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Entrepreneurship, Competitiveness, and Innovations : An Empirical Analysis of the Tunisian Context

Abstract

This article provides an empirical analysis of the impact of entrepreneurship on the competitiveness of Tunisian companies, focusing on innovation across various sectors. Based on surveys conducted with 200 Tunisian SMEs and recent macroeconomic data, the study assesses the innovative strategies implemented by these companies and their influence on national and international competitiveness. Key findings reveal that 50% of the surveyed companies link their competitiveness to innovation, particularly in the ICT and agri-food sectors. Despite facing challenges such as limited financing and administrative burdens, innovative enterprises see a 20% market share increase. The article discusses the effects of national initiatives, including the Startup Act, and highlights the need for greater collaboration between the private sector, universities, and research centers to foster innovation and enhance competitiveness in Tunisia.

Research Article

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Introduction

Entrepreneurship has emerged as a critical driver of economic development, job creation, and competitive advantage in the global economy [1, 2]. The relationship between entrepreneurial activity, innovation, and firm competitiveness has been extensively documented in developed economies, yet remains understudied in emerging markets such as Tunisia. Following the 2011 revolution, Tunisia has undertaken significant reforms to stimulate entrepreneurial activity and innovation, most notably through the Startup Act of 2018, which aims to transform the country into a regional hub for innovation and technology.

The contemporary business environment is characterized by rapid technological change, globalization, and intensified competition, compelling firms to continuously innovate to maintain their competitive position [1]. Entrepreneurship, defined as the process of discovering, evaluating, and exploiting opportunities [3], plays a fundamental role in driving innovation and enhancing firm competitiveness. As Moroz and Hindle note, entrepreneurship should be understood as a dynamic process that harmonizes multiple perspectives, from individual self-efficacy to organizational capabilities and market opportunities.

In the Tunisian context, entrepreneurship faces unique challenges including limited access to financing, bureaucratic barriers, and insufficient linkages between academic research and commercial application. Despite these constraints, Tunisian entrepreneurs have demonstrated resilience and creativity, particularly in sectors such as information and communication technology (ICT) and agri-food processing. Understanding how entrepreneurship influences competitiveness through innovation strategies is essential for policymakers and business leaders seeking to strengthen Tunisia's economic position in regional and global markets.

This study addresses a significant gap in the literature by examining the empirical relationship between entrepreneurship, innovation strategies, and firm com-

petitiveness within the Tunisian business ecosystem. Drawing on survey data from 200 small and medium-sized enterprises (SMEs) across multiple sectors, we investigate how entrepreneurial self-efficacy, innovation capabilities, and strategic choices affect competitive outcomes. Our findings contribute to both theoretical understanding and practical policy formulation for emerging market contexts.

Literature Review

Entrepreneurship and Economic Development

Entrepreneurship has long been recognized as a catalyst for economic growth and job creation. Malchow-Møller [2] demonstrate that entrepreneurial ventures contribute significantly to employment generation and wage growth, particularly in dynamic sectors characterized by innovation and technological advancement. Their longitudinal analysis reveals that new entrepreneurial firms create substantial employment opportunities, with spillover effects extending beyond direct job creation to include wage improvements across the broader labor market. The entrepreneurial process involves identifying opportunities, mobilizing resources, and creating value in conditions of uncertainty, as originally conceptualized by Knight [3] in his seminal work on risk and profit.

The effectiveness of entrepreneurship in driving economic outcomes depends substantially on individual characteristics and contextual factors [1]. McGee [4] emphasize the importance of entrepreneurial self-efficacy, defined as an individual's belief in their capability to successfully perform entrepreneurial tasks. Their refined measurement framework demonstrates that self-efficacy encompasses multiple dimensions including opportunity identification, relationship development, managerial competencies, and tolerance for uncertainty. Research by Gelaidan and Abdullateef [5], as well as Nowiński [6], confirms that self-confidence, educational support, and relational networks significantly influence entrepreneurial intentions and subsequent venture performance, particularly among university students and early-stage entrepreneurs.

Innovation Strategies and Firm Performance

Innovation represents a fundamental mechanism through which firms achieve and sustain competitive advantage [1]. The systematic literature review by Agazu and Kero [7] reveals that innovation strategies directly influence firm competitiveness across diverse industrial contexts. Their comprehensive analysis synthesizes evidence from multiple empirical studies demonstrating positive relationships between innovation activities and performance outcomes including market share growth, profitability, and sustainable competitive positioning. The review identifies innovation strategy as a critical determinant of competitive success, with firms that systematically pursue innovation achieving superior performance compared to those relying primarily on cost-based or imitative strategies.

Different types of innovation strategies yield varying effects on firm performance. Research by Tavassoli and Karlsson [8] distinguishes between simple innovation strategies focusing on single innovation types and complex strategies combining multiple innovation dimensions including product, process, marketing, and organizational innovations. Their findings suggest that firms pursuing complex innovation strategies often achieve superior performance outcomes, though success depends on organizational capabilities and environmental conditions. This complexity perspective aligns with Franco's [1] emphasis on the multifaceted nature of innovation-driven competitiveness in contemporary business environments.

The manufacturing sector provides particularly clear evidence of innovation's competitive impact. Studies by Bayraktar [9-11] demonstrate that firms implementing systematic innovation strategies in manufacturing contexts achieve significant improvements in business performance, including enhanced productivity, quality improvements, and market expansion. Riyadi and Sumardi [12] specifically examine manufacturing firms in developing economy environments, finding that innovation strategy significantly enhances business competitiveness even under resource constraints typical of emerging markets.

Types of Innovation and Competitive Advantage

Innovation manifests in multiple forms, each contributing differently to competitive advantage [7]. Product innovation involves introducing new or significantly im-

proved goods or services, while process innovation focuses on implementing new or improved production or delivery methods. Marketing innovation encompasses novel approaches to product design, packaging, promotion, and pricing, as examined by Ungerman [13] in their study of marketing innovation's impact on enterprise competitiveness in Industry 4.0 contexts.

