



Identifying factors affecting the internationalization process of digital startups in Iran

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Abstract

Background and Objective: In recent decades, digital transformations and globalization have created novel opportunities for digital startups to expand beyond national borders. In Iran, despite the remarkable growth of the startup ecosystem and a young, talented human resource pool, the internationalization process of these companies faces multifaceted challenges, including economic and political sanctions, financial restrictions, and weak international networks. These barriers threaten the success of startups in global markets and underscore the need for a systematic analysis of influencing factors. The objective of this research is to identify and model key factors affecting the internationalization process of Iranian digital startups, focusing on barriers, opportunities, and interrelationships, to provide a practical conceptual framework for stakeholders such as policymakers, investors, and entrepreneurs.

Methodology: This study employs a mixed-methods qualitative-quantitative approach. In the qualitative phase, semi-structured interviews were conducted with 24 experts from Iran's startup ecosystem (using snowball sampling until saturation), identifying influencing factors and categorizing them into 6 dimensions and 41 components via thematic analysis (using MaxQDA software). In the quantitative phase, inter-dimensional relationships were analyzed using Interpretive Structural Modeling (ISM) and a self-interaction matrix, with model stability assessed through MICMAC analysis.

Results and Findings: The findings reveal six main dimensions: strategic and business model, marketing and customer interaction, cultural and international, infrastructural and legal, human resources and team, and supportive and financial. Marketing and cultural factors rank at the first level (linkage and vital), infrastructural and human at the second (autonomous), and financial at the third (independent). The ISM model emphasizes that successful internationalization requires a focus on cultural adaptation and marketing strategies, while financial and infrastructural supports play a facilitating role. The results urge policymakers to strengthen international networks and cultural empowerment, offering suggestions for future research such as comparative analyses and the role of emerging technologies. This model provides a practical framework to accelerate the internationalization of Iranian startups.

Keywords: Digital Entrepreneurship, Digital Start-Ups, Internationalization, Interpretive Structural Modeling, Thematic Analysis, Iran.

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Extended abstract

Introduction

Globalization and digital technological advancements have opened new avenues for startups to venture beyond national borders (Knight & Cavusgil, 2004; Coviello, 2006). Digital startups, key players in the global economy, utilize information and communication technologies to internationalize faster, cheaper, and more flexibly than traditional firms. These resource-limited entities adopt innovative models, redefining global entry patterns (Giones & Brem, 2017). While internationalization research traditionally targets SMEs or MNEs, digital startups in developing economies like Iran present fresh challenges and prospects (Dana & Ramadani, 2015). Their scalability, digital reliance, novel business models, and innovation focus demand tailored modeling (Zahra & George, 2002; Lichtenthaler, 2011).

Iran's digital startup scene has surged, fueled by a youthful, educated populace and tech potential. Yet, internationalization is hindered by sanctions, financial curbs, investment shortages, knowledge transfer issues, weak legal supports, and limited networks (Towfighi, 2020). Cultural-social barriers often derail entries or partnerships (Bengtsson & Kock, 2000). As global competition rises and digital demands grow, nations enact startup support policies (Acs et al., 2014). Iran, however, faces policy gaps in institutions, funding, and global ties. Identifying influencing factors is vital for better decisions and policies. This research systematically probes barriers, opportunities, and success enablers for Iranian digital startups' internationalization, offering insights for stakeholders like the Vice Presidency for Science and Technology, universities, parks, accelerators, investors, and entrepreneurs. It structures strategic paths and interventions for tech firms' global push. The paper spans five sections: introduction, literature review, methodology, analysis/findings, and conclusions/recommendations.

Entrepreneurship theory views entrepreneurs as opportunity spotters organizing resources for value creation (Schumpeter, 1934; Barringer & Ireland, 2019). It entails innovation, risk, and orchestration amid uncertainties (Scarborough & Cornwall, 2019), driving growth in developing nations against unemployment and dependency. Digital entrepreneurship leverages platforms, big data, AI, and internet for scalable, low-cost models with global reach and flexible revenues (Nambisan, 2017; Ratten, 2018). Startups use CRM, analytics, digital marketing, and cloud tools for expansion (Blank & Dorf, 2012). International entrepreneurship means foreign market launches, opportunity pursuit, strategy development, and risk management across cultures and regulations (Oviatt & McDougall, 1994; Coviello, 2006). Born-global firms internationalize rapidly for market access, efficiencies, and resources (Moradian et al., 2016). Theories include Uppsala's gradual, learning-based progression via exports (Johanson & Vahlne, 1977; Thornton & Parente, 2024; Harmanci et al., 2025); network theory's relational resource access (Johanson & Mattsson, 2015); and born-global's instant orientation (Knight & Cavusgil, 2004). Suited to developed manufacturing, they falter for digital contexts in places like Iran, where laws, tech, and policies dominate (Welch & Luostarinen, 1988; Zhu & Sun, 2025).

