

Article

From Start to Scale: Navigating Innovation, Entrepreneurial Ecosystem, and Strategic Evolution

Katja Crnogaj * and Matej Rus

Department of Entrepreneurship and Business Economics, Faculty of Economics and Business,
University of Maribor, 2000 Maribor, Slovenia; matej.rus@um.si

* Correspondence: katja.crnogaj@um.si

Abstract: In the contemporary business environment, startups have emerged as significant employment contributors, particularly in mature startup ecosystems, such as the United States. However, Europe, with a particular focus on Slovenia, represents an unexplored avenue in this area. As startups make the transition to scaleups, they face numerous challenges. Our study aims to comprehend the dynamics that affect startups during this crucial phase, focusing on the relationship between entrepreneurial motivations, the startup ecosystem, and their strategic adaptability. We undertook a primary survey among Slovenian startup and scaleup companies, and we utilized factor and regression analysis as the primary tools for conducting a thorough data analysis. The research underscores the symbiotic relationship between tailored business strategies, innovation, and growth challenges. To achieve successful transition from startup to scaleup, it is a strategic necessity for businesses to harness their innovative capacities. Our research pioneers the inclusion of Slovenia within the European startup landscape, providing insight into the unique challenges and opportunities inherent to the region. The findings advocate for a holistic approach in the startup ecosystem, reinforcing the significance of a multifaceted support system for these budding enterprises.

Keywords: startup; scaleup; startup ecosystem; entrepreneurial motivation; innovativeness; agility; growth



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1. Introduction

In the constantly evolving business realm, startups have attained a distinctive status, primarily driven by technological advancements and globalization that have impelled them towards international markets right from the outset. Cavusgil and Knight (2009) stress the inherent global orientation of these dynamic enterprises, while Zieba (2017) underscores the significance of early global perspective adoption, motivated by the ambitious aspirations of entrepreneurs.

Though startups are commonly associated with high-tech sectors and global market ambitions, ambiguity surrounds their exact definition. While some scholars, like Bednár and Tarišková (2017), Cambra Fierro and Lourdes (2018), and Szarek and Piecuch (2018) posit that startups prioritize innovation and value creation despite resource constraints, others, like Blank and Dorf (2012), view them as entities in pursuit of scalable business models amidst uncertain environments. The ultimate goal for many is to validate their business models and to transform into global enterprises capable of disrupting exiting markets or even creating new ones (Eftekhari and Bogers 2015; Frederiksen and Brem 2017). Thus, startups play a pivotal role in innovation, driving new entrepreneurial ideas, technologies, and innovations (Aminova and Marchi 2021). The European Startup Monitor (ESN 2021) outlines criteria for defining startups, including being less than ten years old, having an innovative product or business model, and an intent to scale.

A company can accelerate its growth by maintaining balance across five key dimensions: the user, product, team, business model, and finances. The art of rapid growth

entrepreneurship involves mastering chaos and ensuring that each of these dimensions advances in a timely and cohesive manner (Marmer et al. 2011). Many startups fail at their inception stage, with less than a third evolving into established companies (Eisenmann 2021). Failures can result from a myriad of reasons, such as inadequate funding, team management issues, lack of business knowledge, poor marketing, technological lags, etc. (Bednár and Tarišková 2017; Bennett 2016; Eisenmann 2021; Krishna et al. 2016; Mikle 2020). Nonetheless, the majority of startups that survive possess the potential to transform into successful entities, playing a pivotal role in the economy over the long run. However, challenges arise due to the specific nature of the startup market, as conducting market analyses becomes impractical due to the inability to identify a consumer target group.

The unique journey of startups often involves navigating through phases, from the pre-seed/seed stage, transitioning through the startup stage and growth stage, and possibly reaching the steady stage. At each stage, the nature of their challenges and requirements shifts. As they evolve, another category comes into the picture: scaleup companies. Scaleup companies have experienced rapid growth in revenue and employee numbers over a specific period. Unlike startups, scaleups have well-established products or services and have been operating for at least three years. They typically have a dynamic team of experienced entrepreneurs who are adept at handling the challenges of scaling. These businesses often aim for swift growth, have the ability to pivot, and adapt their strategies in response to changing market conditions. Moreover, they generally have access to abundant resources to further fuel their growth. With the right strategies, scaleups can become global leaders in their sectors.

A common threshold to distinguish between startups and scaleups is at least a 20% annual growth in revenue or employees for three consecutive years, as defined by Eurostat-OECD (2007). Growth often happens internationally due to the opportunities that different environments provide. However, it is crucial to note that rapid growth can occur in either international or domestic markets (Tippmann et al. 2023). Researchers, like Monteiro (2019), point out that studies often focus on fast-growing companies, but not specifically on scaleups. This is attributed to an inconsistent definition of scaleup companies in the literature. Monteiro (2019) further defines a scaleup as a fast-growing business whose accelerated growth primarily relies on the scalability of its business model. Such a distinction matters because growth based purely on market power is typically limited and sometimes inefficient (Williamson 1991). However, despite the rapid proliferation of startups and scaleups, research in this domain remains fragmented, mainly due to inconsistent methodologies and definitions, as noted by Skawińska and Zalewski (2020).

This research aims to fill a crucial gap, especially concerning the factors that determine the success trajectory of startups within the EU, with a specific focus on the Slovenian context. European startups and scaleups are increasingly securing larger shares of global venture capital investments. Europe has emerged as a significant hub for some of the world's most innovative startup enterprises, with continually expanding investment prospects. The disparity in startup formation and VC investments between the United States and Europe is diminishing, as startups become major contributors to job creation across Europe. However, this trend is not uniformly observed in all European Union member states, particularly in Slovenia. In Slovenia, despite a number of remarkable success stories, especially in the realm of software development, the country's startup ecosystem exhibits distinct characteristics. These successes are predominantly attributed to Slovenia's exceptional pool of technological talent, which is ranked among the global best. Nonetheless, Slovenia's venture capital environment remains underdeveloped. With a mere EUR 41 of venture capital investment per capita, Slovenia stands among the lowest in Europe in this regard, significantly trailing the European average of approximately EUR 150 per capita (Chiavarini 2021). This shortfall in venture capital investment is reflected in the comparatively low density of newly established startups per capita in Slovenia—238 startups per million inhabitants, markedly below the EU average of 550 startups per million inhabitants (Chiavarini 2021). To harness the full potential of its startup ecosystem, Slovenia must implement strategic

measures that enhance opportunities for startup growth. Such initiatives could significantly catalyze the creation of new jobs and contribute to higher economic value addition within the country.