Organizational innovation, though less visible than product innovation, plays a crucial role in competitive positioning. Salfore [14] demonstrate that business model innovation significantly affects firm performance among manufacturing SMEs, enabling companies to create and capture value through novel configurations of resources, processes, and partnerships. This finding aligns with research by Srisathan [15] showing that open innovation strategies facilitate collaboration-based business model innovation, particularly among multigenerational entrepreneurs.

The relationship between innovation and competitive advantage is mediated by various organizational capabilities. Ferreira [16] identify dynamic capabilities as critical mediators, with organizational learning capability moderating the relationship between innovation and firm performance. Similarly, Wongsansukcharoen and Thaweepaiboonwong [17] find that innovations in human resource practices enhance innovation capabilities, which in turn strengthen competitive advantage among Thai SMEs. These findings underscore that innovation's competitive impact depends not only on technological advancement but also on complementary organizational capabilities.

Absorptive Capacity and Innovation

A firm's ability to recognize, assimilate, and apply external knowledge, termed absorptive capacity, fundamentally influences innovation outcomes [7]. Algarni [18] differentiate between potential absorptive capacity (the ability to acquire and assimilate external knowledge) and realized absorptive capacity (the ability to transform and exploit knowledge). Their research reveals that these two dimensions have differential effects on imitation versus innovation strategies, with realized absorptive capacity more strongly predicting sustained competitive advantage through genuine innovation rather than mere imitation.

The Chilean context studied by Carrasco-Carvajal [19] demonstrates that absorptive capacity works synergistically with innovation strategy and open innovation practices to enhance SME performance. Firms with stronger absorptive capacity better leverage external knowledge sources including universities, research institutions, and industry partners, translating collaborative relationships into tangible competitive advantages. This finding is particularly relevant for emerging markets where firms often must compensate for limited internal R&D resources through effective external knowledge acquisition.

Environmental Turbulence and Innovation

The external environment significantly shapes innovation strategy effectiveness [1]. Celtekligil and Adigüzel [20] analyze how technological turbulence moderates the relationship between innovation strategy and competitive capabilities, finding that firms operating in highly turbulent environments derive greater competitive benefits from proactive innovation strategies. Similarly, Cheah [21] demonstrate that industry turbulence influences how opportunity discovery translates into innovation outcomes, with different effects observed between do-it-yourself laboratories and public research institutes.

Competition intensity represents another critical environmental factor. Huang's [22] examination of Chinese manufacturing firms reveals complex relationships between competition, innovation efficiency, and firm performance. Moderate competition stimulates innovation and performance improvements, while excessive competition may reduce innovation efficiency as firms struggle to appropriate returns from innovation investments. This inverted U-shaped relationship suggests that optimal competitive intensity exists for maximizing innovation's performance benefits.

Open Innovation and Collaborative Strategies

The open innovation paradigm, which emphasizes leveraging external knowledge sources and collaborative partnerships, has gained prominence as firms recognize limitations of closed internal R&D models [1, 7]. Bigliardi [23] find that open innovation positively influences firm performance across multiple dimensions, enabling companies to access complementary capabilities, share innovation risks, and accelerate time-to-market for new products and services.

Social capital plays a crucial role in facilitating open innovation benefits. Cappiello [24] demonstrate that

networked firms with stronger social capital achieve superior innovation outcomes and enhanced competitiveness. Social capital facilitates knowledge transfer, reduces transaction costs in collaborative arrangements, and enables firms to access resources and capabilities beyond their organizational boundaries. This is particularly important for SMEs that must leverage external networks to compensate for limited internal resources.

Sustainability and Green Innovation

Sustainability-oriented innovation has emerged as both a competitive necessity and opportunity in contemporary business environments [1]. Hermundsdottir and Aspelund's [25] comprehensive review reveals that sustainability innovations can enhance firm competitiveness through multiple mechanisms including cost reduction, differentiation, reputation enhancement, and regulatory compliance. Borowski's [26] study of companies using bamboo illustrates how innovation strategies built around sustainable materials can create competitive advantage in environmentally conscious markets.

Green innovation extends beyond environmental compliance to encompass strategic repositioning around sustainability principles. Sana's [27] research on price competition between green and non-green products demonstrates that corporate social responsibility commitments integrated with innovation strategies can enhance competitive positioning, particularly as consumer preferences shift toward environmentally responsible offerings. The integration of greenhouse gas cost considerations into production and pricing decisions, as examined in Sana's [28] subsequent work, further illustrates how environmental factors are becoming central to innovation strategy formulation.

Innovation Strategy in SMEs

Small and medium-sized enterprises face distinct challenges and opportunities in innovation strategy implementation [7]. Kiveu [29] examine Kenyan manufacturing SMEs, finding that innovation significantly affects firm competitiveness but that SMEs must carefully manage resource allocation given their limited financial and human capital. Lestari [30] identify specific antecedents and consequences of innovation and business strategy for SME performance and competitive advantage, emphasizing that successful innovation in SMEs requires alignment between strategy, organizational culture, and resource availability.

The impact of innovation on SME competitiveness extends across multiple performance dimensions. Nimfa [31] demonstrate that innovation-driven competitive advantage enhances product quality, contributing to sustainable growth among SMEs. Vijayakumar and Chandrasekar [32] find that commercial capabilities moderate the relationship between innovative capability and firm performance in manufacturing micro, small, and medium enterprises, suggesting that innovation must be complemented by market-facing capabilities to translate technical advances into competitive success.

Innovation and Competitiveness in Developing Economies

Developing economy contexts present unique challenges for innovation and competitiveness [1]. Farida and Setiawan [33] examine the role of performance and innovation in enabling business strategies to create competitive advantage, finding that innovation serves as a critical mediator in resource-constrained environments. Tali [34] empirical analysis reveals that innovation-based competitive advantage significantly impacts product quality and sustainable growth among SMEs in emerging markets, despite infrastructure and institutional limitations.

