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DOCTORAL THESIS SUMMARY

Entrepreneurial Exploration of Dynamic Capabilities and Innovative Strategies for Start-ups

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INTRODUCTION

In the current context of a globalized and technologically advanced economy, start-ups have become an essential component of the economic ecosystem and a significant source of innovation. They play a central role in generating new jobs and stimulating economic growth, contributing to the development of emerging economies, where technological innovations are a crucial factor. Despite limited resources and the significant challenges they face, such as difficult access to funding and intense competition, start-ups have demonstrated a remarkable capacity to adapt to market changes and capitalize on emerging opportunities.

A key element for the long-term success of these companies is their dynamic capabilities, which are defined as the ability of an organization to reconfigure its internal and external resources to quickly respond to changes in the business environment. At the same time, innovative strategies play a crucial role in navigating the inherent uncertainties of the entrepreneurial landscape. These include incremental and disruptive innovation processes, which help companies remain competitive and anticipate market changes.

In Romania, the entrepreneurial ecosystem is in a continuous stage of development, supported by a combination of accelerators, incubators, and international collaborations. The COVID-19 pandemic highlighted the necessity of these innovative strategies, providing an unprecedented context in which start-ups had to rapidly adapt and adopt new operating methods to survive and thrive.

This doctoral thesis focuses on exploring dynamic capabilities and innovative strategies applied in the context of Romanian start-ups, offering an analysis of the factors that contribute to their success. The chosen theme is particularly relevant in a globalized and technological economic environment, where the capacity for innovation and adaptation are determining factors for the survival and development of start-ups.

The necessity of this theme is dictated by the complex context in which Romanian start-ups operate, an entrepreneurial environment that is continuously developing but also affected by specific challenges, such as limited access to financial resources, insufficiently developed support infrastructure, and the rapid pace of technological change. This research provides a comprehensive overview of how Romanian start-ups use dynamic capabilities and innovative strategies to address these challenges and secure long-term success.

The main objective of this work is to investigate how dynamic capabilities and innovative strategies influence the performance of start-ups in Romania. Specifically, the research explores the impact of these factors on the companies' ability to adapt to rapid changes in the business environment and to capitalize on emerging opportunities.

The specific objectives of the research include:

- ◆ Identifying the dynamic capabilities necessary for the success of start-ups in volatile and competitive contexts.
- ◆ Evaluating the innovative strategies adopted by Romanian start-ups and how these influence their economic and operational performance.
- ◆ Analyzing the impact of the COVID-19 pandemic on the survival and adaptation strategies of Romanian start-ups.
- ◆ Formulating recommendations to improve the Romanian entrepreneurial ecosystem based on the findings of the research.

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To achieve these objectives, a mixed methodology was used, combining both quantitative and qualitative methods. The quantitative research was conducted through questionnaires addressed to a representative sample of start-ups from various industries. These questionnaires aimed to collect data regarding the use of dynamic capabilities and innovative strategies, as well as the financial and operational performance of these companies.

In addition to the quantitative research, semi-structured interviews were conducted with the founders and managers of successful start-ups to gain detailed insights into the challenges and opportunities they faced. These interviews allowed for a deeper exploration of how companies reconfigured their strategies to navigate the changes induced by the pandemic and innovate in uncertain contexts.

This research is highly relevant in the current context, where start-ups are viewed as engines of innovation and economic change, but they also face significant risks and challenges. Particularly in Romania, where the entrepreneurial ecosystem is still developing, there is an urgent need to understand how start-ups can leverage dynamic capabilities and innovative strategies to increase their chances of success.

This thesis contributes to the academic literature by offering an integrated perspective on the success of start-ups in Romania, providing valuable insights for entrepreneurs, investors, and policymakers. The conclusions and recommendations resulting from this research can support the development of more effective strategies for fostering innovation and competitiveness in the long term.

CHAPTER I THE CURRENT STATE OF KNOWLEDGE ON DYNAMIC CAPABILITIES AND INNOVATIVE STRATEGIES IN START-UPS

1.1 Introduction

Start-ups have become an essential element of modern economies, contributing not only to innovation but also to job creation and stimulating economic growth, especially in emerging economies. According to the OECD (2020), start-ups play a crucial role in technological development but face significant challenges, such as lack of access to financing, intense competition, and difficulty in attracting and retaining talent. Although innovative, most start-ups have a low survival rate—less than 50% after five years of operation, according to the Global Entrepreneurship Monitor (GEM, 2021).

Dynamic capabilities (Teece, Pisano & Shuen, 1997) are defined as the organizational abilities to quickly adapt to changes in the business environment. They enable start-ups to identify and capitalize on emerging opportunities and to reconfigure themselves to remain competitive. For example, pivoting (Ries, 2011) is a technique through which start-ups adjust their strategy and business model according to market conditions.

Figure 1.1 presents the evolution of early-stage entrepreneurial activity (TEA) by region, 2001-2023, according to GEM, 2023/2024 Global Report. It shows the fluctuations in entrepreneurial activity and the importance of an innovative and dynamic approach to support the development of start-ups.

Entrepreneurial Exploration of Dynamic Capabilities and Innovative Strategies for Start-ups

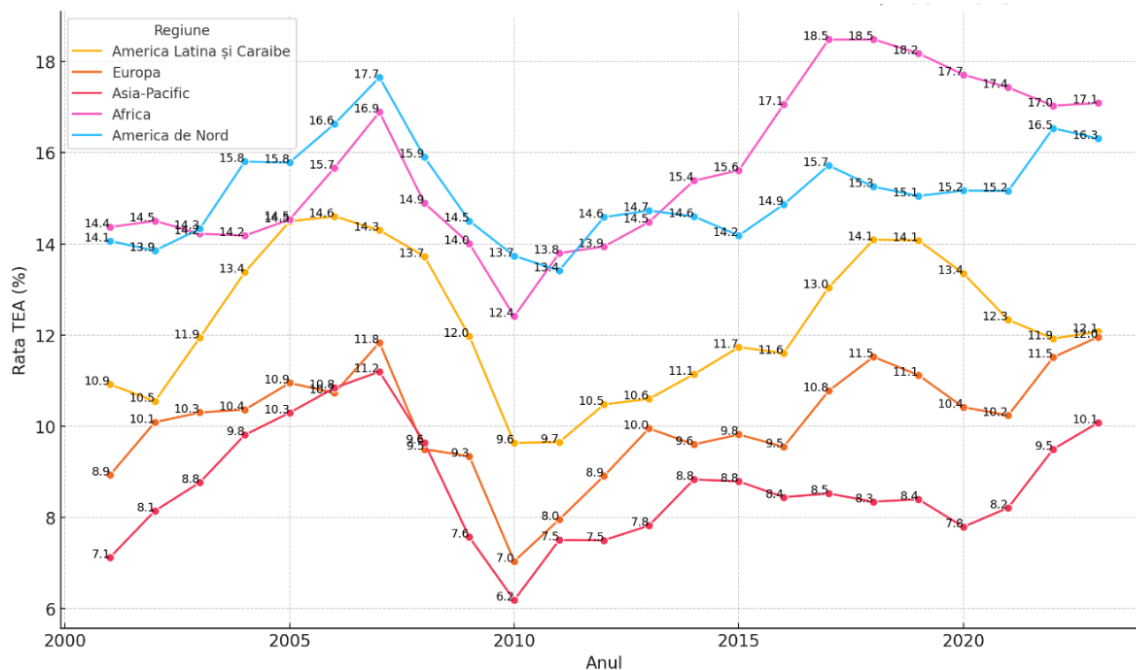


Figure 1.1 Evolution of Early-Stage Entrepreneurial Activity (TEA) - Regions, 2001-2023 [source: adapted from Global Entrepreneurship Monitor (GEM), 2023/2024 Global Report]

1.2 Dynamic Capabilities in the Context of Start-ups in Specialized Literature

The concept of dynamic capabilities was introduced by Teece, Pisano, and Shuen (1997) to explain how firms can gain and maintain a competitive advantage in dynamic and uncertain environments. Dynamic capabilities are derived from the Resource-Based View (RBV) (Barney, 1991) and refer to the ability of organizations to reconfigure internal and external resources to quickly adapt to market changes.

Start-ups, operating in volatile and competitive environments, need dynamic capabilities to survive and grow. Sensing and seizing emerging opportunities, as well as transforming resources, are essential for turning challenges into competitive advantages (Zahra & George, 2002).

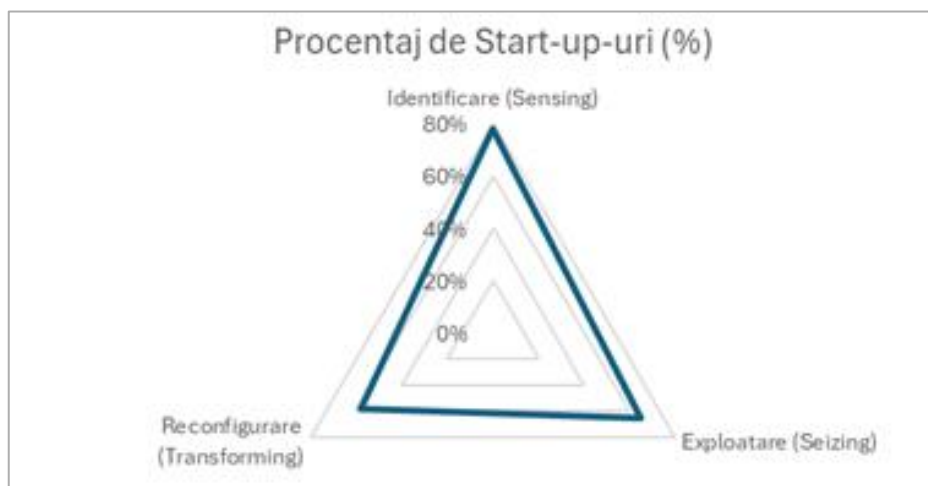


Figure 1.2 shows the percentage of start-ups adopting dynamic capabilities (GEM, 2021).