The originality of our research lies in its focus on dissecting the interplay between entrepreneurial motivations, the supportiveness of the startup ecosystem, and strategic adaptability in a relatively less examined European context. By delving into the Slovenian startup scene, we aim to uncover how specific regional factors contribute to the innovative capabilities of startups and the challenges they face during their critical growth phase. This approach not only fills a significant gap in startup and scaleup research but also provides practical insights for policymakers and entrepreneurs in similar emerging markets.

Furthermore, the study's findings are poised to contribute to the broader discourse on startups and scaleups, particularly in the European Union, where diversity in market conditions and entrepreneurial ecosystems is vast. Given the European Commission's 2020 initiative—the EU Startup Nations Standards of Excellence—which seeks to standardize best practices to assist startups, our research becomes even more timely and relevant.

2. Literature Review

Digitalization has reshaped both high-tech innovative sectors and traditional ones (Pyataeva et al. 2021). Its most significant contribution is the creation of business models less reliant on physical products (Erevelles et al. 2016) and more focused on adopting digital infrastructures (Warner and Wäger 2019; Bocken and Snihur 2020). Moreover, emerging business models are distinguished by the dematerialization of processes (Snable Hagemann and Weinelt 2016). Digitalization revolves around information and data exchange, placing startups and scaleups in a prime position to harness arising opportunities. Success hinges on their ability to exploit the potentialities offered by new technology. This highlights the overriding role of intellectual capital. According to Skawińska and Zalewski (2020), external independent factors include public policy institutions of the EU and individual states that lay down the economic, innovative, internationalized, and social conditions for startups. The interaction of internal and external sources leads to the creation of a key advantage among many competitive advantages.

2.1. Economic and Societal Impact of Startups and Scaleups

Empirical research has consistently underscored the significant economic impact of startups and scaleup companies. Central to their contribution is the enhancement of an economy's innovative capacities, not merely dependent on the number of startups but more critically on their quality (Szarek and Piecuch 2018). Successful startups, characterized by breakthrough innovations and the development of new products and services, drive the emergence of entirely new markets and often disrupt established industry players (Garcia-Tapial and Cardenete 2023; Martínez-Fierro et al. 2020). Moreover, as Aulet and Murray (2013) highlight, startups characterized by innovation and growth potential are not just sources of profit or new technologies; they significantly contribute to high-value job creation. What strengthens this position even further is the perspective of Autio and Acs (2010) who argue that these job opportunities are directly tied to tangible economic growth and development.

Further enriching this discourse, Szarek and Piecuch (2018) spotlight the specific segment of the population that stands to gain the most—the youth. Startups, in their essence, offer more than just employment; they are platforms that invest in human capital. By doing so, they not only provide jobs but also nurture skills, competencies, and personal growth. This nurturing environment emboldens the youth, inspiring creativity and fostering a sense of ambition.

Furthermore, startups and scaleups play a pivotal role in shaping the blueprint of a knowledge-centric, modern economy. The introduction of avant-garde technologies and pioneering business models is revolutionizing traditional markets and reshaping societal perceptions. The cumulative efforts of these firms are setting the stage for a robust startup

ecosystem that attract global investors and position startups as integral components of national economic strategies.

2.2. Challenges of Transition from Startup to Scaleup Stage

The transition from a startup to a scaleup is marked by a significant shift in mindset and operation. This stage demands strategic investments in technology, marketing, and personnel, often necessitating the outsourcing of certain activities to maintain focus on core business functions. Crucially, it requires the development of a long-term strategic plan that clearly defines goals, methods, a timeline, and metrics for measuring success (Monteiro 2019; Piaskowska et al. 2021; Reypens et al. 2020).

According to Tippmann et al. (2023), a business model's efficacy relates to interconnected organizational activities generating value (McDonald and Eisenhardt 2020; Zott et al. 2011). A business model can concern the whole organization or specific segments, such as a department or project (Busch and Barkema 2021; Chliova and Ringov 2017; Szulanski et al. 2016; Tatarinov and Ambos 2022; Tippmann et al. 2022; Winter et al. 2012). This model evolves as the company grows, aiming for a broad-scale market reach and sustainability (Dushnitsky and Matusik 2019; Reuber et al. 2021).

A significant challenge in this transition is achieving the necessary balance for successful growth, as evidenced by McKinsey & Company (2021), which found that 80% of new businesses fail to successfully transition despite developing and launching products. Key to overcoming this challenge are certain factors, such as efficient operational structure, robust talent development, a strong organizational culture, effective leadership, and clear strategic alignment.

Scaling often leads to access to international markets and new resources, necessitating strategies for rapid international expansion and the management of increased complexity (Birkinshaw 2022; Giustiziero et al. 2022; Monaghan and Tippmann 2018; Reuber et al. 2021; Tippmann et al. 2023). This complexity involves navigating diverse legal and regulatory environments and maintaining global competitiveness by continuously monitoring technological trends, developing innovative solutions, and responding adaptively to customer needs (Tatarinov and Ambos 2022).

2.3. Unveiling the Catalysts: Entrepreneurial Motivation, the Startup Ecosystem, and Strategic Adaptability and Disruption

In the dynamic landscape of startups, the foundations that catalyze innovation and overcome growth-centered challenges deserve a closer look. Central to this discourse is the role of entrepreneurial motivation. Historically, the business sector may have reduced motivation to mere financial aspirations. However, as previous research has highlighted, the entrepreneurial domain presents a more nuanced picture. Shane et al. (2003) emphasize this nuance, suggesting that motivations for entrepreneurship are not just rooted in financial gain. They stem from a deep-seated passion for innovation, an urge to fill market gaps, and a commitment to making a positive difference, which is also supported by the findings of more recent scholars (e.g., Corrêa et al. 2022; Shahzad et al. 2021). This holistic view forms the foundation of Hypothesis H1, which posits that these multi-dimensional motivations directly drive innovation:

H1. *Entrepreneurial motivation has a positive impact on innovation capabilities of company.*

It is undoubtedly true that startups' success and their transition to rapid growth are significantly influenced by the ecosystem in which they are established and operate. Startup ecosystems are structures comprising entrepreneurs, institutions, and processes interconnected through formal and informal ties, aiming to support startup creation and development (Grilo et al. 2017; Tripathi et al. 2019). Institutions, such as universities, investors, large companies, and state entities, play varying roles in startup creation and operation. Business angels, advisors, and other entrepreneurs also play a crucial role by organizing various meetings and conferences, both nationally and internationally. The

elements of such an environment must cooperate as an ecosystem to foster the creation of successful startups (Cohen 2006; Kenney and Von Burg 2001). Kotsch (2017) emphasizes the dynamic nature of ecosystem development, with its constantly evolving conditions.