Benefits encompass market growth and cost savings, but risks involve cultural, legal, and instability hurdles (Atio et al., 2018). Digital firms enable swift online global delivery (Wang & Li, 2021). Foreign studies (Neubert & van der Krogt, 2017; Ki et al., 2019; Juuranto, 2020; Spilka & Sobolewska, 2020; Liu et al., 2021; Dias, 2023; Aghazadeh et al., 2023; Ding, 2024; Freudenthaler & Tomasic, 2024; Ochieng, 2024; Li et al., 2025) stress capabilities, supports,

networks, and accelerators. Iranian works (HosseiniFar, 2016; Fadaei Fatabadi, 2017; Bahrami et al., 2021; Tajpour & Razavi, 2023) cover networks, success drivers, institutions, and teams. Gaps in holistic, context-specific analyses for Iranian digital startups are addressed here via mixed methods.

Methods and Material

This applied, exploratory study uses a mixed-methods design to identify and model internationalization factors for Iranian digital startups. Core question: What conceptual model outlines these factors, and how do they interrelate per mentors and active startups?

Qualitative: Literature guided semi-structured interviews with 24 experts (ecosystem pros, scholars, leaders) via snowball sampling to saturation. Piloted for validity, transcripts underwent thematic analysis (Braun & Clarke, 2006; Guest et al., 2012) in MaxQDA: familiarization, coding, theming, review, definition, reporting. This extracted 41 factors in six dimensions: infrastructural/legal, strategic/business model, marketing/customer interaction, cultural/international, human resources/team, supportive/financial. Quantitative: ISM structures relations (Warfield, 1974; Sage, 1977; Clark & Brown, 2015). Experts filled SIM with symbols (V: influences; A: influenced; X: mutual; O: none), mode-aggregated. Steps: SIM (Table 1), reachability matrices (initial/final, Tables 3-6), partitioning (Tables 7-9), MICMAC for driver-dependence (Table 10, Figure 3). Excel processed; stability checked via perturbations.

Results and Discussion

Themes yielded six dimensions, 41 sub-factors (Table 2), literature-aligned. ISM showed four-level hierarchy: Level 1 (drivers: strategic/business model, marketing/customer interaction, cultural/international); Level 2 (infrastructural/legal, human resources/team); Level 3 (supportive/financial base). Model (Figure 2) illustrates influences, finances driving indirectly. MICMAC: "Marketing/customer interaction" and "cultural/international" as linkages (high drive/dependence, intermediaries); "strategic/business model" dependent; "infrastructural/legal" and "human resources/team" autonomous (foundational); "supportive/financial" independent (key driver). Marketing/culture are systemic pivots; finances catalyze.

Aligns with Uppsala experientialism (Johanson & Vahlne, 1977) but fits digital pace, born-global speed (Knight & Cavusgil, 2004), networks (Johanson & Mattsson, 2015). Differs from developed studies (Neubert & van der Krogt, 2017; Spilka & Sobolewska, 2020) by sanction emphasis (Bahrami et al., 2021), digital mitigation (Aghazadeh et al., 2023). Echoes Iranian networks (HosseiniFar, 2016), teams (Tajpour & Razavi, 2023), but innovates via ISM prioritizing culture/marketing over resources (contra Ki et al., 2019). Cases (Snapp's infrastructure; Digikala's trust) affirm utility, spotlight policy voids.

Conclusion

The ISM model maps 41 factors in six dimensions for Iranian digital startups' internationalization. Top drivers (strategic, marketing, cultural) prioritize market alignment; bases (financial) enable. Linkages connect; autonomies foundate. Implications: Shift policies to cultural training, marketing hubs, resilient funding. Roadmap for stakeholders. Limits: Expert access via sanctions; exploratory, no large validation/comparisons. Futures: Broader samples; regional analyses; tech roles (AI, blockchain); comparatives; SEM validation. Advances emerging digital entrepreneurship.

Declarations

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Authors' Contribution

Authors contributed equally to the conceptualization and writing of the article. All of the authors approved the content of the manuscript and agreed on all aspects of the work declaration of competing interest none.

Conflict of Interest

The authors declare no conflict of interest.

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