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78% of start-ups focus on identifying opportunities, 65% on exploiting them, and 58% on reconfiguring resources. These processes help start-ups to innovate and remain relevant in dynamic and competitive markets.

1.3 Innovative Strategies for Start-ups in Specialized Literature

Innovative strategies are essential for the success of start-ups, helping them create sustainable competitive advantages in a continuously changing business environment. Innovation is not only about introducing new products or services but also about innovating processes and business models. Christensen (1997) emphasized the importance of disruptive innovation, which changes the rules of the market and creates new business paradigms.

Start-ups like Tesla and Airbnb have managed to innovate not only through products but also through business models that have redefined traditional industries. Their innovations were made possible by applying effective innovative strategies, supported by emerging technologies and open collaboration with other partners in the ecosystem.

Figure 1.3 provides a comparison of the innovative strategies adopted by start-ups: 42% focus on product innovation, 37% on process innovation, and 45% on business model innovation. These strategies are essential to maintaining relevance and competitiveness in industries that are in constant transformation.

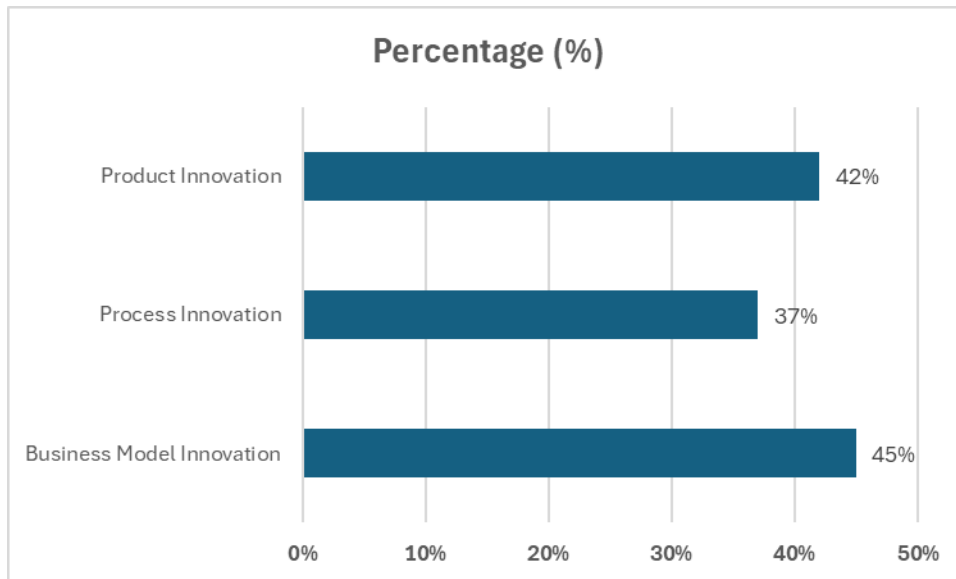


Figure 1.3 Percentage of Start-ups Adopting Innovative Strategies [source: adapted from Global Entrepreneurship Monitor (GEM), 2023/2024 Global Report]

1.4 The Evolution of Dynamic Capabilities and Innovative Strategies

In the past two decades, the concepts of dynamic capabilities and innovative strategies have undergone significant evolution both in theory and practice. Dynamic capabilities have been extended to include not only large firms but also start-ups, which operate in volatile environments where speed and adaptability are crucial for their success (Eisenhardt & Martin, 2000). On the other hand, innovative strategies have evolved to include new paradigms, such as open innovation and disruptive innovation, which help firms remain competitive in the long term (Teece, 2010).

In Figure 1.4, the evolution of academic interest in dynamic capabilities (1997-2023) reflects the increasing number of scientific publications on this topic, emphasizing the growing

importance of dynamic capabilities in strategic management literature.

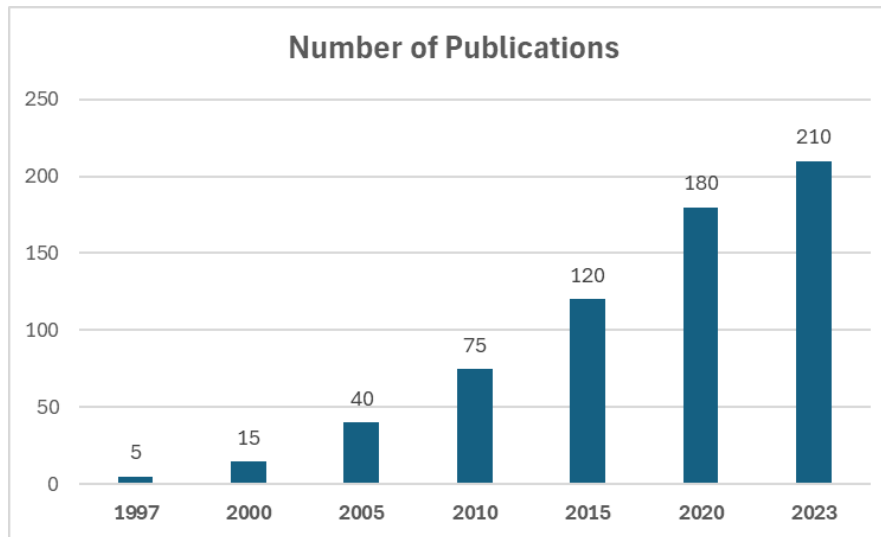


Figure 1.4 Growth of Academic Interest in Dynamic Capabilities (1997-2023) [source: adapted from Scopus, 2023]

1.5 Models and Theoretical Frameworks in the Study of Dynamic Capabilities and Innovative Strategies

The study of dynamic capabilities and innovative strategies is supported by numerous theoretical models that explain how firms, especially start-ups, can adapt and innovate in volatile business environments. One of the most influential frameworks is the Dynamic Capabilities Framework proposed by Teece, Pisano, and Shuen (1997), which highlights that organizations must develop the ability to sense opportunities, seize those opportunities, and reconfigure internal resources to remain competitive.

Another relevant model is the Resource-Based View (RBV), developed by Barney (1991), which asserts that competitive advantage arises from unique and hard-to-imitate internal resources. This theory is complemented by dynamic capabilities, which add a dimension of continuous adaptation of these resources.

Additionally, the Theory of Organizational Ambidexterity (O'Reilly and Tushman, 2004) emphasizes that successful organizations must balance the exploitation of existing resources with the exploration of new opportunities. This balance is essential for start-ups, which must combine operational efficiency with continuous innovation to remain competitive.

1.6 Value Creation through Dynamic Capabilities and Innovative Strategies

Value creation through dynamic capabilities and innovative strategies is essential for the long-term success of start-ups. Teece (2007) argued that these capabilities allow firms to reconfigure their resources to respond to emerging opportunities and external threats.

In the digital era, companies such as Microsoft and IBM have reconfigured their dynamic capabilities to remain market leaders, while start-ups like Spotify and Zoom have created new sources of value through continuous innovation and adaptability to market needs.

Figure 1.6 shows the impact of resource reconfiguration on the success of start-ups, emphasizing that firms developing dynamic capabilities have a higher probability of creating long-term value.

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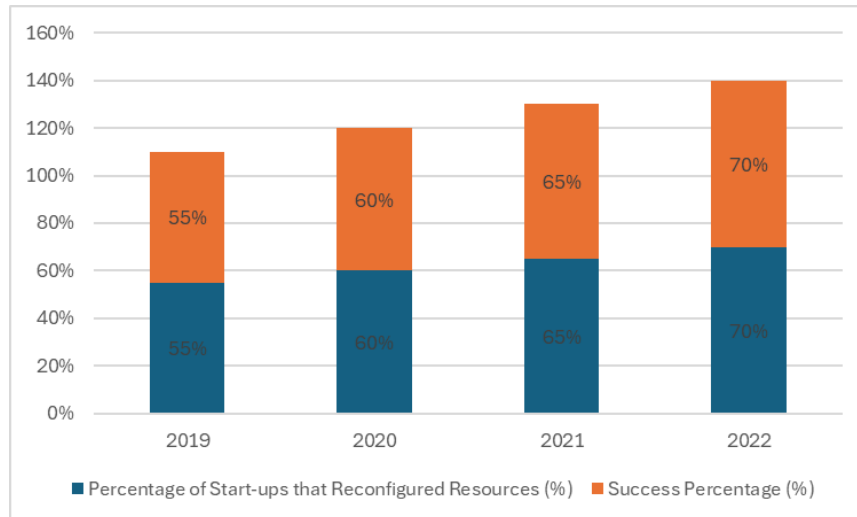


Figure 1.6 - The Impact of Resource Reconfiguration on the Success of Start-ups [source: data adapted from the OECD report (2020) and GEM (2021)]

1.7 Analysis of Specialized Literature Using VOSviewer

The analysis of the specialized literature was conducted using the VOSviewer tool to identify thematic connections between key concepts such as dynamic capabilities, innovation, and entrepreneurship. The data were collected from the Web of Science database, covering articles published between 2014 and 2024, and highlighted the importance of dynamic capabilities in the success of start-ups.

Figure 1.7 presents the "Dynamic Capabilities and Innovative Strategies" cluster, demonstrating the interconnectedness of these concepts in academic literature.