The success of startups and scaleups in many countries has led to policy shifts. Governments are now adopting a more proactive stance in supporting these entities, providing more incentives, like tax breaks and grants, designed to promote entrepreneurship and ease business inception. Additionally, governments offer easier access to capital and knowledge and connections through mentorship programs. Furthermore, governments are implementing measures to protect startups and scaleups from predatory practices, including laws and regulations that shield businesses from unfair competition and monopolies.

Successful startup ecosystems are also “information-rich,” where individuals can access information about new customer needs, emerging technologies, component and machinery availability, etc. They have financial resources and service providers, like lawyers, accountants, and business consultants, that greatly benefit the entrepreneurial community. Crucially, it is vital to attract former successful entrepreneurs to stay engaged and reinvest their wealth and/or experience into fostering entrepreneurial activities, a concept referred to as “entrepreneurial recycling” (Isenberg 2011; Mason and Brown 2014). Lichtenstein and Brush (2001) approached the subject from an organizational lifecycle perspective, asserting that startups often undergo a series of predictable phases of performance as they grow. A nurturing environment, they suggest, can ease transitions between these phases, ensuring that innovative momentum is maintained and not stifled by growth-related challenges. As emphasized by Lafuente et al. (2020) and Zaidi et al. (2023), it is essential for businesses to receive support in their subsequent development stages, especially when facing growth challenges. As these startups transform into scaleups, the protective umbrella of a conducive environment becomes paramount, reinforcing the essence of Hypothesis H2:

H2. *The startup ecosystem has a positive impact on the challenges encountered during the transition from the startup to the scaleup stage.*

Drucker (1985) argued that innovation is a discipline that can, and must, be managed just like any other operational function in a business. While internal factors, like organizational culture, play a vital role, external environments that encourage collaboration, information exchange, and risk-taking can greatly enhance innovative capacities. Lichtenstein and Brush (2001) examined this topic from an organizational lifecycle standpoint, asserting that startups often undergo a sequence of predictable performance phases as they expand. According to them, a supportive environment can facilitate the shift between these stages, ensuring that innovative momentum is maintained and not hindered by growth-related obstacles. In a more intricate study Zaidi et al. (2023) investigated this process. Their recent research highlights that startups flourishing in proactive, nurturing environments tend to push the boundaries of innovation further. This observation reinforces Hypothesis H3, underscoring the essential synergy between a conducive ecosystem and the flourishing of innovation within a company:

H3. *The startup ecosystem has a positive impact on innovation capabilities of companies.*

While Aghion et al. (2005) have emphasized the critical function of a supportive ecosystem in fostering innovation, it is not the only factor to consider. Porter (1990) highlights that a company’s strategic orientation serves as the foundation upon which innovation can be built. Porter’s focus on the correlation between a firm’s strategies, its inherent capabilities, and the market’s demands provides a holistic picture of innovation. It is not merely seen as a solitary act of creation, but rather a carefully coordinated performance encompassing decisions, resources, and external factors. This notion serves as a link, connecting the external factors emphasized by Aghion et al. to the internal decision-making processes and strategic directions highlighted by Porter.

Moving from a broad perspective down to a more specific focus, it is apparent that while external ecosystems set the stage, it is the internal strategies that orchestrate innovative actions. According to [McGrath and MacMillan \(2000\)](#), conventional business strategies often fail in the unpredictable realm of startups. Instead, strategies that are adaptable, adjustable, and receptive to present feedback tend to perform better. Such strategies, based on the principles of agile and lean startups, enable entrepreneurs to consistently improve their products to meet market demands ([Bocken and Snihur 2020](#)). Hypothesis H4 encapsulates the concept that effective strategies can utilize both external factors and internal capabilities to drive innovation. This notion is an essential component of entrepreneurial success.

H4. *Strategic adaptability and disruption have a positive impact on the innovation capabilities of companies.*

The transformational journey of a startup transitioning into a scaleup stage presents a challenging web of obstacles that require strong and adaptable strategies. Drawing from the research of [McGrath and MacMillan \(2000\)](#), it is evident that in such phases, business strategies that prioritize agility are crucial. These strategies serve as navigational compasses that guide companies through the turbulent waves of expansion and scaling, rather than being just mere tools.

Expanding on this, it is crucial to recognize that strategies should not be treated as a one-size-fits-all template. As startups evolve, their strategies should also evolve. [Mintzberg \(2000\)](#) echoes this sentiment, arguing that strategy goes beyond simply long-term planning. It involves identifying emerging patterns and adapting to them accordingly. Such an adaptive stance holds significant weight for startups and scaleups, especially when navigating volatile markets where the ability to pivot can determine the difference between thriving and foundering.

In a more radical departure from traditional strategic thinking, [Christensen \(2013\)](#), through their seminal work on “Innovator’s Dilemma”, advocates for the philosophy of disruption. Sometimes, companies must not only reconsider their established processes but also disrupt them or even the markets they operate in to attain growth and innovation. Embracing disruption is a notion that, though paradoxical, can effectively counter business inertia, enabling companies to forge new trajectories to growth.

Bringing together these diverse perspectives, a cohesive picture emerges: effective business strategies, notably during the critical stage of scaling up, require a cohesive combination of agility, as stressed by [McGrath and MacMillan \(2000\)](#), adaptive pattern recognition, as advocated by [Mintzberg \(1979\)](#), and the bold drive towards disruption, as articulated by [Christensen \(2013\)](#). This synthesized understanding lays the foundation for Hypothesis H5, highlighting the pivotal role of adept business strategies in overcoming obstacles related to grow:

H5. *Strategic adaptability and disruption have a positive impact on challenges encountered during the transition from the startup to the scaleup phase.*

Understanding the subtle dynamics within the startup ecosystem requires a thorough exploration of both direct and indirect relationships among key variables. While hypotheses H1 through H5 delve into the direct impacts of various elements on innovation capabilities and growth-transition challenges, Hypothesis H6 takes a more intricate perspective.