The relationship between innovation and competitiveness in developing economies is influenced by institutional factors. Ikpe's [35] study of Nigerian firms and Edson and Muranda's [41] examination of Zimbabwean textile and clothing firms demonstrate that competitive strategies and innovation jointly determine firm performance, with institutional support structures and policy frameworks significantly moderating these relationships. Thi [42] emphasize that young firms in emerging markets can achieve sustainable competitive advantage through effective strategy implementation that prioritizes innovation despite resource constraints.

Sector-Specific Innovation Dynamics

Innovation strategies and their competitive effects vary significantly across industrial sectors [7]. Fongsuwan [43] examine the mold and die sector in Thailand's automotive industry, demonstrating how cluster development and R&D collaboration affect competi-

tive advantage in specialized manufacturing contexts. The sector-specific nature of innovation is further illustrated by research on financial services, where Muigai and Gitau [44] find that innovation strategies significantly influence financial performance in Kenya's banking industry through mechanisms distinct from manufacturing sectors.

Technology-intensive sectors demonstrate particularly strong innovation-competitiveness linkages. Gao [36] examine innovation strategies among private firms, finding that firms in high-technology industries derive greater competitive benefits from innovation investments compared to traditional sectors. However, Srivastava [37] emphasize that innovation competence influences firm-level competitiveness across diverse sectors, suggesting that while sector context matters, the fundamental relationship between innovation capability and competitive advantage transcends industry boundaries.

Strategic Orientation and Innovation

Strategic orientation fundamentally shapes how firms approach innovation and compete in their markets [1]. Yaskun [38] demonstrate that market orientation and entrepreneurial orientation jointly influence innovation effectiveness and business performance. Market-oriented firms develop innovations closely aligned with customer needs and market opportunities, while entrepreneurially oriented firms pursue more radical innovations and proactive competitive strategies. The integration of these orientations enables firms to balance exploitation of existing capabilities with exploration of new opportunities.

The complexity of innovation strategies reflects varying strategic choices firms make regarding innovation investment, risk tolerance, and competitive positioning. Jovv-Llopis and Segarra-Blasco [39] examine Spanish firms to understand the diverse roles innovation strategies play, finding that firms adopt heterogeneous approaches based on their competitive environments, resource endowments, and strategic objectives. This strategic diversity suggests that no single innovation strategy universally dominates, but rather that optimal approaches depend on firm-specific factors and environmental conditions.

Research Methodology

Research Design

This study employs a quantitative research design utilizing primary survey data collected from Tunisian SMEs across multiple sectors. The research investigates relationships between entrepreneurship, innovation strategies, and firm competitiveness through empirical analysis of cross-sectional data. This methodological approach, consistent with frameworks employed by Franco [1, 7], enables systematic examination of how entrepreneurial characteristics and innovation activities influence competitive outcomes in the Tunisian business environment.

Sample and Data Collection

The research sample comprises 200 small and medium-sized enterprises operating in Tunisia across diverse sectors including information and communication technology, agri-food processing, manufacturing, textiles, tourism, and professional services. Firms were selected using stratified random sampling to ensure representation across sectors, firm sizes, and geographic regions. Data collection occurred between January and June 2024 through structured surveys administered to senior managers and business owners responsible for strategic decision-making within their organizations.

Variables and Measures

The study examines three primary constructs: entrepreneurship characteristics, innovation strategies, and firm competitiveness. Entrepreneurship is measured through indicators including entrepreneurial self-efficacy [4], risk tolerance [3], opportunity recognition capability [40], and resource mobilization effectiveness. Innovation strategy is assessed across four dimensions: product innovation, process innovation, marketing innovation, and organizational innovation, following the framework established by Agazu and Kero [7]. Firm competitiveness is evaluated using both subjective measures (perceived competitive position relative to rivals) and objective indicators including market share changes, profitability trends, and growth rates.

Analytical Approach

Data analysis employs descriptive statistics to characterize the sample and innovation patterns, correlation analysis to examine bivariate relationships between

variables, and regression analysis to assess the impact of entrepreneurship and innovation on competitiveness while controlling for firm size, sector, and age. Additional analyses examine sector-specific patterns and the moderating effects of external factors including access to financing and institutional support mechanisms.

Empirical Findings

Entrepreneurial Characteristics of Tunisian SMEs

The survey reveals that Tunisian entrepreneurs demonstrate moderate to high levels of entrepreneurial self-efficacy, with 65% of respondents expressing confidence in their ability to identify and exploit business opportunities. This finding aligns with McGee [4] framework, which emphasizes the multidimensional nature of entrepreneurial self-efficacy. However, significant variation exists across sectors, with ICT entrepreneurs reporting substantially higher self-efficacy compared to traditional sectors such as textiles and tourism. Educational background strongly correlates with entrepreneurial confidence, with university-educated entrepreneurs showing 30% higher self-efficacy scores compared to those with secondary education or less, supporting the findings of Nowiński [6] regarding the impact of education on entrepreneurial capabilities.

Risk tolerance among Tunisian entrepreneurs reflects cautious optimism characteristic of emerging market contexts. While 58% of respondents indicate willingness to pursue innovative opportunities despite uncertainty, concerns about financial risk and market volatility remain pronounced. Access to family and social networks plays a crucial role in risk mitigation, with 72% of entrepreneurs relying on personal relationships for business advice and informal financing, consistent with research by Gelaidan and Abdullateef [5] on the importance of relational support in entrepreneurial activity.

Innovation Strategies Implementation

Analysis of innovation strategy adoption reveals heterogeneous patterns across Tunisian SMEs. Product innovation represents the most common innovation type, implemented by 62% of surveyed firms, followed by process innovation at 48%, marketing innovation at 45%, and organizational innovation at 38%. These findings align with Tavassoli and Karlsson's [8] observation that firms often pursue simple innovation strategies focusing on one or two innovation types rather than complex strategies integrating multiple innovation dimensions, as recommended by Franco [1] for achieving sustainable competitive advantage.

Sector-specific innovation patterns emerge clearly from the data. ICT firms demonstrate the highest innovation intensity, with 85% reporting product innovation activities and 68% implementing process innovations. Agri-food enterprises focus primarily on process innovations related to food safety, quality control, and supply chain efficiency, with 71% reporting such activities. Traditional manufacturing and textile firms show lower innovation rates, with only 42% implementing product innovations, suggesting sector-specific constraints on innovation capacity consistent with findings by Agazu and Kero [7].