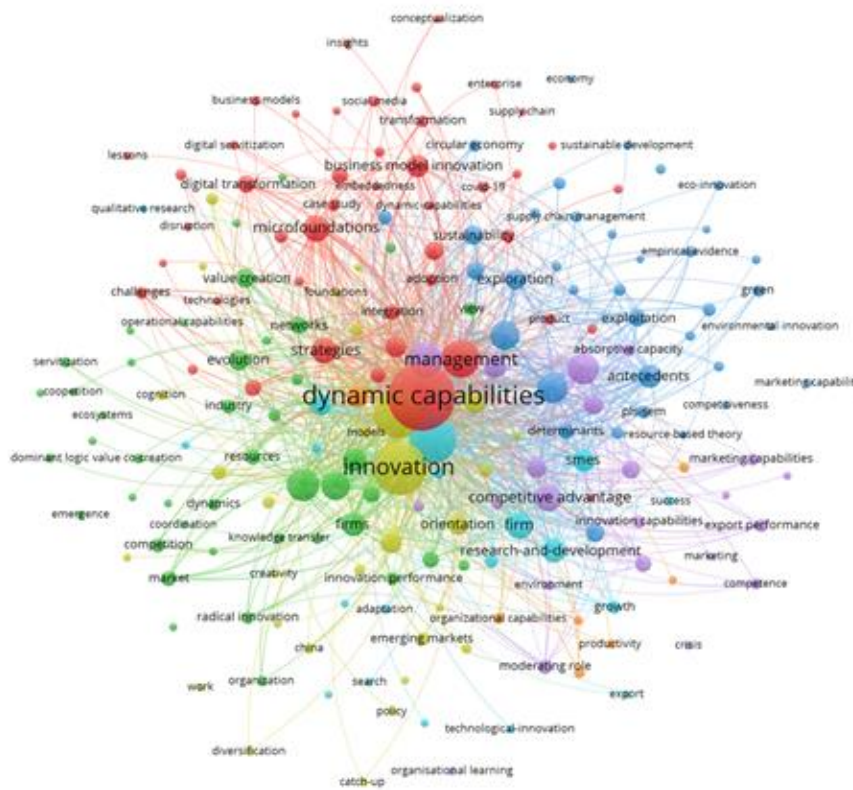


Figure 1.7 - Dynamic Capabilities and Innovative Strategies Cluster [source: VOSviewer]

output]

The cluster emphasizes that firms that develop dynamic capabilities and effectively implement innovative strategies are more likely to create a competitive advantage and remain relevant in the long term.

CHAPTER II

KEY ELEMENTS FOR THE SUCCESS OF START-UPS

2.1 Defining Start-up Success in the Era of Innovation

In the era of innovation and rapid change, the definition of a start-up's success has become much more complex than in the past. Success is no longer limited to financial gains or securing a stable market position; it now includes factors such as continuous innovation, adaptability to external changes, scalability, and social impact. In a digitized economic landscape, a successful start-up must develop the capacity for constant innovation, identify emerging opportunities, and adopt business models that can be quickly scaled globally.

Dimensions of Success

Success can be measured through a series of multidimensional indicators covering various aspects of performance and sustainability in a start-up. The most relevant dimensions of success include:

- ◆ **Financial growth:** While still a central performance indicator, in the era of innovation, it must be correlated with other strategic elements. For example, recent studies indicate that start-ups that double their revenue within the first three years have a significantly higher probability of obtaining subsequent financing and scaling their operations to global markets (CB Insights, 2023).
- ◆ **Continuous innovation:** Success depends on a start-up's ability to launch new products and services that respond to changes in market demand. A successful start-up must constantly reconfigure its offerings to remain competitive.
- ◆ **Scalability:** In a globalized world, a successful start-up is one that can rapidly expand its business model into new markets without compromising the quality of services or products. Scalability is essential for attracting investment capital and sustaining long-term growth.

Social impact and sustainability: Modern consumers and investors are increasingly concerned with the sustainability and social impact of businesses. Start-ups that integrate social responsibility practices into their business models and contribute to solving global issues, such as climate change or social inequalities, gain a long-term competitive advantage.

The figure below illustrates a comparison of the success rates of start-ups depending on the sector in which they operate.

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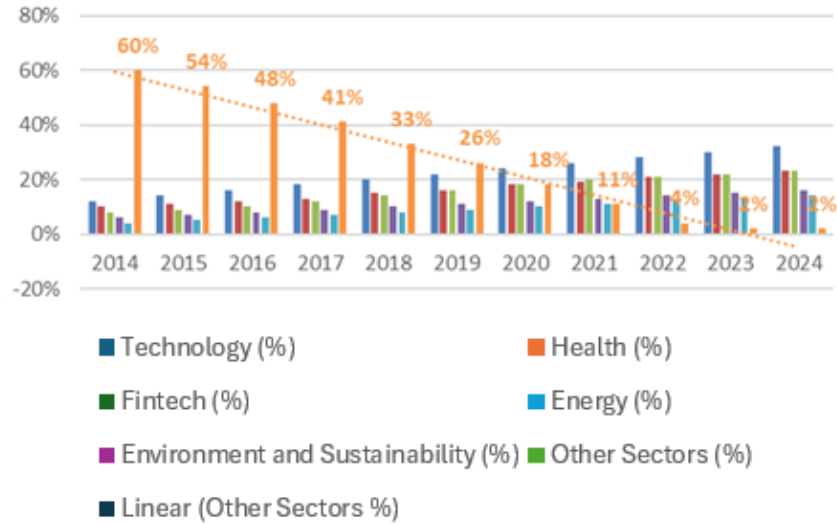


Figure 2.1 - Distribution of Annual Revenue Growth for Start-ups by Sector (2014-2024) [source: ProjectionHub, 2023; Exploding Topics, 2024]

Therefore, the success of a start-up is no longer limited to profitability but must be evaluated based on a multitude of dimensions, such as innovation, adaptability, and societal impact.

2.2 Navigating the External Landscape: Innovative Strategies and the Entrepreneurial Ecosystem

In the volatile, uncertain, and complex global environment, start-ups must develop innovative strategies to successfully navigate the external landscape, which includes economic, technological, regulatory, and market factors. As markets and technologies evolve rapidly, the success of these organizations depends on their ability to anticipate and respond quickly to external dynamics. In this regard, strategic pivoting and disruptive innovation are two of the most important strategies. The entrepreneurial ecosystem also plays a crucial role, providing access to critical resources, knowledge, and collaboration networks that can support the implementation of these innovative strategies.

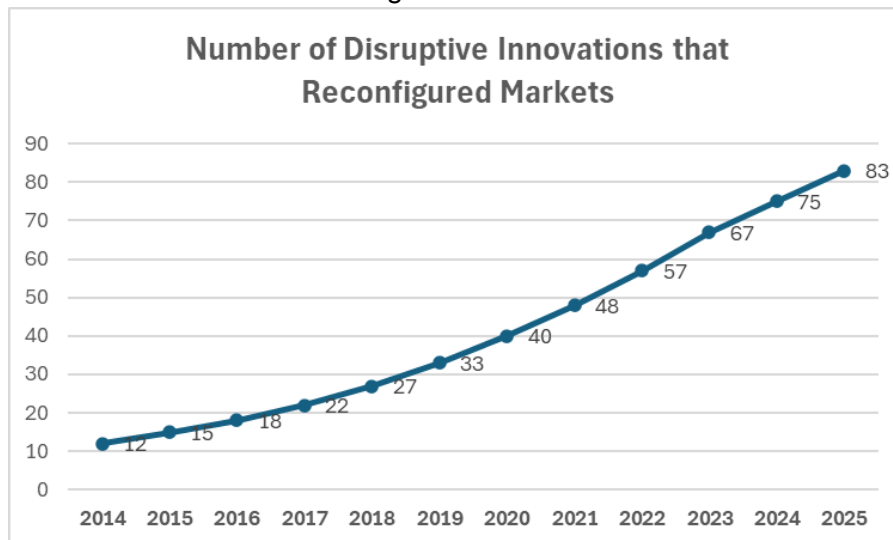


Figure 2.2 - The Evolution of the Number of Disruptive Innovations that Reconfigured Markets between 2014-2023 and Forecasts for 2024-2025 [source: CB Insights, 2023; McKinsey & Company, 2023]

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The graph illustrates the growth in the number of disruptive innovations that reconfigured markets between 2014 and 2023, with forecasts for 2024-2025. Disruptive innovations, which fundamentally change the structure of markets, have experienced significant growth in the fields of technology and healthcare, reflecting the rapid pace of technological progress and the adaptation of markets to new economic realities. During the analyzed period, the number of disruptive innovations increased from 12 in 2014 to 67 in 2023, with 83 forecasted for 2025. The sectors most affected by disruptive innovation are technology and healthcare, due to major advances in areas such as artificial intelligence, blockchain, and biotechnology.

2.3 Mobilizing Critical External Resources through Collaboration and Partnerships

Access to external resources is a determining factor for the long-term success of start-ups, especially in the early stages of development. Strategic collaborations and partnerships play an essential role in mobilizing critical resources, such as financing, technology, managerial expertise, and access to new markets. For example, strategic alliances with large companies, partnerships with universities, and collaborations with investors and accelerators are effective mechanisms through which start-ups can accelerate their development and expand their operations on a global scale.