The domain of innovation has long been recognized as a double-edged sword. On the one hand, the ability to innovate can act as a robust mechanism for startups to distinguish themselves, provide unique value propositions, and ensure long-term viability ([Chesbrough 2003](#)). As articulated by [Schumpeter and Backhaus \(1934\)](#), innovation enables companies to disrupt existing market equilibria, and thereby seize competitive advantages. However, on the other hand, heightened innovation capacities bring about increased levels of uncertainty. The more novel an idea or a product is, the less guidance exists to determine its market fit or reception ([Tushman and Anderson 2018](#)). The same innovation

capabilities that provide them with a competitive edge can also introduce complexities in certain areas, like production scalability, market education, and regulatory navigation (Levinthal and March 1993).

Despite these challenges, innovation remains a crucial catalyst for growth. According to Porter (1990), innovative activities can enhance a firm's competitive advantage, allowing it to command premium prices, operate more efficiently, or stake out unique market segments. The correlation between innovation and firm growth has been repeatedly documented, revealing that companies emphasizing continuous innovation often enjoy sustained growth trajectories (Prajogo and Ahmed 2006). Furthermore, innovation-driven growth is not just about introducing new products or services but also the redefinition of business processes, improvement of customer experiences, and even the complete reconceptualization of business models (Teece 2010). By cultivating a culture of innovation, startups can not only adapt to the ever-evolving market dynamics but can also proactively shape these dynamics, establishing themselves as market leaders rather than mere followers (Drucker 2014). McKelvie et al. (2017) found a significant positive correlation between innovation activities and subsequent growth in young enterprises.

In the context of startups aiming to transition into scaleups, having innovation capabilities is not optional but necessary. As startup ventures explore uncharted territories, their innovation is key to surmounting the numerous obstacles encountered, creating fresh market opportunities, and effectively responding to market feedback (Rosenbusch et al. 2011). These findings are reinforced by the research of Babina et al. (2021), illustrating that new technologies, such as AI can contribute to growth and superstar firms through product innovation.

Essentially, the relationship between innovation capabilities and company growth is multifaceted. While innovation does introduce complexities and challenges, as highlighted previously, its role as a driver of growth remains incontrovertible. For startups aiming to scale, fostering and leveraging their innovative prowess becomes a strategic imperative for success. Therefore, the last hypothesis we pose is:

H6. *Innovation capabilities have a positive impact on challenges encountered during the transition from the startup to the scaleup phase.*

In the research model (Figure 1), we explore the intricate dynamics of startups and scaleup companies, the interplay between entrepreneurial motivation, the startup ecosystem, and strategic adaptability, and their consequent impact on innovation capabilities and growth-transition challenges.

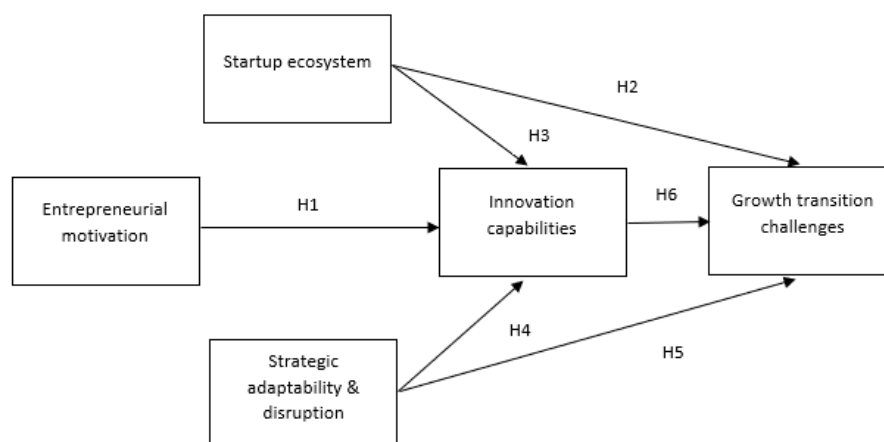


Figure 1. Interplay of entrepreneurial motivation, the startup ecosystem, and strategic adaptability—conceptual model.

In particular, we hypothesize that entrepreneurial motivation acts as a catalyst for innovation (H1) in these agile entities. A nurturing environment offers protection against growth challenges (H2) and enhances innovation (H3). Business strategies, designed specifically for the uncertain terrains which startups and scaleups frequently encounter, not only fuel the innovative spirit (H4) but also equip such firms with the means to overcome obstacles related to growth (H5). Our model also establishes a link between innovativeness and growth challenges (H6), acknowledging that fostering and leveraging innovative potential is essential for startups seeking to scale and achieve success.

3. Methodology

3.1. Data and Sample

The survey was carefully crafted and distributed over a period of 28 days, from 20 December 2022 to 16 January 2023. The primary survey targeted 356 Slovenian startup companies, which were identified and contacted via email. These companies were listed on a reputable national startup platform, www.startup.si, which served as a credible source for our sampling frame. To enhance reach and participation, the survey was also promoted on various social media platforms and through entities of the innovative environment, that were requested to share the survey with their members. Based on Dealroom.co data (Chiavarini 2021), which identified 238 startups per million residents in Slovenia, our survey covered a substantial portion of Slovenian startups. The survey was active for 28 days, reaching 232 individuals—startup and scaleup company representatives, agreeing their company was innovative, under 10 years old, and had global growth potential. Nearly 80% of respondents were co-founders who also held the position of CEO. For identifying scaleup companies within our sample, we adhered to the OECD's quantitative definition, suitably adapted to reflect the Slovenian business environment. The criteria used to classify scaleups were a workforce of 10 or more employees, a minimum annual revenue of at least EUR 250,000, and an average annual revenue growth of 20% over the past three years. We included companies meeting at least two of these three conditions in our scaleup category, accounting for 25% of our respondents. The majority exhibited more than a 20% average annual revenue growth over the past three years and had revenues exceeding EUR 250,000 annually. This indicates that these companies are rapidly growing, either approaching the transition from startup to scaleup due to their growth potential or already meeting all three numeric criteria to be termed as scaleup companies. Although we collected a robust sample that accurately depicts the Slovenian startup scene, there are inherent limitations and potential biases to consider. The self-selection nature of the survey participation may have introduced bias; those who participated might differ in significant ways from those who did not, including levels of optimism, success, or engagement with the startup community. Additionally, since the respondents were primarily co-founders and CEOs, potential bias towards positive views on innovation and growth potential exist. Furthermore, reliance on self-reported data may lead to social desirability bias, with respondents potentially overestimating their company's innovation capabilities or growth potential. The selection criteria for identifying scaleups appear rigorous but may omit vital qualitative aspects of growth and scalability, like market impact or innovation quality. The survey methodology provided valuable insights into the Slovenian startup ecosystem; however, future research should extend to diversify the respondent base and include longitudinal data to track growth and scaling over time.