The resource intensity of innovation activities represents a significant barrier for many firms. Among non-innovative firms, 67% cite limited financial resources as the primary constraint on innovation investment, while 54% identify lack of skilled technical personnel as a critical limitation. These findings underscore the resource challenges facing SMEs in emerging markets, where innovation must often be pursued with constrained budgets and limited access to specialized expertise [2].

Innovation and Competitive Outcomes

The empirical analysis demonstrates strong positive relationships between innovation activities and competitive performance, confirming the theoretical framework established by Franco [1]. Firms implementing systematic innovation strategies report average market share increases of 20% over the three years preceding the survey, compared to 8% growth among non-innovative firms. This finding provides robust support for the innovation-competitiveness linkage documented by Agazu and Kero [7] in their systematic literature review across diverse contexts.

Profitability effects of innovation show similar patterns. Innovative firms report average profit margin improvements of 15% over the analysis period, significantly exceeding the 6% average improvement among non-innovative competitors. These performance advantages persist after controlling for firm size, sector,

and age, indicating that innovation contributes to competitive advantage independent of structural firm characteristics. The findings align with research by Farida and Setiawan [33] demonstrating that innovation mediates the relationship between business strategies and competitive advantage.

Importantly, the competitive benefits of innovation extend beyond financial metrics to encompass strategic positioning. Innovative firms report stronger customer loyalty, enhanced brand reputation, and improved supplier relationships compared to non-innovative competitors. Fully 78% of innovative firms indicate that innovation activities strengthened their market position, while only 32% of non-innovative firms report similar competitive improvements. This suggests that innovation creates multiple pathways to competitive advantage, consistent with the multidimensional competitiveness framework emphasized by [25].

Sector-Specific Innovation Effects

The relationship between innovation and competitiveness varies significantly across sectors, as anticipated by Agazu and Kero's [7] sector-specific analysis. ICT firms demonstrate the strongest innovation-performance linkage, with innovation activities explaining approximately 45% of variance in competitive performance measures. This sector's high innovation intensity and rapid technological change create environments where innovation capabilities directly translate into competitive advantages, supporting findings by Gao [36] regarding technology-intensive industries.

Agri-food enterprises show moderate but significant innovation effects, with process innovations particularly influential on competitive outcomes. Firms implementing quality management systems, food safety protocols, and supply chain innovations report substantial competitive advantages including access to premium markets and enhanced customer trust. These findings suggest that even in traditional sectors, targeted innovation strategies can yield meaningful competitive benefits, consistent with research by [30] on innovation in diverse industry contexts.

Traditional manufacturing and textile sectors present more complex patterns. While innovation contributes positively to competitiveness, the magnitude of effects is smaller compared to ICT and agri-food sectors. This reflects both lower innovation intensity and highly competitive market conditions where innovation advantages may be quickly imitated by competitors [22]. These sector dynamics underscore the importance of continuous innovation and the challenges of sustaining competitive advantage through innovation alone, particularly in mature industries with intense competition.

Absorptive Capacity and External Knowledge

The study reveals significant variation in absorptive capacity among Tunisian SMEs, with important implications for innovation effectiveness. Firms with higher absorptive capacity, measured through indicators including employee education levels, training investments, and external collaboration activities, demonstrate substantially greater ability to translate innovation investments into competitive advantages. Specifically, high absorptive capacity firms achieve 28% greater market share growth from innovation compared to low absorptive capacity firms with similar innovation expenditures, confirming Algarni [18] findings on the differential effects of absorptive capacity dimensions.

Collaboration with universities and research centers remains limited but shows promising results where implemented. Only 23% of surveyed firms report active collaboration with academic institutions, but these firms demonstrate 35% higher innovation success rates compared to firms relying solely on internal development. This finding highlights substantial untapped potential for enhancing innovation outcomes through stronger university-industry linkages, consistent with Carrasco-Carvajal [19] emphasis on absorptive capacity and open innovation in SME contexts, and Franco's [1] call for enhanced collaborative innovation ecosystems.

Financing and Resource Constraints

Access to innovation financing emerges as a critical determinant of innovation capacity and competitive outcomes. Firms with adequate innovation financing report 42% higher innovation implementation rates compared to resource-constrained competitors. Traditional bank financing remains the primary funding source for 68% of innovative firms, though many entrepreneurs report difficulty accessing credit for innovation projects perceived as risky by financial institutions. Government support programs reach only 18% of surveyed firms, indicating significant room for ex-

panding institutional support mechanisms.

The Startup Act of 2018 shows positive but limited impact on the surveyed firms. Among eligible startups, 34% report benefiting from Startup Act provisions including tax incentives, streamlined registration procedures, and innovation grants. Beneficiary firms demonstrate significantly higher innovation rates and growth trajectories compared to non-beneficiaries, with average annual growth rates of 35% versus 18% for non-beneficiaries. However, awareness and uptake of Startup Act benefits remain constrained by administrative complexity and limited outreach, particularly outside major urban centers.

Human Capital and Innovation Capability

Human capital quality strongly influences innovation capability and competitive outcomes, supporting the theoretical perspectives advanced by Franco [1] and empirical findings by Wongsansukcharoen and Thaweepaiboonwong [17]. Firms with higher proportions of university-educated employees demonstrate 31% greater innovation intensity compared to firms relying primarily on secondary-educated workers. Technical expertise proves particularly critical, with firms employing engineers, scientists, or specialized technical personnel showing substantially higher innovation success rates. These findings underscore the importance of education and skills development for strengthening innovation capacity.

Training and skills development investments correlate positively with innovation outcomes, though training participation rates remain modest. Only 38% of surveyed firms report providing systematic employee training, while 62% rely primarily on informal on-the-job learning. Firms investing in training report 24% higher innovation implementation rates, suggesting significant returns to human capital development that remain underexploited by many Tunisian SMEs.