Table 2.1 Percentage of start-ups that accessed critical external resources and types of resources/sector (2014-2024) [source: Startup Genome, 2023; CB Insights, 2023; Crunchbase, 2023]

Year	Percentage of Start-ups that Accessed Critical External Resources (%)	Types of Resources Accessed	Predominant Sectors
2014	25%	Financing (venture capital), mentorship	Technology, Fintech
2015	28%	Financing, access to international markets	Health, Technology
2016	30%	R&D collaborations, strategic partnerships	Energy, Fintech
2017	33%	Access to technological infrastructure, financing	Environment & Sustainability, Technology
2018	37%	Corporate partnerships, specialized human resources	Health, Energy
2019	41%	Access to distribution networks, legal expertise	Fintech, Technology
2020	45%	Innovation collaborations, logistical infrastructure	Health, Technology
2021	50%	Financing (investment funds), access to new technologies	Technology, Energy, Health
2022	55%	Public-private partnerships, IT resources	Environment & Sustainability, Health
2023	60%	Access to data and analytics, international partnerships	Technology, Fintech, Environment & Sustainability
2024	65% (estimate)	Access to artificial intelligence, innovation partnerships	Technology, Health, Energy

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The table shows a steady increase in the number of start-ups that have accessed critical external resources through collaborations and partnerships. In 2023, 60% of start-ups accessed resources such as data and analytics, and the forecasts for 2024 suggest an increase to 65%, with a focus on artificial intelligence and innovation collaborations in fields such as health and technology.

2.4 Strategic Integration of Dynamic Capabilities and Innovation for Competitive Advantage

Strategic integration is the process through which start-ups efficiently allocate resources and coordinate internal processes to maximize performance and achieve long-term competitive advantage. This process involves aligning resources with strategic objectives, coordinating activities across different departments, and being flexible enough to quickly adapt to external changes. Start-ups that strategically integrate dynamic capabilities with innovation succeed in building a sustainable competitive advantage, strengthening their market position.

Technology companies have allocated an increasing share of resources in the initial and implementation phases, reflecting investments in research and development. While the resources allocated to the scaling phase have decreased over time, this suggests the maturation of companies and their focus on continuous process optimization and adaptation.

Table 2.6 Strategic Integration Cycle in Technology Companies (2014-2024) [source: McKinsey & Company, 2023; Intelliswift, 2024; PartnerFleet, 2023]

Year	Initial Phase (%)	Implementation Phase (%)	Optimization Phase (%)	Scaling Phase (%)	Predominant Sectors
2014	20%	30%	25%	25%	Software technology, AI
2015	22%	32%	24%	22%	Cloud computing, Fintech
2016	25%	30%	27%	18%	Hardware technology
2017	28%	32%	24%	16%	Technology, Energy
2018	30%	35%	20%	15%	Health, Energy
2019	32%	35%	18%	15%	AI, Environment & Sustainability
2020	35%	32%	20%	13%	Technology, Fintech
2021	38%	30%	22%	10%	Technology, Health
2022	40%	28%	22%	10%	AI, Cloud Computing
2023	42%	26%	24%	8%	Technology, Fintech
2024	45% (estimation)	25% (estimation)	22% (estimation)	8% (estimation)	Technolog

The table presents the four phases of the strategic integration process — the initial phase, the implementation phase, the optimization phase, and the scaling phase — in technology companies during the period 2014-2024.

CHAPTER III

DYNAMICS AND INNOVATIONS IN START-UP ECOSYSTEMS

3.1 Emerging Entrepreneurial Ecosystems: The Architecture of Innovation

This subchapter discusses how emerging entrepreneurial ecosystems, such as Tel Aviv, Singapore, Berlin, and Bucharest, are becoming centers of innovation and technology, attracting investments and talent from around the world. Emerging ecosystems are rapidly developing, largely due to the collaboration between start-ups, investors, accelerators, universities, and governments. Although they still face challenges, such as limited access to funding and a lack of skilled human resources, emerging ecosystems have a high potential to become leaders in innovation. The key to success lies in the dynamic interaction of the involved actors and the support of governments through innovation-friendly policies.

Table 3.1 compares established ecosystems (e.g., Silicon Valley) with emerging ones (e.g., Tel Aviv, Bucharest), highlighting differences in access to funding, human resources, and infrastructure.

Table 3.1 Comparison between Established and Emerging Ecosystems [source: own synthesis derived from specialized literature]

Element	Established Ecosystems (e.g., Silicon Valley)	Emerging Ecosystems (e.g., Tel Aviv, Bucharest)
Access to funding	High, access to global capital	Moderate, growing
Government regulations	Mature, start-up friendly	In development
Availability of skilled labor	Abundant skilled local and international human resources	Significant growth in technical sectors
Technological infrastructure	Excellent, leaders in technology	Rapid development, expanding infrastructure
Support networks	Consolidated, extensive collaborations	In development, networks in formation

3.2 Growth Mechanisms in Start-up Ecosystems

This subchapter explores the key factors contributing to the growth of start-up ecosystems, including access to funding, digital infrastructure, skilled human resources, and entrepreneurial culture. Established ecosystems benefit from high availability of capital and resources, while emerging ones, such as Bucharest or Nairobi, face difficulties in attracting investors. However, these emerging markets have shown significant growth in recent years. Investments in digital infrastructure and the development of human resources are vital to the success of a start-up, and institutional support plays a crucial role in fostering innovation.

Figure 3.1 illustrates the impact of investments in digital infrastructure on start-up growth between 2018 and 2025, highlighting the importance of emerging technologies in stimulating development.

Entrepreneurial Exploration of Dynamic Capabilities and Innovative Strategies for Start-ups

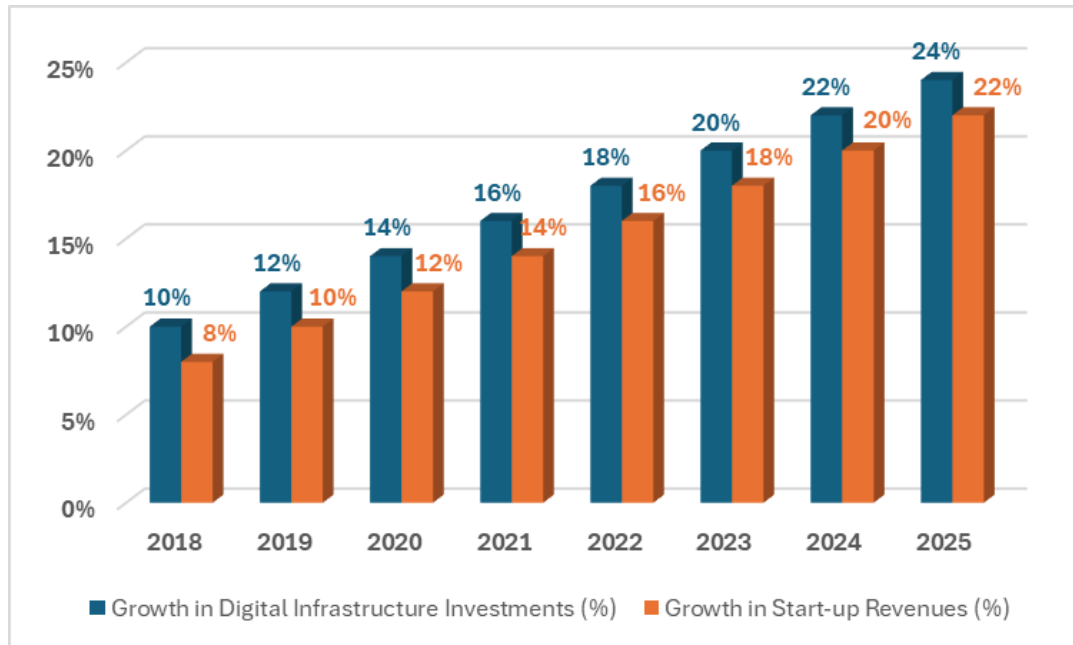


Figure 3.1 - The Impact of Digital Infrastructure Investments on Start-up Growth (2018-2025) [source: HarbourVest, 2024; World Bank Group, 2023; McKinsey & Company, 2023]

3.3 Advanced Methods for Evaluating Entrepreneurial Ecosystems

This subchapter explores advanced methods used to evaluate entrepreneurial ecosystems, focusing on the dynamics, interactions, and variables that define their success and sustainability. The evaluation involves a combination of economic, innovation, and institutional indicators. The main methods discussed are the Global Entrepreneurship Index (GEI), the Venture Capital Index (VCI), network mapping and connectivity analysis, as well as the Innovation and Scalability Index. These tools provide a detailed view of the performance of both established and emerging ecosystems, highlighting the factors that drive innovation, access to capital, and international collaboration.

The GEI Index provides a comprehensive analysis of the entrepreneurial ecosystem, focusing on the attitudes, skills, and aspirations of entrepreneurs (Global Entrepreneurship Index Report, 2024). The Venture Capital Index measures the dynamics of venture capital investments in the ecosystem, evaluating both their value and distribution (Founders Network, 2024). Network mapping is essential for understanding collaborations and resource flows within an ecosystem, offering insights into the connectivity of key actors (Carnegie Endowment for International Peace, 2023).

Figure 3.2 illustrates the evolution of GEI (Global Entrepreneurship Index) scores for Silicon Valley and Bucharest between 2020 and 2025, highlighting the significant differences in innovation and access to resources between an established and an emerging ecosystem.