3.2. Research Instrument

As a research instrument, we used a questionnaire, which included 37 questions. On a 5-point Likert-type scale, the respondents indicated their agreement with listed statements used in our research, where 1 = strongly disagree and 5 = completely agree. To thoroughly grasp the transition dynamics from startup to scaleup, our study integrated five critical constructs, as presented in Figure 1: entrepreneurial motivation, startup ecosystem, strategic adaptability and disruption, innovation capabilities, and growth-transition

challenges. Regarding the first construct, entrepreneurial motivation, the survey revealed intrinsic motivations, such as passion and desire to make a difference, but also extrinsic motivations, such as market opportunity and financial potential. As a result, the construct was further segmented to encapsulate both these intrinsic and extrinsic elements. The startup ecosystem was envisioned as a broad construct, but actual data pinpointed specific factors that startups found crucial. This included entrepreneurial universities, the school system, mentorship networks, availability of venture capital, regulatory support, and even cooperation with established companies. Respondents were asked to assess statements related to the innovativeness or the intangible advantage of their company. This helped gauge the level of innovativeness across various facets of their business operations. The importance of their current business strategy was also evaluated by respondents. Specific strategic elements under this construct included product development, organizational development, rapid growth, profitability, enhancing employee motivation and their development, strengthening organizational culture, sustainable development, and corporate social responsibility. We discovered patterns of when companies typically pivoted, and under what circumstances they opted for disruption over mere adaptation. These patterns were integrated into the construct strategic adaptability and disruption. Every startup's dream is to scale up, but this transition is not smooth sailing. The data showcased myriad challenges, from capital constraints and legal regulations to talent shortages, and from operational inefficiencies to market dynamics. Non-financial resources, like networking and collaboration, emerged as significant needs during our study. We also observed the challenge related to the mandated physical presence for the conclusion of partnership agreements, especially among scaleups.

3.3. Statistical Analysis

The study employed a comprehensive approach to data analysis, primarily utilizing factor and regression analysis to validate and examine the relationships proposed in our hypotheses. First, we wanted to establish if the use of an exploratory factor analysis is reasonable based on the Kaiser–Meyer–Olkin measure of sampling adequacy ($KMO \geq 0.5$) (Kaiser 1974) and Bartlett's test of sphericity ($p < 0.05$). Also, we checked communalities to see whether their values were higher than 0.40 (Costello and Osborne 2005). We checked the reliability of the measurement of research within the scope of inner consistency with Cronbach's alpha coefficient (Chronbach 1951). For each factor, communalities were examined to ensure values were above the threshold, allowing for a meaningful factor analysis. Furthermore, the percentage of variance explained by each component was computed, and the component matrix was utilized to extract significant variables contributing to each factor. To investigate our hypotheses, multiple regression analyses were conducted to determine the influence of one variable on another.

4. Results

The results in Table A1 (factor analysis results, in Appendix A) indicate the values of communalities for all items in all seven constructs are higher than 0.40. Also, all factor loadings are higher than 0.70. Factor weights indicate the importance of each individual variable in a factor, i.e., the higher the weight, the more important the variable for the factor is. All measurement scales have demonstrated high reliability. In addition to the results in Table A1, the total variance explained for entrepreneurial motivation is 81.9%, for innovation capabilities it is 79.8%, for the startup ecosystem it is 92.1%, for strategic adaptability and disruption it is 92.8%, and for growth-transition challenges it is 77.5%.

After saving factors' scores as new variables, we performed a regression analysis to test the hypotheses. Table 1 shows the regression analysis results.

Table 1. Regression analysis results.

Dependent Variable	Independent Variable	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
Innovation capabilities	Entrepreneurial motivation	0.824	0.062	0.824	13.336	0.000
	Model 1: R = 0.824; Adjusted R-square = 0.675; F-test: F = 177.849, $p < 0.001$					
Growth-transition challenges	Startup ecosystem	0.857	0.056	0.857	15.227	0.000
	Model 2: R = 0.857; Adjusted R-square = 0.731; F-test: F = 231.863, $p < 0.001$					
Innovation capabilities	Startup Ecosystem	0.790	0.067	0.790	11.793	0.000
	Model 3: R = 0.790; Adjusted R-square = 0.619; F-test: F = 139.069, $p < 0.001$					
Innovation capabilities	Strategic adaptability and disruption	0.948	0.035	0.948	27.356	0.000
	Model 4: R = 0.948; Adjusted R-square = 0.898; F-test: F = 748.338, $p < 0.001$					
Growth-transition challenges	Strategic adaptability and disruption	0.896	0.048	0.896	18.543	0.000
	Model 5: R = 0.896; Adjusted R-square = 0.801; F-test: F = 343.826, $p < 0.001$					
Growth-transition challenges	Innovation capabilities	0.901	0.047	0.901	19.047	0.000
	Model 6: R = 0.901; Adjusted R-square = 0.810; F-test: F = 362.772, $p < 0.001$					

Source: own calculations.

4.1. Model 1

The strong correlation coefficient of $R = 0.824$ between entrepreneurial motivation and innovation capabilities indicates a strong connection between these variables. This robust connection is further underscored by the determination coefficient of 0.675, meaning that approximately 67.5% of the variance in innovation capabilities can be attributed to differences in entrepreneurial motivation. We have established the reliability of the derived regression function with the F-test. The F-test results, with a value of $F = 177.849$ and a significance level of $p < 0.001$, confirm the reliability of our regression function, suggesting that the observed relationship between these variables is statistically significant and not due to random chance. The results of the regression (Table 1) indicate that the regression coefficient of entrepreneurial motivation is 0.824 ($\beta = 0.824$), indicating a strong positive impact of entrepreneurial motivation on innovation capabilities. This significance ($p < 0.001$) solidifies the influence of entrepreneurial drive on the innovative output of startups.