Institutional Environment and Policy Support

The institutional environment significantly shapes innovation capacity and competitive dynamics. Entrepreneurs identify bureaucratic complexity as a major constraint, with 71% reporting that administrative procedures impede business development and innovation activities. Regulatory uncertainty and inconsistent policy implementation further constrain innovation, particularly for firms seeking to commercialize novel products or services requiring regulatory approval.

Despite challenges, recent policy initiatives show promise for strengthening the innovation ecosystem. Beyond the Startup Act, initiatives including innovation grants, technology incubators, and export promotion programs contribute to building innovation capacity, though their reach and effectiveness vary. Firms located in innovation hubs and technology parks report 40% higher innovation rates compared to geographically isolated firms, highlighting the importance of infrastructure and agglomeration effects for innovation success [24].

Discussion

Entrepreneurship-Innovation-Competitiveness Nexus

The empirical findings confirm strong linkages between entrepreneurship, innovation, and firm competitiveness in the Tunisian context, consistent with theoretical frameworks established by Franco [1] and international evidence synthesized by Agazu and Kero [7]. Entrepreneurial characteristics including self-efficacy [4], opportunity recognition [40] and resource mobilization capability enable firms to pursue innovation strategies that strengthen competitive positioning. However, the relationship is complex and mediated by factors including absorptive capacity [18], human capital quality, and access to financial and institutional resources.

The finding that 50% of surveyed firms explicitly link their competitiveness to innovation underscores growing recognition among Tunisian entrepreneurs of innovation's strategic importance. This represents significant progress compared to historical patterns where price competition dominated strategic thinking in Tunisian business environments. The shift toward innovation-based competition reflects both increasing competitive pressures and growing awareness of innovation's potential, driven partly by policy initiatives and partly by exposure to global markets and international best practices [1].

Sectoral Heterogeneity in Innovation Effects

The substantial variation in innovation patterns and effects across sectors highlights the importance of sector-specific approaches to innovation policy and strategy, as emphasized by Agazu and Kero [7]. ICT sector

success demonstrates that Tunisian firms can achieve international competitiveness through innovation in knowledge-intensive industries, providing a model for other emerging sectors. The sector's high innovation intensity reflects both technological opportunities and favorable market conditions including growing digital adoption and government support for digital transformation.

Traditional sectors including textiles and manufacturing face greater challenges in leveraging innovation for competitive advantage, reflecting both lower technological intensity and intense international competition from low-cost producers [41]. However, examples of successful innovation in these sectors suggest pathways forward through quality upgrading, niche market positioning, and sustainable production practices. The agri-food sector's success with process innovations demonstrates that even traditional sectors can enhance competitiveness through targeted innovation strategies addressing specific market opportunities and regulatory requirements.

Resource Constraints and Innovation Barriers

The prominence of financing constraints as barriers to innovation reflects broader challenges in Tunisia's financial system, where risk-averse lending practices limit credit availability for innovative ventures [2]. The limited reach of government support programs, accessed by only 18% of surveyed firms, indicates significant gaps in the innovation support infrastructure. Expanding access to patient capital, innovation grants, and risk-sharing mechanisms represents a critical priority for strengthening innovation capacity across the business ecosystem, as recommended by Franco [1] for emerging market contexts.

Human capital constraints similarly limit innovation potential, particularly in technical domains requiring specialized expertise. While Tunisia's education system produces substantial numbers of university graduates, gaps exist between educational outcomes and business needs, particularly in applied technical skills and entrepreneurial capabilities [6]. Strengthening university-industry collaboration, expanding vocational training, and promoting technical skills development could significantly enhance innovation capacity, consistent with international evidence on human capital's role in innovation effectiveness [17].

Institutional and Policy Implications

The Startup Act represents important progress in creating supportive institutional frameworks for entrepreneurship and innovation, though implementation challenges constrain its impact. Simplifying administrative procedures, expanding awareness of available support, and strengthening implementation mechanisms could substantially increase the Act's effectiveness. More broadly, reducing bureaucratic barriers, improving regulatory clarity, and ensuring consistent policy implementation would create more favorable conditions for innovation and entrepreneurial activity [1].

The limited extent of university-industry collaboration, with only 23% of firms engaging with academic institutions, represents a significant missed opportunity. International experience demonstrates that strong university-industry linkages accelerate innovation, facilitate technology transfer, and strengthen absorptive capacity [19]. Developing mechanisms to promote collaboration including joint research projects, technology licensing, and knowledge exchange programs should be prioritized. Successful models from other emerging markets including Chile provide relevant examples for Tunisia.

Comparative Perspectives

Tunisia's innovation performance and challenges show both similarities and differences compared to other emerging markets examined in the literature [7]. Like many developing economies, Tunisian firms face resource constraints, institutional gaps, and human capital limitations that impede innovation [33, 35]. However, Tunisia's relatively strong educational system, strategic geographic position, and recent policy reforms create favorable conditions for strengthening innovation capacity. The ICT sector's success demonstrates that Tunisian firms can compete globally in knowledge-intensive industries given appropriate support and market conditions [36].

Compared to regional peers, Tunisia shows promise in entrepreneurship and innovation but faces stiff competition from established innovation hubs in the Middle East and North Africa. Countries including the United Arab Emirates, Morocco, and Egypt have made substantial investments in innovation infrastructure and ecosystem development. Tunisia's competitive advantage may lie in its human capital quality and dem-

ocratic governance structures, which can facilitate the collaborative relationships and institutional trust necessary for innovation ecosystems to flourish [1].

Sustainability and Social Considerations

While not a primary focus of this study, sustainability considerations are increasingly relevant for innovation strategy and competitiveness in Tunisia. Growing environmental awareness, international sustainability standards, and climate change pressures create both challenges and opportunities for Tunisian firms. Innovation strategies incorporating sustainability principles, as examined by [25-28] in various contexts, can enhance competitiveness through differentiation, regulatory compliance, and access to environmentally conscious markets. Tunisia's renewable energy potential and agricultural diversity provide foundations for sustainability-oriented innovation strategies.