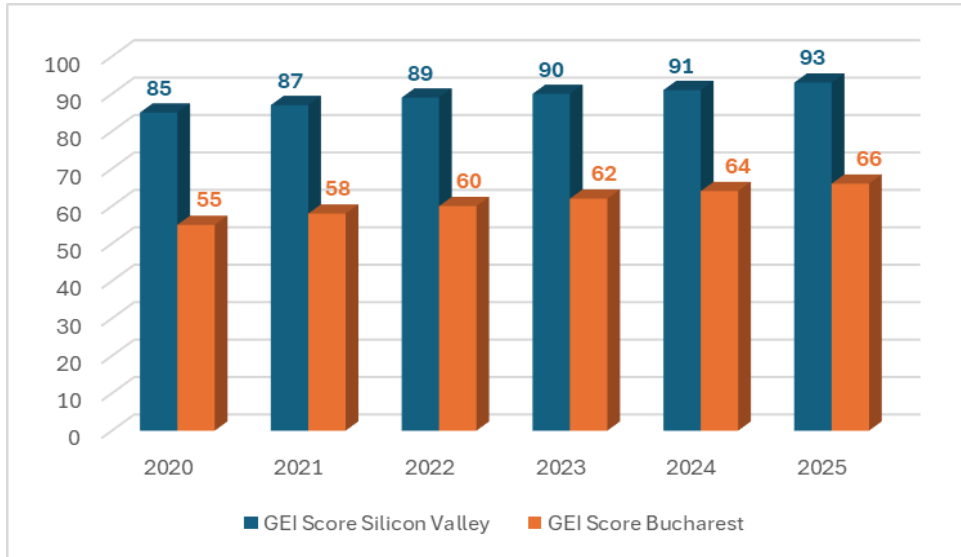


Figure 3.2 - The Evolution of GEI Scores for Silicon Valley and Bucharest Ecosystems (2020-2025)
[source: Silicon Valley Indicators, 2023; Global Entrepreneurship Index Report, 2024]

3.4 Dynamics of Success and Challenges in Modern Ecosystems

The success of modern entrepreneurial ecosystems depends on their ability to quickly adapt to market changes, attract capital and skilled human resources, and continuously innovate. This subchapter analyzes the key success factors, such as technological innovation and access to global markets, as well as the major challenges these ecosystems face, such as limited access to funding, lack of advanced digital infrastructure, and excessive bureaucracy (World Bank Group, 2023). Established ecosystems, such as Silicon Valley, dominate due to their extensive infrastructure and resources, while emerging ecosystems, such as Bucharest, show promising growth but still face significant challenges (Global Start-up Report, 2024).

Access to global markets is a critical factor for the success of start-ups, providing opportunities for expansion and diversification. Established ecosystems, such as Silicon Valley and Tel Aviv, have extensive access to global markets, while Bucharest continues to close this gap (McKinsey & Company, 2024).

Figure 3.3 presents the evolution of access to global markets for start-ups from Silicon Valley, Tel Aviv, and Bucharest between 2018 and 2025, highlighting both the gaps and the progress made by emerging ecosystems.

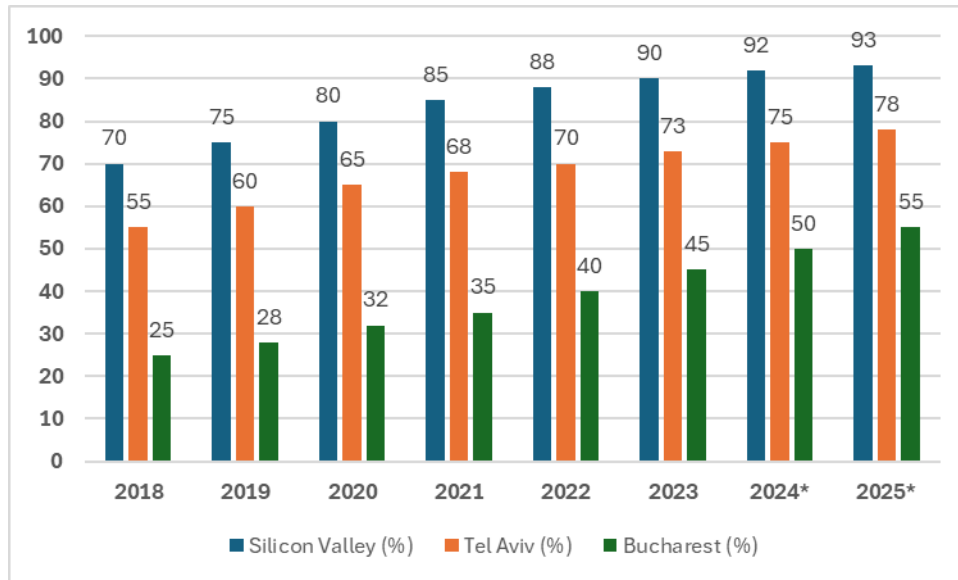


Figure 3.3 - Growth in Access to Global Markets for Start-ups in Various Ecosystems (2018-2025) [source: Carnegie Endowment for International Peace, 2023; Global Start-up Report, 2024; World Trade Data, 2023]

3.5 Sustainability and Innovation through New Entrepreneurial Methodologies

This subchapter explores the integration of sustainability and innovation into modern entrepreneurial models, emphasizing the importance of adapting to climate, economic, and social challenges. Modern start-ups can gain a competitive advantage by implementing business models that integrate social and environmental responsibility (Elkington, 1997; Schaltegger & Wagner, 2011). These principles attract investors and partners who prioritize social and environmental impact (Bocken et al., 2014).

Methods for integrating sustainability include the development of eco-friendly products, the implementation of sustainable operating strategies, and the creation of a responsible supply chain (Carter & Rogers, 2008). Financial sustainability also becomes essential, ensuring economic stability and attracting responsible capital (Freeman & Reed, 1983).

Table 3.2 provides a summary of the benefits integrated into sustainable start-up models, highlighting practical advantages such as long-term savings and the stimulation of innovation.

Table 3.2 Benefits of Integrating Sustainability into Start-up Models [Source: own synthesis derived from specialized literature]

Benefit	Description
Increased attractiveness for investors	Sustainable start-ups attract investors who prioritize social and ecological responsibility.
Long-term savings	Energy-efficient processes and waste reduction lead to long-term savings.
Attracting and retaining talent	Employees prefer to work in companies with sustainable values.
Constant innovation	Sustainability stimulates innovation for efficient and environmentally friendly solutions.

3.6 Innovation Sprints, PaaS, Growth Hacking, and Emerging Technologies: Accelerating Start-up Development

This subchapter discusses modern methodologies such as innovation sprints, Platform-as-a-Service (PaaS), and growth hacking, which accelerate start-up development. Innovation sprints, based on agile methodologies, allow start-ups to quickly test prototypes and gather market feedback (Blank, 2020). PaaS provides the necessary infrastructure for development without requiring hardware management (Riedl, 2022), while growth hacking offers rapid solutions for increasing users and revenue (Chesbrough, 2003).

The adoption of emerging technologies, such as artificial intelligence (AI), blockchain, and augmented reality, provides new opportunities for innovation, improving companies' products and services (McAfee & Brynjolfsson, 2017).

Figure 3.4 illustrates the impact of growth hacking and emerging technologies on start-up development between 2018 and 2025, highlighting the exponential revenue growth due to these methods.

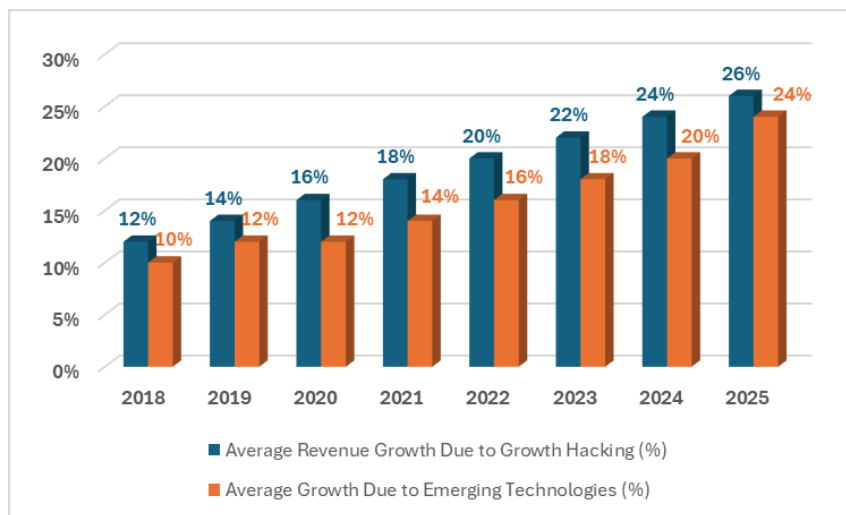


Figure 3.4 - The Impact of Growth Hacking and Emerging Technologies on Start-up Growth (2018-2025) [source: EU-Startups, 2023; Shopify, 2023; Growth Hackers, 2024]

The COVID-19 pandemic had a major impact on Romania's entrepreneurial ecosystem, bringing both challenges and new opportunities. Start-ups faced severe challenges such as limited access to funding, supply chain disruptions, and changes in consumer behavior. However, the crisis accelerated innovation, especially in fields such as technology, fintech, digital health, and e-commerce, offering significant growth opportunities.

Challenges faced by start-ups during the pandemic

The pandemic generated a series of economic challenges that strongly affected small and medium-sized enterprises (SMEs) and start-ups. Limited access to funding, reduced demand for certain products and services, and the rapid adaptation to remote work were major obstacles. Approximately 60% of SMEs reported severe cash flow problems, and over 40% of them had to radically modify their business models (Kuckertz et al., 2020).

Table 3.3 presents the main challenges faced by Romanian start-ups during the pandemic.

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Table 3.3 - Challenges Faced by Start-ups During the COVID-19 Pandemic [Source: International Monetary Fund (IMF, 2022), European Commission Report on COVID-19 Impact on SMEs, 2021]

Challenge	Description
Limited access to funding	Investors became more hesitant to fund start-ups during the pandemic due to economic uncertainty.
Decrease in demand	In industries such as retail and hospitality, demand dropped dramatically, affecting start-up revenues in these sectors.
Adaptation to remote work	Start-ups were forced to quickly adapt to a remote work environment, causing logistical difficulties.
Supply chain disruptions	Global disruptions in supply chains affected the ability to produce and deliver products.
Change in consumer behavior	The pandemic radically changed how consumers interact with products and services, emphasizing the importance of digitalization.