These findings align with the broader discourse in entrepreneurial research, which often highlights the critical role of motivation in driving innovative behaviors and outcomes within startups. The results suggest that entrepreneurs' intrinsic and extrinsic motivations are key determinants in fostering an environment conducive to innovation. This insight not only contributes to our understanding of the dynamics within startups but also has practical implications for how startups might cultivate and harness entrepreneurial motivation to enhance their innovative capacities.

4.2. Model 2

Model 2 explores the relationship between the startup ecosystem and growth-transition challenges. The correlation coefficient of $R = 0.857$ points to a strong connection between these variables. This robust link is further evidenced by the determination coefficient of 0.731, indicating that about 73.1% of the variance in growth-transition challenges is accounted by the variance in the startup ecosystem. The F-test results, with a value of $F = 231.863$ and a significance level of $p < 0.001$, establish the reliability of the regression function, indicating that the observed relationship is statistically significant and not due to random variation. The regression analysis reveals that the coefficient for the startup

ecosystem's impact on growth-transition challenges is 0.857 ($\beta = 0.857$), demonstrating a significant influence ($p < 0.001$).

Results suggests that factors, such as legislative support, availability of venture capital, and mentorship networks within the startup ecosystem, play a substantial role in influencing how startups navigate and overcome growth-related challenges. This significant impact underscores the necessity for a well-structured and supportive startup ecosystem to facilitate smoother growth transitions, resonating with the contemporary focus on enhancing startup environments for sustainable growth and development.

4.3. Model 3

Model 3 investigates the relationship between the startup ecosystem and innovation capabilities. The correlation coefficient of $R = 0.790$ signifies a strong association between these variables. This significant connection is further supported by the determination coefficient of 0.619, indicating that approximately 61.9% of the variability in innovation capabilities can be attributed to the startup ecosystem. The reliability of this regression model is confirmed through the F-test, yielding an F value of 139.069 and a p -value below 0.001. The regression results reveal a coefficient of 0.857 ($\beta = 0.857$) for the influence of the startup ecosystem on innovation capabilities, a significant finding ($p < 0.001$).

This outcome aligns with existing research suggesting that the nature and quality of the startup ecosystem substantially influence a startup's innovative potential. Elements, such as the availability of funding, mentorship, regulatory support, and collaboration opportunities within the ecosystem, are crucial in fostering an environment conducive to innovation. This relationship highlights the interconnectedness between external environmental factors and internal capabilities, emphasizing the need for strategic alignment and support at various levels within the startup ecosystem.

4.4. Model 4

Model 4 delves into the relationship between strategic adaptability and disruption and innovation capabilities. The correlation coefficient stands at $R = 0.896$, reflecting a notably strong link between these variables. This robust association is further validated by the determination coefficient of 0.898, suggesting that a remarkable 89.8% of the variance in innovation capabilities is explained by variations in strategic adaptability and disruption. The F-test substantiates the reliability of this regression model with an F value of 748.338, and a p -value less than 0.001, indicating the statistical significance of this relationship. The regression results show a coefficient of 0.948 ($\beta = 0.948$) for the impact of strategic adaptability and disruption on innovation capabilities, significantly different from zero ($p < 0.001$).

These findings support the hypothesis that strategic adaptability and the ability to disrupt traditional practices are critical drivers of innovation within startups. The strong correlation and high determination coefficient suggest that startups that are more adaptable and open to disruptive changes tend to have higher innovation capabilities. This connection emphasizes the importance of agility and innovative thinking in the modern business landscape, where the ability to quickly pivot and embrace disruptive technologies or strategies can significantly enhance a startup's capacity for innovation. The results underscore the need for startups to foster a culture of adaptability and embrace disruption as a means to innovate and stay competitive in rapidly changing markets.

4.5. Model 5

Model 5 focuses on the relationship between strategic adaptability and disruption and growth-transition challenges. The correlation coefficient of $R = 0.896$ highlights a strong connection between these two variables. This significant relationship is further substantiated by the determination coefficient of 0.801, which indicates that about 80.1% of the variance in growth-transition challenges can be attributed to changes in strategic adaptability and disruption. The reliability of the regression model is confirmed by the

F-test, showing an F value of 343.826 with a p -value less than 0.001. The regression analysis demonstrates that the coefficient for the impact of strategic adaptability and disruption on growth-transition challenges is 0.896 ($\beta = 0.896$), signifying a substantial effect that is significantly different from zero ($p < 0.001$).

Findings suggest that the ability of startups to adapt strategically and embrace disruptive changes plays a crucial role in how they navigate and manage challenges associated with growth transitions. The strong correlation and high determination coefficient imply that startups that exhibit greater strategic adaptability and a willingness to disrupt established norms and practices encounter fewer difficulties during their growth phase. This result underscores the importance of flexibility and innovative strategies in overcoming obstacles that arise as startups scale, highlighting adaptability and disruption as key components in the successful transition from startup to scaleup. This insight aligns with the current entrepreneurial literature that emphasizes agility and proactive change as essential elements for growth and sustainability in the dynamic startup ecosystem.

4.6. Model 6

Model 6 examines the final relationship between innovation capabilities and growth-transition challenges. A strong correlation is evident with a coefficient of $R = 0.901$, indicating a significant connection between these variables. This is further emphasized by the determination coefficient of 0.810, which reveals that 81.0% of the variance in growth-transition challenges is explained by the variance in innovation capabilities. The reliability of the regression function is validated through the F-test, which yields an F value of 362.772 and a p -value less than 0.001, confirming the statistical significance of this relationship. According to the regression analysis presented in Table 1, the regression coefficient for the impact of innovation capabilities on growth-transition challenges is 0.901 ($\beta = 0.901$), significantly different from zero ($p < 0.001$).

