quality management to an organisation's digital transformation: A qualitative study. *Total Quality Management & Business Excellence*, 30(Suppl. 1), S17–S34.
- Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. Free Press.
- Porter, M. E., & Heppelmann, J. E. (2015). How smart, connected products are transforming companies. *Harvard Business Review*, 93(10), 96–114.
- Qual. Res. Psychol., 3 (2) (2006), pp. 77–101, 10.1191/1478088706qp063oa
- Saeed, S., Altamimi, S. A., Alkayyal, N. A., Alshehri, E., & Alabbad, D. A. (2023). Digital transformation and cybersecurity challenges for businesses resilience: Issues and recommendations. *Sensors*, 23(15), 6666. <https://doi.org/10.3390/s23156666>
- Shpak, N., Kuzmin, O., Dvulit, Z., Onysenko, T., & Sroka, W. (2020). Digitalization of the marketing activities of enterprises: Case study. *Information*, 11(2), 109. <https://doi.org/10.3390/info11020109>
- Sikimic, U., Chiesa, V., Frattini, F., & Scalera, V. G. (2016). Investigating the influence of technology inflows on technology outflows in open innovation processes: A longitudinal analysis. *Journal of Product Innovation Management*, 33(6), 652–669.
- Sjödin, D. R., Parida, V., Leksell, M., & Petrovic, A. (2018). Smart factory implementation and process innovation: A preliminary maturity model for leveraging digitalization in manufacturing. *Research-Technology Management*, 61(5), 22–31.
- Urbinati, A., Chiaroni, D., Chiesa, V., & Frattini, F. (2020). The role of digital technologies in open innovation processes: An exploratory multiple case study analysis. *R&D Management*, 50(1), 136–160.
- V. Braun, V. Clarke. (2006). *Using thematic analysis in psychology*
- Vărzaru, A. A., & Bocean, C. G. (2024). Digital transformation and innovation: The influence of digital technologies on turnover from innovation activities and types of innovation. *Systems*, 12(9), 359. <https://doi.org/10.3390/systems12090359>
- Visnjic, I., Neely, A., & Jovanovic, M. (2018). The path to outcome delivery: Interplay of service market strategy and open business models. *Technovation*, 72–73, 46–59.
- Wang, Z., Lin, S., Chen, Y., Lyulyov, O., & Pimonenko, T. (2023). Digitalization effect on business performance: Role of business model innovation. *Sustainability*, 15(11), 9020. <https://doi.org/10.3390/su15119020>
- Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.
- Yufriadi, F., Syahrani, F., & Afifi, A. A. (2024). Trade transformation in the digital era: Agency role, opportunities and challenges. *AL-IMAM: Journal on Islamic Studies, Civilization and Learning Societies*, 5(1), 13–23.
- Zaki, M. (2019). Digital transformation: Harnessing digital technologies for the next generation of services. *Journal of Services Marketing*, 33(4), 429–435.