The pandemic also accelerated the adoption of digitalization and e-commerce. Companies that managed to pivot quickly to digital solutions and adjust their business models were the most resilient.

Adaptations and resilience strategies adopted by entrepreneurs

In response to the challenges posed by the pandemic, many start-ups adopted innovative solutions and accelerated the transition to digitalization. Major adaptations included the digitalization of products and services, reduction of operational costs, and expansion into new markets. Table 3.4 presents the measures adopted by Romanian start-ups to cope with the pandemic.

Table 3.4 - Adaptation Measures Adopted by Romanian Start-ups During the Pandemic (2020-2021) [Source: EY Romania, 2020; McKinsey & Company, 2021; Statista, 2020]

Year	Adaptation Measures	Percentage of Start-ups that Adopted the Measure (%)
2020	Digitalization of services and products	55%
2020	Reduction of operational costs	50%
2020	Re-evaluation of business plans	45%
2020	Shift to online commerce	35%
2021	Implementation of remote work	65%
2021	Expansion into new markets	40%
2021	Partnerships with other companies	30%
2021	Access to financing and grants	25%

Most companies adopted digitalization measures and remote work, allowing them to continue operations during periods of lockdown.

New opportunities created by the COVID-19 pandemic

The crisis also brought new opportunities for companies capable of innovating quickly. Fields such as digital health, fintech, and online education experienced significant growth due to the increased demand for digital solutions. Table 3.5 highlights the emerging fields that thrived during this period.

Table 3.5 - Emerging Opportunities for Start-ups During the COVID-19 Pandemic [Source: OECD Digital Economy Outlook, 2022; Baig et al., 2020]

Field	Description	Examples of Start-ups
Digital health	Increased demand for telemedicine solutions, online consultations, and remote health management	Medlive, Telios
E-commerce	Rapid transition to e-commerce, especially for essential products and delivery services	eMAG, Tazz
Online education	Growth in the adoption of online education platforms for all levels of education	Kinderpedi a, Adservio
Fintech	Solutions for digital banking, contactless payments, and online financial services	FinTechOS, PayPoint
Delivery services	Increased demand for home delivery of products and groceries	Glovo, Bolt Food

The Romanian entrepreneurial ecosystem is undergoing accelerated development, driven by digitalization, technological innovation, and a focus on sustainability. After the challenges of the COVID-19 pandemic, local entrepreneurs have demonstrated adaptability and innovation capacity, elements that will continue to contribute to their future success.

Digitalization and Technological Innovation

Digitalization is a key driver of economic growth in Romania, with technologies such as artificial intelligence (AI), blockchain, and the Internet of Things (IoT) being integrated into businesses. Investments in Romanian tech start-ups are projected to grow from 37 million EUR in 2023 to 70 million EUR by 2028, reflecting the ecosystem's maturation (OECD, 2022).

International Expansion

Romanian start-ups are increasingly expanding into international markets, targeting Western Europe and North America. Notable examples are UiPath and FinTechOS, which are developing partnerships and products tailored to emerging markets (Startup Genome, 2023).

Green Entrepreneurship

As sustainability becomes a global priority, start-ups adopting eco-friendly practices will benefit from additional support. Investments in green start-ups are projected to increase from 28 million EUR in 2023 to 68 million EUR by 2028, supported by the European Green Deal objectives (European Investment Bank, 2022).

Government Support

Government programs, such as "Start-up Nation," offer financial support and tax incentives to stimulate innovation. Access to European funds and public-private partnerships

will contribute to the sustainable development of the Romanian entrepreneurial ecosystem (OECD, 2022).

The Romanian entrepreneurial ecosystem will continue to grow, supported by digitalization, international expansion, and a focus on sustainability. Romania has the potential to become a regional innovation hub, attracting international investments and strengthening its global position in the start-up sector.

CHAPTER IV

RESEARCH ON THE ANALYSIS OF THE ROLE OF INNOVATION STRATEGIES ON THE PERFORMANCE OF ROMANIAN START-UPS

4.1 Presentation of Research Objectives and Methodology

This chapter aims to examine the impact of innovation strategies on the performance of Romanian start-ups in the specific context of the Romanian economy. The main objectives of the research are:

Evaluating the impact of innovative strategies on the performance of Romanian start-ups, including R&D, adoption of new technologies, and external partnerships.

Exploring the role of entrepreneurial orientation as a mediator between innovation strategies and performance.

Investigating the effect of contextual factors, such as competitive intensity and industry dynamism, on the relationship between strategies and performance.

Identifying specific challenges within the Romanian ecosystem and how they influence the effectiveness of innovation strategies.

The research methodology uses Structural Equation Modeling - Partial Least Squares (SEM-PLS), which allows for the analysis of complex relationships between latent variables. Data were collected through a questionnaire distributed to 202 Romanian entrepreneurs, and the analysis was performed using SmartPLS software.

4.2 Conceptual Framework and Hypothesis Development

Innovation strategies play a crucial role in the success of start-ups. These can include product, process, business model, marketing, and organizational innovation. This conceptual framework proposes the following hypotheses:

- H1:** Innovation strategies have a significant impact on start-up performance.
- H2:** Organizations' dynamic capabilities have a significant impact on performance.
- H3:** Industry dynamism influences the dynamic capabilities of the organization.
- H4:** Industry dynamism has a significant impact on start-up performance.
- H5:** Industry dynamism influences entrepreneurial orientation.
- H6:** Market competitive intensity influences entrepreneurial orientation.
- H7:** Competitive intensity impacts industry dynamism.

This conceptual framework explores the complex interaction between innovation strategies, dynamic capabilities, and organizational performance, focusing on the specificities of the Romanian market.

4.3 Design of the Data Collection Instrument: The Questionnaire

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To analyze the role of innovation strategies on the performance of Romanian start-ups, the questionnaire was chosen as the primary data collection instrument. It was structured into three main sections, each aimed at collecting specific information:

- ◆ **Section 1:** General information about start-ups. This section focused on collecting data about the industry, number of employees, year of establishment, and geographical location of the start-ups. This information allows for contextualization of the results and segmentation of the sample.
- ◆ **Section 2:** Characteristics of innovation strategies. This part of the questionnaire investigated the innovation strategies implemented by start-ups, including product, process, business model, and organizational innovation. The questions were designed to assess the level of innovation and its impact on performance.
- ◆ **Section 3:** Start-up performance. Here, data were collected on both financial and non-financial performance indicators, such as customer satisfaction and market competitiveness. These questions assessed entrepreneurs' perceptions of the impact of innovation on their success.

The questions were formulated on a Likert scale from 1 to 5, ensuring the collection of quantifiable data useful for SEM-PLS analysis. The reliability and validity of the questionnaire were tested through a pilot with a small sample of entrepreneurs, and the questionnaire was later distributed to a larger sample of 202 entrepreneurs from Romania.

4.4 Systematic Data Collection Procedure and Methodological Implementation

To ensure rigorous data collection, the procedure was well planned and implemented in several stages:

- ◆ **Planning and sample selection:** The target population (start-up entrepreneurs from various industries and regions of Romania) was identified, and data collection was planned over a two-month period. The questionnaire was distributed online, facilitating access to a geographically diverse sample.
- ◆ **Data collection and monitoring:** The questionnaire was completed by 202 entrepreneurs (93 women, 102 men), and the data were continuously monitored to ensure their quality and completeness.
- ◆ **Data analysis through SEM-PLS:** The collected data were analyzed using SmartPLS software, which allows for the testing of complex structural and measurement models, especially for smaller samples. The analysis included:
 - Evaluation of the measurement model, verifying the validity and reliability of the indicators using Cronbach's Alpha and AVE.
 - Evaluation of the structural model to test the research hypotheses and analyze the causal relationships between latent variables.

Mediation and moderation analysis, which allowed for the identification of factors influencing the relationships between innovation strategies and start-up performance.

By using the SEM-PLS methodology, this research provided a detailed and complex analysis of how innovation strategies influence the performance of start-ups in Romania.

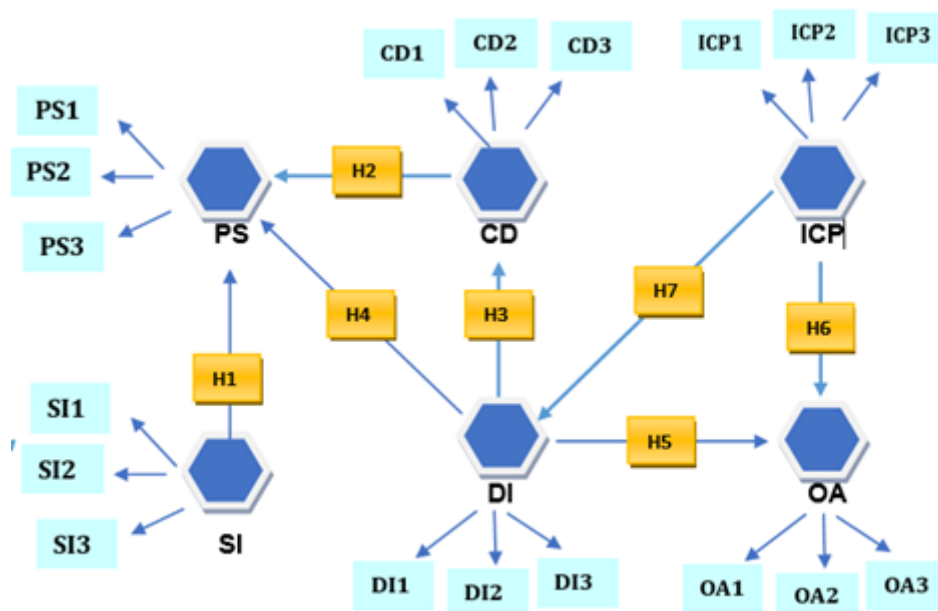


Figure 4.1 - The Conceptual Model of Research Based on Structural Equation Modeling [source: created by the author]

4.5 Research Results

This research provided an in-depth analysis of the impact of innovation strategies on the performance of start-ups in Romania, exploring the relationships between latent variables and their indicators, according to the proposed conceptual model. The statistical analysis results allowed the formulation of solid conclusions relevant to understanding the complex dynamics that affect entrepreneurial success.