The strong correlation and determination coefficient point towards the fact that innovation is not merely a driver for incremental improvements but a key catalyst for substantial growth and expansion. Startups that excel in innovating—whether in terms of products, services, or processes—are more likely to navigate through growth-transition challenges successfully and expand their market reach. This finding aligns with the broader narrative in startup research that innovation is a fundamental component of a startup's growth trajectory. It highlights that being innovative enhances a startup's ability to grow and scale effectively, reaffirming the essential role of innovation in the growth and success of entrepreneurial ventures. Based on these results, we confirm the set of hypotheses H1–H6. The extensive survey conducted among Slovenian startups provided a multifaceted glimpse into the dynamics of the country's startup ecosystem. The robust correlation coefficients indicate that the observed variables are not operating in isolation but are interconnected. When considering the working hypotheses, several key patterns emerge which suggest a confluence of data and the broader academic discourse on this subject.

5. Discussion and Conclusions

In recent years, startups have emerged as the leading source of new job opportunities in developed startup ecosystems, especially in the U.S., where startup hubs and venture capital have a longer history. This trend unveils the hidden potential for job creation in Europe, including Slovenia. According to the report "The past, present and future of European tech" by Dealroom & Sifted (2021), we are at a pivotal point in the integration of cutting-edge technologies into the economy, signifying the beginning of a new era. Over the past decade, the market value of companies on the U.S. tech stock index Nasdaq has increased by USD 17 trillion. This growth can be attributed primarily to cloud-based solutions and the wider use of online services. Indications suggest that the upcoming decade will see the proliferation of new technologies, with pioneering innovations becoming more prominent. Consulting firm McKinsey, as cited in Dealroom & Sifted (2021), post that artificial intelligence has the potential to add another USD 13 trillion in company value to

the global economy in the next decade. The valuation of solutions, such as nuclear fusion or cancer treatments would be exceedingly high. Startups receive the “deeptech” label if their solution is based on a scientifically or engineering-demanding challenge that needs practical verification. Building deeptech startups and scaleups is a challenging task due to the numerous risks involved. The complex core technology requires practical validation, which increases the risks to an extent that traditional venture capital investors often find too high to bear. Consequently, leading countries have established specialized venture capital funds prepared for and capable of taking higher risks, thereby bringing these startups closer to the market and making them appealing to traditional venture capitalists. The commercialization of science-based breakthrough technologies presents vast potential for added value, new job opportunities, and beneficial solutions. The entrepreneurial motivation of Slovenian startup owners is characterized by the drive to solve problems, collaborate with talented teams, and achieve independence, and resonates with the existing literature on intrinsic and extrinsic motivational factors in entrepreneurship (e.g., [Shane et al. 2003](#)). These motivations are rooted in a profound passion for innovation, addressing market demands, and a commitment to effecting positive change ([Corrêa et al. 2022](#); [Shahzad et al. 2021](#)). The significant emphasis on innovation serves as a pivotal call for industries to foster a culture of innovation. This could entail promoting grassroots-level ideation or embracing disruptive technologies. Startups have demonstrated their ability to develop breakthrough innovations that meet societal needs, generate high-quality jobs, and established synergies with companies in traditional sectors. In Slovenia, the substantial product, process, organizational, and marketing innovations amongst startups and scaleups are likely a result of their ability to introduce novel solutions and enhance existing ones. This reflects the discussions by [Chesbrough \(2003\)](#) and [Teece \(2010\)](#), who argue that innovation capabilities extend beyond products to encompass processes and business models, driving competitive advantage and market disruption.

Europe recognizes the need for additional startups capable of quickly evolving into innovative SMEs, then flourishing into prosperous corporations, thereby strengthening technological autonomy and the EU’s strategic independence. To achieve this objective, startups require favorable and fair conditions for operation and growth throughout their lifecycle and throughout the EU. A robust ecosystem not only nurtures innovation but also provides the support and infrastructure necessary for startups to scale effectively, navigate market challenges, and sustain. These insights underscore the symbiotic relationship between a thriving startup ecosystem and the innovative and growth potential of startups, affirming the need for comprehensive strategies to bolster ecosystem support for entrepreneurial ventures (see, for example, [Clevenger and Fortunato 2022](#)).

The significance of a supportive legislative framework and the function of educational institutions in encouraging entrepreneurship align with the recognized components of the startup ecosystem. These findings are in line with the assertions of [Aulet and Murray \(2013\)](#) and [Autio and Acs \(2010\)](#) regarding the symbiotic relationship between startups and the surrounding ecosystem. Financial barriers remain the primary hurdle for Slovenian startups and scaleups. However, non-financial resources, like business networks, in-house human capital, and external human expertise from mentors and experts, are also crucial for growth. In light of previous studies, the emphasis on non-financial resources by startups in our research is particularly intriguing. This shifts the paradigm from a largely capital-centric approach to one that values mentorship, networking, and knowledge-sharing. This is not intended to diminish the importance of capital, but rather to emphasize that financial assistance alone cannot foster a prosperous startup ecosystem. Furthermore, our research highlights the capacity of startups to pivot and adjust, aligning with global studies that underline the significance of agility in entrepreneurial success. Such adaptability, which seems prevalent in the Slovenian startup ecosystem, might be a crucial factor in distinguishing successful startups from those that struggle. This is consistent with the literature emphasizing the need for startups to remain agile and responsive to

market changes (McGrath and MacMillan 2000), underscoring the significance of strategic adaptability and the potential for disruption.

Our findings also suggest a symbiotic relationship between strategy and growth-related challenges. This reinforces the notion that strategy is not a one-time endeavor but a dynamic blueprint that needs constant refinement in the face of emerging challenges (Mintzberg 2000). Finally, the results confirm that innovation serves as a crucial driver of growth. Slovenian companies that actively engage in innovative practices often encounter accelerated development and expansion in their respective markets. This finding aligns with McKelvie et al. (2017), who discovered a notable positive correlation between innovation engagement and growth in young enterprises.

The research of McKinsey & Company (2021) focused on the most successful European tech startups founded after the year 2000 and revealed that nearly two-thirds of the top 1000 startups and scaleup companies from Europe originated in the UK, Germany, and France (McKinsey & Company 2021). The companies were evaluated based on 15 diverse factors including location and industry, and the timeline of development, financing, and revenue generation necessary to attain “unicorn” status was analyzed. Key findings indicated that successful European tech startups and scaleups utilize different strategies to attain success. Four strategies were considered fundamental: leveraging network power, adopting business models facilitating rapid growth, innovating and marketing novel products, and utilizing groundbreaking technologies or “deeptech” solutions, such as artificial intelligence. Additionally, it was found that, on average, companies need investments ranging from EUR 100 to 200 million to reach unicorn status. Remarkably, 70–80% of these unicorns achieved this milestone within a decade of their inception.

