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RAUF GILINJOV

MASTER’S THESIS

RISK MANAGEMENT FOR START-UP SUCCESS

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LIST OF ABBREVIATIONS

AHP - Analytic Hierarchy Process

ERM - Enterprise Risk Management

ISO - International Organization for Standardization

NPVR - New Product Venture Risk

STPA - System Theoretic Process Analysis

FMEA - Failure Mode and Effects Analysis

GDPR - General Data Protection Regulation

VC - Venture Capital

SME - Small and Medium Enterprise

CRM - Customer Relationship Management

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INTRODUCTION

Relevance of the topic: Start-ups have become critical contributors to the global economy and development of innovation. Many scholars, such as Anokhin and Wincent (2012), argue the vital role of start-ups in developing innovative solutions and economic growth. Similarly, Sternberg and Wennekers (2005) argue that start-ups impact the global economy, especially in areas where innovation is highly regarded, and resources may be scarce. Risk management is a crucial element that plays a critical role in start-ups' long-term growth and longevity. Start-ups, despite having limited financial resources to address uncertainties, have the advantage of being adaptable and innovative when compared to well-established firms. Customized risk management strategies are essential for start-ups as they encounter distinct challenges. Operational risks, pressure from competitors, and market fluctuations are distinct characteristics of the environment in which start-ups operate. Despite the above-mentioned challenges start-ups play an important role in the development of new products, services, and processes that have a significant impact on revolutionizing industries. Start-ups' importance to economic progress is signified when we consider that they generate employment opportunities, attract investments, and foster competitive markets. Scholars Hoogendoorn, Zwan, and Thurik (2020) argue that start-ups significance is not limited to just economic progress but is also true for social challenges and environmental sustainability. Considering start-ups' ability to change technological and economic landscapes, the need for comprehensive and integrated risk management in this field is essential. Start-ups are at higher risk of failure due to many risks. The use of effective risk management strategies is of the utmost importance to reducing these risks and elevating the possibility of achieving advantageous outcomes. Implementation of a strategic risk management strategy is further signified by the fact that start-ups face heightened vulnerability to challenges due to limited resources. This approach allows start-ups to effectively allocate resources, predict future challenges, and effectively navigate through difficult circumstances.

Level of problem investigation: Various authors have examined the literature on risk management and start-ups focusing on various important factors that aid in understanding and reducing risks in the entrepreneurial setting. Risk management in start-ups has been extensively investigated by authors and researchers from multiple perspectives.

According to Didraga (2013), the significance of risk management in achieving success in IT projects is underscored. The author argues that risk management plays a crucial role in the success of IT projects, borrowed from a comprehensive examination and analysis of scholarly literature spanning the years 1978 to 2012. A significant correlation between project risk management and project success was emphasized by the scholar Teller (2013) and the author further investigates the application of risk management to project portfolios and its influence on the overall success of the portfolio. In a similar way, scholars S. Kom (2016) examine the significance of risk management within IT management and its far-reaching effects on the success of IT projects. The scholars highlight that the inclusion of risk management and the presence of risk managers play an important role in determining the success of projects. The importance of effective risk management for start-ups that are launching innovative products is further discussed by researchers Teberga & Oliva (2018). The researchers present a methodology that incorporates the computation of net present value adjusted to the risk associated with the creation of a novel product (NPVR). What's more, the research stresses the significance of strategic communication and product development procedures in accordance with risk analysis and mitigation.

Scholar Pukala, R. (2021) identifies financial risks as one of the influential factors in the operations of start-ups and states that the depletion of financial liquidity and insufficient funding can prevent further expansion. Researchers Teberga, Oliva, and Kotabe (2018) argue that the dynamic nature of technological innovation requires the implementation of strong risk management procedures. The researchers propose the use of a deductive-inductive matrix as a means of effectively managing uncertainties and risks. On the other hand, Dykha et al. (2023) argue that the utilization of a decision tree is a suitable alternative approach for attaining optimal outcomes in the management of risks associated with start-ups. The researcher provided a comprehensive definition of risk within the start-up initiatives, including both objective and subjective dimensions. The researcher stresses the significance of identifying, evaluating, and strategizing for effective risk management.