◆ Descriptive Statistical Analysis

In the first stage of the analysis, descriptive statistics associated with the latent variables were presented, including means, standard deviations, and coefficients of skewness and kurtosis. These indicators allowed the evaluation of the distribution of the collected data. The mean values indicate that respondents placed great importance on the dynamic capabilities and entrepreneurial orientation variables, with corresponding items receiving the highest scores. The distributions showed a concentration of responses on the higher end of the scale, suggesting respondents' positive perception of the influence of innovation strategies and organizational capabilities on performance.

◆ Structural Relationships and Interpretation of Coefficients

The structure of relationships between the latent variables and their indicators was highlighted, showing a direct link between innovation strategies and the performance of start-ups. The path coefficients indicated that innovation strategies had a moderate effect on performance, with a coefficient of 0.345, suggesting that the success of start-ups is determined not only by innovation but also by other contextual and organizational variables. Dynamic capabilities played a crucial role, with a coefficient of 0.811 in relation to industry dynamism, indicating that their development is essential for start-ups operating in dynamic environments. The relationships between industry dynamism and market competitive intensity were also strong, emphasizing the interdependence between these factors in shaping start-up success.

◆ Model Validity and Robustness

The validity of the model was confirmed by assessing internal reliability (through Cronbach's Alpha and Composite Reliability - CR) and convergent validity (through Average

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Variance Extracted - AVE), with all latent variables scoring above the minimum threshold of 0.7. Additionally, the Fornell-Larcker criterion validated the distinctiveness of the latent variables, confirming that they are well differentiated. However, the Heterotrait-Monotrait (HTMT) ratio indicated potential conceptual overlap between certain variables, which requires further analysis to refine the model.

◆ **Bootstrap Procedure and Statistical Significance**

The use of the bootstrap procedure confirmed the statistical significance of most of the theorized relationships, with very low p-values (below 0.05) for all hypotheses. This provides high certainty regarding the identified relationships and supports the validity of the model. In particular, industry dynamism had an extremely significant effect on dynamic capabilities and start-up performance, emphasizing the importance of adapting to industry changes.

◆ **Practical and Theoretical Implications**

The results of this research offer clear implications for entrepreneurs and start-up managers in Romania. They show that innovation strategies must be efficiently integrated with the development of dynamic capabilities and adapted to market dynamism to achieve superior performance. Competitive intensity and industry dynamism are important factors that shape success, and managers must be aware of the interdependencies between these factors to navigate the competitive environment effectively.

◆ **Limitations and Future Research Directions**

Although the research confirmed most hypotheses, the existence of conceptual overlaps between latent variables suggests the need for further refinement of the model. Future studies could investigate other contextual variables that influence performance, such as access to financial resources or government support.

In conclusion, this research significantly contributes to understanding the factors that influence the success of start-ups in Romania, providing a solid theoretical framework for optimizing innovation strategies and developing organizational capabilities.

CHAPTER V

QUALITATIVE-COMPARATIVE ANALYSIS OF SURVIVAL AND SUCCESS STRATEGIES IN THE CONTEXT OF THE PANDEMIC FOR ROMANIAN START-UPS

5.1 Presentation of Objectives and Methodological Framework of the Qualitative-Comparative Study

The main purpose of this study is to identify and analyze the survival strategies and success factors for start-ups during the COVID-19 pandemic. The specific objectives of the study include:

- ◆ **Identifying survival strategies:** Determining the various strategies adopted by start-ups to navigate the challenges of the pandemic.
- ◆ **Determining success factors:** Analyzing the factors that significantly contributed to the success of start-ups during this difficult period.
- ◆ **Exploring combinations of strategies and contexts:** Investigating how specific combinations of actions and circumstances influenced the outcomes of start-ups, facilitating their survival and success in the market.

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The methodology used is qualitative in nature, suitable for providing a deep understanding of the strategies and internal and external factors that influenced the survival and success of start-ups. To examine these complex relationships, Fuzzy-Set Qualitative Comparative Analysis (fsQCA) was used, allowing for the exploration of multiple configurations of conditions that lead to success.

Justification for using fsQCA:

- ◆ **Managing complexity:** fsQCA allows for the simultaneous analysis of multiple conditions and their relationships, facilitating the understanding of the impact of various strategies and contexts on start-up success.
- ◆ **Method flexibility:** It is suitable for exploratory studies with multiple cases and diverse conditions.
- ◆ **Configurative evaluation:** The method allows the identification of unique patterns of conditions that lead to success, an essential characteristic for understanding the variability of strategies adopted during the pandemic.

The conditions analyzed to assess the success of start-ups include:

- ◆ **Operational Flexibility (OF):** The ability of start-ups to quickly adapt to new market conditions.
- ◆ **Access to Funding (AF):** The availability of funds and access to external investments.
- ◆ **Technology Use (TU):** The level of adoption of digital technologies for operations and communication.
- ◆ **Product and Service Innovation (PSI):** The ability to innovate in products and services.
- ◆ **Industry Experience (IE):** The number of years the start-ups have been in operation.
- ◆ **Number of Employees (NE):** The size of the start-ups' teams.

The main result of the analysis consists of measuring the success of start-ups on a scale from 1 to 5, including perceptions of overall success and correlating it with the mentioned conditions.

5.2 Design and Implementation of the Qualitative-Comparative Study: Participant Selection and Interview Structure

The COVID-19 pandemic caused drastic changes in the business environment, particularly affecting start-ups, which by nature have limited resources. The study aims to explore how these companies managed to cope with the crisis.

To ensure a diversity of experiences, 45 semi-structured interviews were conducted with founders and co-founders of start-ups in Romania. The selection of participants was based on the following criteria:

- ◆ **Industry:** Start-ups from various industries were included, such as technology, health, education, e-commerce, and financial services.
- ◆ **Start-up size:** Companies of various sizes were selected, ranging from small start-ups with fewer than 10 employees to those with over 100 employees.
- ◆ **Industry experience:** The selected start-ups had a range of experience, from newly established companies to those with over 5 years of activity.

The semi-structured interviews allowed flexibility in exploring the topics of interest while maintaining a structured framework. The structure of the interviews covered the following aspects:

- ◆ **General context:** Information about the start-up, including the industry, team size, and duration of activity.

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- ◆ **Impact of the pandemic:** Exploration of how the pandemic affected the company's operations and financial situation.
- ◆ **Survival strategies:** Identification of specific strategies adopted during the pandemic.
- ◆ **Access to resources:** How access to funding and other resources influenced the company's success.
- ◆ **Innovation and adaptability:** The ability to innovate and adapt to new market conditions.
- ◆ **Success evaluation:** Participants evaluated the start-up's success on a Likert scale from 1 to 5.

The data collected from the interviews were transcribed, coded, and analyzed using fsQCA, while the Likert scale provided valuable quantitative dimensions.

5.3 Data Analysis Using Fuzzy-Set Qualitative Comparative Analysis (fsQCA): Coding and Interpretation

Data coding is an essential step in organizing and structuring the information obtained from the interviews. The main steps of the coding process were as follows:

- ◆ **Interview transcription:** All interviews were fully transcribed.

Identification of themes: Reviewing the transcriptions to identify relevant themes, such as survival strategies, technology use, and access to funding.

- ◆ **Assigning codes:** Each relevant text fragment was assigned a code, facilitating classification and analysis.
- ◆ **Calibrating into fuzzy sets:** The codes were transformed into fuzzy values using the following criteria:
 - For the Likert scale: The fuzzy values assigned ranged from 0.05 (non-membership) to 0.95 (full membership).
 - For the number of employees and industry experience: Calibrated intervals were used, from 0.05 for very low membership to 1.00 for full membership.

The data calibration was performed using fsQCA software, transforming the qualitative data into quantifiable fuzzy sets. This methodology allowed an in-depth evaluation of the complex relationships between conditions and the success of start-ups.

In conclusion, the integration of the Likert scale and the use of the fsQCA method allowed the identification of specific configurations of conditions that contributed to the success of start-ups during the pandemic.

5.4 Results of the Qualitative Study: Survival Strategies and Success Factors

After calibrating the values in fsQCA, an essential step was calibrating the composite variable cSUCCESS, which combined multiple antecedent conditions to provide a holistic assessment of their impact on start-up success. This process allowed for the identification and analysis of complex relationships between conditions and the success of companies during the COVID-19 pandemic. The calibration of the composite variable was done by combining the fuzzy values of each antecedent condition into a single fuzzy value, using the Fuzzyand function from the fsQCA software:

- ◆ *Compute: cSUCCESS = fuzzyand(cOF, cAF, cTU, cPSI, cNE, cIE)*

Calibrating the composite variable was important for the following reasons:

- ◆ **Capturing complexity:** The composite variable reflected the interdependence of multiple antecedent conditions, providing a detailed picture of the factors that together contribute to the success of start-ups.