Social dimensions of innovation and entrepreneurship also merit attention. Entrepreneurship can contribute to social inclusion, regional development, and youth employment, all critical priorities for Tunisia [2]. However, entrepreneurial opportunities and innovation capacity remain unevenly distributed across regions and demographic groups. Ensuring that innovation benefits reach beyond coastal urban centers and established enterprises requires targeted policies addressing geographic, gender, and socioeconomic disparities in entrepreneurial capacity and innovation access.

Conclusions and Recommendations

Key Findings Summary

This empirical analysis demonstrates strong positive relationships between entrepreneurship, innovation, and firm competitiveness in the Tunisian context, confirming the theoretical frameworks of Franco [1] and the empirical patterns identified by Agazu and Kero [7]. Innovative firms achieve substantial competitive advantages including 20% market share growth and 15% profit margin improvements compared to non-innovative competitors. The ICT and agri-food sectors show particularly strong innovation-competitiveness linkages, while traditional sectors face greater challenges leveraging innovation for competitive advantage. Resource constraints including limited financing and human capital gaps represent primary barriers to innovation, while institutional factors including bureaucratic complexity and limited university-industry collaboration further constrain innovation capacity.

Policy Recommendations

Based on the empirical findings and informed by international best practices [1, 7], several policy recommendations emerge for strengthening entrepreneurship, innovation, and competitiveness in Tunisia.

Expand Innovation financing: Develop diversified financing mechanisms including innovation grants, venture capital, business angel networks, and loan guarantee programs specifically targeting innovative ventures. Strengthen the Startup Act's financial provisions and extend support mechanisms to established SMEs pursuing innovation strategies. These measures address the critical financing constraints identified by 67% of non-innovative firms.

Strengthen University-industry linkages: Create incentive structures and institutional mechanisms to promote collaboration between businesses and academic institutions [19]. Establish technology transfer offices, joint research programs, and innovation vouchers enabling SMEs to access university expertise and facilities. This recommendation addresses the significant gap identified, with only 23% of firms currently engaging in such collaborations.

Reduce administrative barriers: Streamline bureaucratic procedures, improve regulatory clarity, and ensure consistent policy implementation to create more favorable conditions for entrepreneurship and innovation. Digitize administrative processes and establish one-stop shops for business registration and regulatory compliance. This addresses concerns raised by 71% of entrepreneurs regarding administrative impediments.

Invest in human capital: Expand technical education and vocational training aligned with business needs [6,17]. Promote entrepreneurship education at universities and develop programs building entrepreneurial capabilities among youth. Support continuous learning and skills upgrading for existing workforce to enhance the 31% innovation intensity advantage observed among firms with university-educated employees.

Develop regional innovation ecosystems: Extend innovation support infrastructure beyond major urban centers through regional technology parks, incubators, and innovation hubs. Promote cluster develop-

ment in sectors with competitive potential including renewable energy, digital services, and specialized manufacturing [24, 43].

Enhance export support: Strengthen programs helping innovative firms access international markets through export promotion, market intelligence, and international partnership facilitation. Target support toward high-value sectors where Tunisia can build competitive advantages through innovation.

Managerial Implications

For business leaders and entrepreneurs, the findings suggest several strategic priorities informed by Franco's [1] sustainability framework and [7] competitiveness analysis.

Prioritize innovation investment: Recognize innovation as a strategic imperative for competitive success and allocate resources accordingly despite resource constraints. Even modest innovation investments can yield significant competitive advantages if strategically focused, as demonstrated by the 20% market share growth among innovative firms.

Develop absorptive capacity: Invest in employee education, training, and external collaboration to strengthen the organization's ability to acquire, assimilate, and apply external knowledge [18]. Build relationships with universities, research centers, and industry partners to access the 35% higher innovation success rates observed among collaborating firms.

Adopt integrated innovation approaches: Consider multiple innovation dimensions including product, process, marketing, and organizational innovations rather than focusing narrowly on single innovation types [8]. Complex innovation strategies often yield superior competitive outcomes, as supported by the multidimensional performance improvements observed in this study.

Leverage available support: Actively seek and utilize government support programs including Startup Act benefits, innovation grants, and technical assistance services. Engage with industry associations and business networks to access information and support, particularly given the 35% versus 18% growth differential between beneficiaries and non-beneficiaries.

Focus on continuous improvement: Recognize that sustaining competitive advantage requires ongoing innovation rather than one-time efforts [40]. Develop organizational cultures and processes supporting continuous learning and improvement, particularly in rapidly evolving sectors like ICT where 45% of competitive performance variance is explained by innovation activities.

Limitations and Future Research

This study has several limitations that suggest directions for future research. The cross-sectional design limits ability to establish definitive causal relationships between entrepreneurship, innovation, and competitiveness. Longitudinal research tracking firms over time would strengthen understanding of how innovation strategies evolve and their long-term competitive effects, as recommended by [1]. The sample, while substantial, represents only a fraction of Tunisia's business population, and findings may not fully generalize across all sectors and regions.

Future research should examine specific mechanisms through which innovation creates competitive advantage, including detailed case studies of successful innovative firms. Comparative research examining Tunisia relative to other emerging markets [33, 42] would illuminate contextual factors shaping innovation-competitiveness relationships. Investigation of sustainability-oriented innovation strategies represents an important direction as environmental considerations become increasingly central to competitive dynamics [25,28]. Finally, research examining policy effectiveness and implementation challenges would inform efforts to strengthen Tunisia's innovation ecosystem.

Concluding Remarks

Tunisia stands at a critical juncture in its economic development trajectory. The country possesses substantial human capital, strategic geographic positioning, and growing entrepreneurial dynamism that provide foundations for innovation-led competitiveness [1]. Recent policy reforms including the Startup Act demonstrate commitment to strengthening the entrepreneurial ecosystem. However, realizing Tunisia's innovation potential requires sustained effort addressing resource constraints, institutional gaps, and coordination challenges that currently limit innovation capacity.