Despite its potential, Slovenia’s startup ecosystem is not progressing fast enough to solidify its position as a leading regional hub. Much depends on the boldness and strategic direction of government policymakers. To implement successful changes, awareness, expertise, political will, and effective monitoring are crucial. Slovenian startup and scaleup representatives primarily desire favorable tax laws and regulations, enabling successful entrepreneurs to invest in startups over conventional investments. Stability in the legal environment and legislation, early-stage funding sources, reduced bureaucracy, better understanding of startup needs, and later-stage funding are also high priorities. Targeted support for startups and scaleups across the EU aims to leverage opportunities presented by new technological trends and global sector transformations in certain areas, such as energy, food, and logistics. This support also seeks to enhance the EU economy’s long-term resilience in the face of future challenges. The adopted EU Startup Nations Standards of Excellence, which Slovenia currently lags behind in comparison to most EU countries, can guide the government in this endeavor.

The implications of these findings are vast, indicating a holistic approach that equally values infrastructure, mentorship, collaboration, education, and various other factors. To enhance the nation’s entrepreneurial spirit, it is essential to redesign the primary and secondary education system to instill entrepreneurial competencies, thinking, and proactive activation. Recognizing that numerous individuals with entrepreneurial ambitions lack the support to realize them, a robust entrepreneurial education system can be a game-changer. We urge the creation of a strengthened bridge between universities and the business sector to ensure a seamless transfer of research and development. Implementing mechanisms that convert scientific advancements into actionable business solutions is of paramount importance. We recognize the excellence of European and Slovenian universities and research institutions. However, it is crucial that they pivot towards a more entrepreneurial culture, focusing on the training of academic entrepreneurs and empowering technology transfer offices.

While our study has provided an in-depth analysis of the Slovenian startup ecosystem, it is important to acknowledge its limitations for a comprehensive understanding. Firstly, our reliance on self-reported data through surveys introduces potential biases, such as social desirability or response bias, where participants may present their startups more favorably.

Additionally, the study's cross-sectional design limits our ability to establish causality or observe the evolution of startups over time. A longitudinal approach would be more effective in capturing the dynamic nature of startups, their changing challenges, and the long-term efficacy of their strategies and external support mechanisms. The geographical focus on Slovenia, while offering valuable localized insights, may limit the generalizability of the findings to other contexts. Expanding the geographical scope in future research to include a variety of countries or regions could offer a more holistic view of the global startup environment and facilitate cross-cultural comparisons. Lastly, the study's emphasis on the viewpoints of primarily startup founders and CEOs. Inclusion of a wider range of stakeholders, such as employees, investors, and customers, could provide a more rounded view of the challenges and opportunities within startups. Addressing these limitations in subsequent research would not only enhance the robustness of the findings but also broaden their applicability, contributing to a richer and more nuanced understanding of the global startup landscape.

While our study has illuminated crucial aspects of the Slovenian startup ecosystem, it also provides opportunities for numerous research directions. Future studies, equipped with our findings, can delve deeper and pave the way for an even more vibrant entrepreneurial landscape in Slovenia and beyond.

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Appendix A

Table A1. Factor analysis results.

Construct	Item	Communalities	Loading	Cronbach's Alpha
Entrepreneurial motivation	The problem I/we wanted to solve	0.873	0.934	0.975
	Working with great people in a great company	0.848	0.921	
	To influence/help people	0.882	0.939	
	Being your own boss	0.856	0.925	
	Opportunities for higher incomes	0.879	0.938	
	Need for change	0.861	0.928	
	Finding a balance between work and family	0.799	0.894	
	Flexible working hours	0.822	0.907	
	Difficulty finding a job	0.703	0.839	
	At the invitation of a company acquaintance, friend...	0.667	0.816	

Table A1. Cont.

Construct	Item	Communalities	Loading	Cronbach's Alpha
Innovation capabilities	Product innovation—technological innovation, radical upgrade of existing solutions or a completely new solution	0.880	0.938	0.934
	Process innovation of production or performance of services	0.891	0.944	
	Innovation of the organization (new way of working, production, or running a company)	0.902	0.950	
	Marketing innovation (new sales channels, innovative communication, new user experience, design. . .)	0.820	0.906	
	Other	0.495	0.704	
Startup ecosystem	Legislation in light of the support of startups and scaleups	0.928	0.963	0.977
	Measures of the state in the light of the support of startups and scaleups (public tenders, support services environments, such as counselling, mentoring, training. . .)	0.923	0.961	
	The school system in the light of acquiring the competences of entrepreneurship, encouragement entrepreneurial thinking and activation	0.941	0.970	
	Universities in light of the acquisition of the competences of entrepreneurship, encouragement entrepreneurial thinking and activation	0.945	0.972	
	Established companies in the light of cooperation with startups and scaleups	0.869	0.932	
Strategic adaptability and disruption	Rapid growth	0.920	0.959	0.989
	Profitability	0.902	0.950	
	Product development	0.912	0.955	
	Organizational development (processes, structure, communication. . .)	0.953	0.976	
	Strengthening motivation for businesspeople and their development	0.930	0.964	
	Strengthening of organizational culture (norms, standards, values. . .)	0.951	0.975	
	Sustainable development of the company or products/services	0.927	0.963	
	Corporate social responsibility	0.932	0.966	
Growth transition challenges	Required physical presence when concluding company contracts	0.826	0.909	0.970
	Difficulty optional rewarding	0.819	0.905	
	Employment of foreigners (demanding obtaining visas)	0.784	0.885	
	Financial barriers	0.879	0.938	
	Lack of access to knowledge	0.866	0.930	
	Maintaining qualified personnel	0.837	0.915	
	Lack of networking	0.805	0.897	

Table A1. Cont.

Construct	Item	Communalities	Loading	Cronbach's Alpha
Growth transition challenges	Lack of leadership capacity	0.864	0.929	0.970
	Low capacity for product/service growth	0.793	0.890	
	Other legal regulations	0.656	0.810	
	Other challenges	0.594	0.728	

Source: own research.

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