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- ◆ **Identifying patterns:** Combining calibrated conditions allowed for the identification of success patterns, facilitating the identification of necessary and sufficient combinations for achieving desired success.
- ◆ **Avoiding redundancy:** The composite variable simplified the analysis by combining multiple conditions into a single variable, thus reducing complexity and avoiding redundancy.

The cSUCCESS variable combined the following antecedent conditions:

- ◆ **Operational Flexibility** (cOF)
- ◆ **Access to Funding** (cAF)
- ◆ **Technology Use** (cTU)
- ◆ **Product and Service Innovation** (cPSI)
- ◆ **Number of Employees** (cNE)
- ◆ **Industry Experience** (cIE)

By using the composite variable cSUCCESS, the configurational analysis allowed for the identification of condition combinations that led to the success of start-ups during the pandemic.

Consistency and Coverage

1. **Consistency** measures the extent to which combinations of conditions are sufficient to produce success. The values obtained showed a high consistency between the cSUCCESS variable and the success of start-ups (cSU):
 - ◆ Consistency $X \leq Y$: 0.967123 – indicates that most combinations of conditions associated with cSUCCESS were sufficient to explain start-up success.
 - ◆ Consistency $X \geq Y$: 0.310466 – suggests moderate coverage between cSUCCESS and the total success of start-ups, indicating that other factors not fully explained by cSUCCESS also exist.
2. **Distribution of points:** The points on the XY graph showed that the highest success values (cSU = 1) were associated with high values of cSUCCESS, confirming the robustness of the condition combinations.

The truth table presented 7 configurations of cases, with only those configurations with consistency above 0.8 being considered relevant. These were interpreted as follows:

- ◆ Configurations with high consistency (1) indicated combinations of conditions that always led to success.
- ◆ Configurations with lower consistency showed that, although these combinations led to success in most cases, they were not always decisive.

Table 5.1 Interpretation of Configurations with High and Low Consistency for Start-up Success

[Source: created by the author]

Configurations with High Consistency	Interpretation
Row 1: cFO=0, cAF=0, cUT=0, cIPS=1, cEI=0, cNA=0, number=1, cSU=1	This combination indicates that start-ups rely on product and service innovation, but not on operational flexibility. However, access to funding, technology use, industry experience, and a small number of employees lead to success (consistency 1).
Row 2: cFO=1, cAF=1, cUT=0, cIPS=1, cEI=1, cNA=0, number=1, cSU=1	This combination shows that success is associated with operational flexibility, access to funding, product and service

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	innovation, and industry experience, but without technology use and a small number of employees.
Row 3: cFO=1, cAF=1, cUT=1, cIPS=0, cEI=1, cNA=1, number=1, cSU=1	Start-ups that rely on operational flexibility, access to funding, and technology use, but not on product innovation and have a larger number of employees lead to success.
Row 4: cFO=1, cAF=1, cUT=1, cIPS=1, cEI=1, cNA=1, number=1, cSU=1	This combination indicates that when all conditions are present, they lead to success (consistency 1).
Configurations with Lower Consistency	Interpretation
Row 5: cFO=1, cAF=0, cUT=1, cIPS=1, cEI=1, cNA=0, number=1, cSU=1, raw consist.=0.972668, PRI consist.=0.910448, SYM consist.=1	This configuration shows that the combination of operational flexibility, technology use, product and service innovation, and industry experience, but without access to funding and with a small number of employees, leads to success in most cases (consistency 0.972668).
Row 6: cFO=1, cAF=1, cUT=1, cIPS=1, cEI=1, cNA=2, number=2, cSU=1, raw consist.=0.967123, PRI consist.=0.923421, SYM consist.=1	This combination indicates that the presence of all five conditions is sufficient for success in most cases (consistency 0.967123).
Row 7: cFO=1, cAF=1, cUT=1, cIPS=1, cEI=0, cNA=1, number=1, cSU=1, raw consist.=0.958717, PRI consist.=0.819209, SYM consist.=1	This configuration suggests that operational flexibility, access to funding, technology use, product and service innovation, and a large number of employees are sufficient for success, even without industry experience (gross consistency 0.958717).

The application of the **Quine-McCluskey algorithm** allowed the reduction of logical expressions and the identification of minimal configurations. These configurations are essential for identifying the most important combinations of conditions that determine success. For example, the combination of **operational flexibility** (cFO), **access to funding** (cAF), **innovation** (cIPS), **experience** (cEI), and **the absence of technology** (~cUT) demonstrated **perfect consistency of 1** in predicting success.

The evaluation of necessity showed that combinations of factors such as **operational flexibility**, **access to funding**, **innovation**, and **experience** were **essential** for the success of start-ups, having the highest consistency (0.9930). These combinations explain almost all cases of success analyzed (54.80%).

The study revealed that the success of start-ups during the pandemic was determined by a combination of interdependent factors, including **operational flexibility**, **access to funding**, **innovation**, and **industry experience**. Additionally, while technology use was important, it was not necessarily a crucial factor for all start-ups. These findings provide a solid basis for developing successful strategies tailored to crisis contexts, such as the COVID-19 pandemic.

CHAPTER VI

CONCLUSIONS, PERSONAL CONTRIBUTIONS, AND RESEARCH DIRECTIONS

This final chapter presents the main conclusions of the research, highlighting the personal contributions made to the field of entrepreneurship and proposing future research directions. I have thoroughly examined the interaction between dynamic capabilities and innovative strategies in the development of start-ups, focusing on the Romanian context, offering both a theoretical model and practical tools for entrepreneurs.

6.1 Synergies between Dynamic Capabilities and Innovative Strategies

My research has demonstrated that the synergy between dynamic capabilities and innovative strategies is essential for the success and sustainability of start-ups in a volatile business environment. Dynamic capabilities, defined as the ability to reconfigure resources and competencies in the face of disruptions, and innovative strategies, which include the development of new products and business models, complement each other, allowing companies to adapt quickly and seize emerging opportunities.

I found that companies that develop strong dynamic capabilities can implement innovative strategies more efficiently, having the necessary flexibility to pivot according to market demands. In turn, innovative strategies require an organization capable of supporting constant experimentation and adaptation, making the development of dynamic capabilities a crucial element.

6.2 Proposal of an Integrated Model for Start-up Development

Based on these findings, I developed an integrated model that can guide Romanian start-ups in their development. The model is based on three essential pillars:

1. **Operational Flexibility** – the ability to reconfigure internal structures and processes according to market changes.
2. **Continuous Innovation** – constant improvement of products, processes, and business models.
3. **Strategic Collaboration** – local and international partnerships for access to resources and know-how.

The proposed model covers three stages of start-up development: Launch, Growth, and Maturity, offering customized solutions for each stage and proposing strategies that facilitate long-term scalability and adaptability.

6.3 Contributions of the Doctoral Thesis in the Field of Innovative Entrepreneurship

This research makes significant contributions both at the theoretical and practical levels.

- ◆ **Theoretical Contributions:** Extending the theory of dynamic capabilities by integrating them with innovative strategies. Innovation is analyzed not only as a process of introducing new products but as continuous organizational adaptation.
- ◆ **Methodological Contributions:** Using advanced methods such as fsQCA and SEM-PLS allowed for an in-depth analysis of the complex relationships between variables and validated the proposed model.

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- ◆ **Contributions for Practitioners:** I provided an applicable model that can guide entrepreneurs in managing resources and adopting strategies that support innovation and sustainable development.

6.4 Recommendations for Practitioners and Policymakers

Based on the research findings, I formulated the following recommendations:

- ◆ **Operational Flexibility:** Entrepreneurs should create an adaptable organizational environment that allows rapid pivoting in the face of market changes. Policymakers should support this through flexible legislative policies and funding programs.
- ◆ **Access to Funding:** Governments and financial institutions should develop programs that facilitate start-ups' access to capital, offering grants and financing for innovation.
- ◆ **Technology and Continuous Innovation:** Investments in technology and innovation must be a priority for entrepreneurs, while government policies should support digitalization through grants and training programs.

6.5 Directions for Future Research

This research opens new avenues for exploration, including:

- ◆ **Developing an economic-mathematical model** for evaluating entrepreneurial ecosystems, integrating indicators related to innovation and sustainability.
- ◆ **Integrating emerging technologies**, such as artificial intelligence and blockchain, into innovative business models.
- ◆ **Exploring extended dimensions of operational flexibility**, including the ability to anticipate and shape market changes, not just react to them.
- ◆ **Analyzing entrepreneurial ecosystems** in international contexts to identify best practices applicable in different geographical and economic settings.

These research directions will contribute to a deeper understanding of entrepreneurial success and the development of new solutions for the complex challenges of the business environment.

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LIST OF PUBLICATIONS

List of publications

1. **Bușilă**, A. V., & Cristache, N. (2022). MANAGING ARTIFICIAL INTELLIGENCE AS A DRIVER FOR FUTURE TOURISM. *Proceedings of the International Management Conference*, Faculty of Management, Academy of Economic Studies, Bucharest, Romania. 15(1), 902-915. <https://doi.org/10.24818/imc/2021/05.08>
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1. Pricopoaia, O., **Bușilă**, A. V., Cristache, N., Susanu, I., & Matis, C. (2023). Challenges for entrepreneurial innovation: Startups as tools for a better knowledge-based economy. Paper presented at *the 18th ACIEK Conference – Innovation, Knowledge and Digitalisation: Building Trust to Face Today's Challenges*, 21st-23rd of June 2023, Madrid, Spain.
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