The empirical evidence presented demonstrates that innovation strategies can substantially enhance firm competitiveness even in challenging emerging mar-

ket contexts, confirming the theoretical frameworks of Franco [1] and the empirical patterns documented by Agazu and Kero [7]. Tunisian firms that successfully implement innovation strategies achieve meaningful competitive advantages including market share growth, profitability improvements, and strengthened strategic positioning. The success of the ICT sector provides proof of concept that Tunisian enterprises can compete globally through innovation and knowledge-intensive activities.

Achieving broad-based innovation-led competitiveness requires coordinated action by multiple stakeholders. Government must continue strengthening institutional frameworks, reducing barriers, and providing targeted support for innovation and entrepreneurship [2]. Educational institutions must better align with business needs and strengthen knowledge transfer mechanisms [6]. Financial institutions must develop capabilities and risk tolerance for supporting innovative ventures. Businesse themselves must prioritize innovation despite resource constraints and short-term pressures.

The path forward is challenging but achievable. Tunisia's democratic governance structures, educated population, and entrepreneurial energy provide strong foundations. With sustained commitment to innovation-supportive policies, continued ecosystem development, and strategic focus on sectors offering competitive potential, Tunisia can successfully navigate the transition toward innovation-based competitiveness. This study's findings provide empirical foundation for evidence-based policy and strategic decision-making supporting that critical transition.

References

1. Franco, Mário. "Entrepreneurship, competitiveness and innovation." Sustainability 12, no. 16 (2020): 6576.
2. Malchow-Møller, Nikolaj, Bertel Schjerning, and Anders Sørensen. "Entrepreneurship, job creation and wage growth." Small Business Economics 36, no. 1 (2011): 15-32.
3. Knight, Frank. Risk, uncertainty and profit. Bonhopai Books, 2025.
4. McGee, Jeffrey E., Mark Peterson, Stephen L. Mueller, and Jennifer M. Sequeira. "Entrepreneurial self–efficacy: Refining the measure." Entrepreneurship theory and Practice 33, no. 4 (2009): 965-988.
5. Gelaidan, Hamid Mahmood, and Aliyu Olayemi Abdullateef. "Entrepreneurial intentions of business students in Malaysia: The role of self-confidence, educational and relation support." Journal of small business and Enterprise Development 24, no. 1 (2017): 54-67.
6. Nowiński, Witold, Mohamed Yacine Haddoud, Drahoslav Lančarič, Dana Egerová, and Csilla Czeglédi. "The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries." Studies in Higher Education 44, no. 2 (2019): 361-379.
7. Agazu, Biniam Getnet, and Chalchissa Amentie Kero. "Innovation strategy and firm competitiveness: a systematic literature review." Journal of innovation and entrepreneurship 13, no. 1 (2024): 24.
8. Tavassoli, Sam, and Charlie Karlsson. "Innovation strategies and firm performance: Simple or complex strategies?." Economics of Innovation and New Technology 25, no. 7 (2016): 631-650.
9. Bayraktar, Cahit Ali, Gulsah Hancerliogullari, Basak Cetinguc, and Fethi Calisir. "Competitive strategies, innovation, and firm performance: an empirical study in a developing economy environment." Technology Analysis & Strategic Management 29, no. 1 (2017): 38-52.
10. Karabulut, Ahu Tuğba. "Effects of innovation strategy on firm performance: a study conducted on manufacturing firms in Turkey." Procedia-Social and Behavioral Sciences 195 (2015): 1338-1347.
11. Koyluoglu, Selcuk, and Mesut Dogan. "The impact of innovation strategies on business performance: practices in high technology companies in Turkey." (2021).
12. Riyadi, Slamet, and Sumardi Sumardi. "The impact of innovation strategy toward business competitiveness of manufacturing industry in Surabaya, Indonesia." Hasanuddin Economics and Business Review (2017): 83-89.

13. Ungerman, Otakar, Jaroslava Dedkova, and Katerina Gurinova. “The impact of marketing innovation on the competitiveness of enterprises in the context of industry 4.0.” Journal of competitiveness 10, no. 2 (2018): 132.
14. Salfore, Natnael, Matiwos Ensermu, and Zerihun Kinde. “Business model innovation and firm performance: Evidence from manufacturing SMEs.” Heliyon 9, no. 6 (2023).
15. Srisathan, Wutthiya A., Chavis Ketkaew, Wuttiwat Jitjak, Sirinthip Ngiwphrom, and Phaninee Naruetharadhol. “Open innovation as a strategy for collaboration-based business model innovation: The moderating effect among multigenerational entrepreneurs.” PloS one 17, no. 6 (2022): e0265025.
16. Ferreira, Jorge, Sofia Cardim, and Arnaldo Coelho. “Dynamic capabilities and mediating effects of innovation on the competitive advantage and firm’s performance: The moderating role of organizational learning capability.” Journal of the Knowledge Economy 12, no. 2 (2021): 620-644.
17. Wongsansukcharoen, Jedsada, and Jutamard Thaweepaiboonwong. “Effect of innovations in human resource practices, innovation capabilities, and competitive advantage on small and medium enterprises’ performance in Thailand.” European research on management and business economics 29, no. 1 (2023): 100210.
18. Algarni, Mohammad A., Murad Ali, Antonio L. Leal-Rodríguez, and Gema Albort-Morant. “The differential effects of potential and realized absorptive capacity on imitation and innovation strategies, and its impact on sustained competitive advantage.” Journal of Business Research 158 (2023): 113674.
19. Carrasco-Carvajal, Omar, Domingo García-Pérez-de-Lema, and Mauricio Castillo-Vergara. “Impact of innovation strategy, absorptive capacity, and open innovation on SME performance: A Chilean case study.” Journal of Open Innovation: Technology, Market, and Complexity 9, no. 2 (2023): 100065.
20. Celtekligil, Kudret, and Zafer Adiguzel. “Analysis of the effect of innovation strategy and technological turbulence on competitive capabilities and organizational innovativeness in technology firms.” Procedia Computer Science 158 (2019): 772-780.
21. Cheah, Sarah Lai-Yin, H. O. Yuen-Ping, and L. I. Shiyu. “How the effect of opportunity discovery on innovation outcome differs between DIY laboratories and public research institutes: The role of industry turbulence and knowledge generation in the case of Singapore.” Technological Forecasting and Social Change 160 (2020): 120250.
22. Huang, Xunjiang. “The roles of competition on innovation efficiency and firm performance: Evidence from the Chinese manufacturing industry.” European research on management and business economics 29, no. 1 (2023): 100201.
23. Bigliardi, Barbara, Giovanna Ferraro, Serena Filippelli, and Francesco Galati. “The influence of open innovation on firm performance.” International Journal of Engineering Business Management 12 (2020): 1847979020969545.
24. Cappiello, Giuseppe, Federica Giordani, and Marco Visentin. “Social capital and its effect on networked firm innovation and competitiveness.” Industrial Marketing Management 89 (2020): 422-430.
25. Hermundsdottir, Fanny, and Arild Aspelund. “Sustainability innovations and firm competitiveness: A review.” Journal of Cleaner Production 280 (2021): 124715.
26. Borowski, Piotr F. “Innovation strategy on the example of companies using bamboo.” Journal of innovation and entrepreneurship 10, no. 1 (2021): 3.
27. Sana, Shib Sankar. “Price competition between green and non green products under corporate social responsible firm.” Journal of retailing and consumer services 55 (2020): 102118.
28. Sana, Shib Sankar. “The effects of green house gas costs on optimal pricing and production lotsize in an imperfect production system.” RAIRO-Operations Research 57, no. 4 (2023): 2209-2230.
29. Kiveu, Mary Nafula, Mary Namusonge, and Stephen Muathe. “Effect of innovation on firm competitiveness: the case of manufacturing SMEs in Nairobi County, Kenya.” International Journal of Business Innovation and Research 18, no. 3 (2019): 307-327.

30. Lestari, Setyani Dwi, Farah Margaretha Leon, Sri Widyastuti, Nora Andira Brabo, and Aditya Halim Perdana Kusuma Putra. “Antecedents and consequences of innovation and business strategy on performance and competitive advantage of SMEs.” The journal of Asian finance, economics and business 7, no. 6 (2020): 365-378.
31. Nimfa, Danjuma Tali, Md Uzir Hossain Uzir, Livinus Nkuri Maimako, Bilal Eneizan, Ahmad Shaharudin Abdul Latiff, and Sazali Abdul Wahab. “The impact of innovation competitive advantage on product quality for sustainable growth among SMES: An empirical analysis.” International Journal of Business Science & Applied Management (IJBSAM) 16, no. 3 (2021): 39-62.
32. Vijayakumar, Vivek, and Kaliyaperumal Chandrasekar. “Moderating role of commercial capabilities on firm performance through innovative capability in manufacturing Msmes.” International Journal of Professional Business Review: Int. J. Prof. Bus. Rev. 7, no. 3 (2022): 8.
33. Farida, Ida, and Doddy Setiawan. “Business strategies and competitive advantage: the role of performance and innovation.” Journal of open innovation: Technology, market, and complexity 8, no. 3 (2022): 163.
34. Nimfa, Danjuma Tali, Md Uzir Hossain Uzir, Livinus Nkuri Maimako, Bilal Eneizan, Ahmad Shaharudin Abdul Latiff, and Sazali Abdul Wahab. “The impact of innovation competitive advantage on product quality for sustainable growth among SMES: An empirical analysis.” International Journal of Business Science & Applied Management (IJBSAM) 16, no. 3 (2021): 39-62.
35. Ikpe, Eyibio Okon, Ehugbo Ikechukwu, Abam Koton Okri, B. O. O. Oko, and O. Tabi. “Innovation strategies and firm performance: A study of Femine Mill Nigeria, Calabar.” International Journal of Social Science and Human Research 4, no. 10 (2021): 2855.
36. Gao, Huasheng, Po-Hsuan Hsu, and Kai Li. “Innovation strategy of private firms.” Journal of financial and quantitative analysis 53, no. 1 (2018): 1-32.
37. Srivastava, Saurabh, Abid Sultan, and Nasreen Chashti. “Influence of innovation competence on firm level competitiveness: an exploratory study.” Asia Pacific Journal of Innovation and Entrepreneurship 11, no. 1 (2017): 63-75.
38. Yaskun, Mohammad, Sudarmiatin Sudarmiatin, Agus Hermawan, and Wening Patmi Rahayu. “The effect of market orientation, entrepreneurial orientation, innovation and competitive advantage on business performance of indonesian MSMEs.” International Journal of Professional Business Review: Int. J. Prof. Bus. Rev. 8, no. 4 (2023): 39.
39. Jové-Llopis, Elisenda, and Agustí Segarra-Blasco. “What is the role of innovation strategies? Evidence from Spanish firms.” Evidence from Spanish Firms (September 30, 2016). XREAP2016-03 (2016).
40. Moroz, Peter W., and Kevin Hindle. “Entrepreneurship as a process: Toward harmonizing multiple perspectives.” Entrepreneurship theory and Practice 36, no. 4 (2012): 781-818.
41. Edson, Gwangwava, and Zororo Muranda. “The effect of competitive strategies and innovation on firm performance: A study of Zimbabwean textile and clothing firms.” Arabian Journal of Business and Management 11, no. 8 (2021): 53.
42. Thi, Uyen Nguyen, Manh Hoang Van, Imran Mahmud, and Linh Vu Thi Thuy. “Innovation and the sustainable competitive advantage of young firms: A strategy implementation approach.” Sustainability 15, no. 13 (2023): 10555.
43. Fongsuwan, Wanno, Wawmayura Chamsuk, Kanjana Tawinunt, Sirorath Tiengtavaj, Suwaj Dansomboon, and Josu Takala. “Cluster and R&D affecting the competitive advantage of the mould and die sector in the Thai automotive industry.” (2017).
44. Muigai, Robert Gitau, and Sarah Njeri Gitau. “Effect of innovation strategies on financial performance of the banking industry in Kenya.” European Journal of Economic and Financial Research (2018).

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