The importance of implementing specialized risk management strategies for effectively negating the challenges posed by financial instability, market volatility, and the use of innovative technology was highlighted throughout the studies. These studies, in combination with other scholarly works, showcase crucial elements in the examination of risk management for start-up success. These elements include the significance of commitment from upper-level management, the imperative nature of risk identification, analysis, and response procedures, and the role of information technology governance in the management of risks. The literature consistently emphasizes the need for risk management in enhancing corporate performance, ensuring project success, and mitigating potential adverse effects arising from diverse risks. These studies underscores the necessity for investigation on risk management strategies that are specifically tailored to the context of start-ups.

The essence of the problem. How risk management influence start-up success?

Object of the thesis is risk management for start-up success.

The aim of the thesis is to investigate risk management for start-up success

The objectives of this research are:

1. To investigate the definition and components of risk management, and to describe how these apply specifically to start-ups.
2. To investigate integration of risk management with overall start-up strategy.

3. To analyze empirical research level of risk management for start-up success.
4. To formulate a research model based on the evaluation of theoretical and empirical research, and to perform an empirical evaluation of this model.

Thesis and research methods. The theoretical and analytical foundations of risk management for start-up success were examined by general scientific research methodologies, including examination of scientific literature, synthesis, and classification. The study's empirical part utilises a qualitative interview methodology and analyses the collected data using thematic analysis to delve into risk management at a more profound level.

The structure of the thesis. The master's thesis "RISK MANAGEMENT FOR START-UP SUCCESS" consists of three parts: the first part is called "Theoretical Analysis of Risk Management for Start-up Success" where the theoretical aspects of risk management for start-up success are explored. A comprehensive definition of risk management and its components, the evolution of risk management theories, and their application in start-ups were examined. As well as a comparison of traditional risk management theories against contemporary risk management approaches. The first part of the thesis concludes by presenting a theoretical model of risk management for start-up success. The second part of the master's thesis called "Empirical Research Level of Risk Management for Start-up Success" explores the empirical research in the context of risk management for start-ups. Various literature on strategies and practices in start-ups, as well as the impact of entrepreneurial and managerial traits on risk management and the influence of organizational factors on start-up success was examined and the findings from various authors were synthesized. The third part of the master's thesis "Empirical Research of Risk Management for Start-up Success" presents the research methodology, analysis of the empirical research data in comparison with the findings from the second part and also assesses the research results, provides insights into effective risk management strategies that start-ups success.

Literature used in the thesis.

The theoretical portion of this thesis mostly incorporates works by international researchers and publications that specifically concentrate on risk management, especially in the context of start-up companies. The theoretical concepts and models that are specifically relevant to risk management strategies that are designed for the distinctive problems and possibilities faced by start-ups were investigated and referenced. The major references include the research conducted by Ade et al. (2020), Teberga et al. (2018), Karaarslan and Soylu (2023), Pukala, Sira, and Vavrek (2018), and Ikhasari and Faturohman (2021), as well as other scholars who have made noteworthy contributions to the understanding of risk management in the context of start-ups.

In the empirical sections, the thesis leverages articles by international authors and empirical research focusing on the application of risk management strategies and practices in start-ups. This includes a critical analysis of risk management approaches, the impact of entrepreneurial traits on risk management, and organizational factors influencing start-ups' risk management effectiveness. Notable sources cited in this part are the research conducted by Ikhasari and Faturohman (2021), the study by Ade et al. (2020), and the application of ISO 31000 standards as a systematic method for managing risks. Additional noteworthy references include the examination of techniques for identifying and evaluating risks, with a focus on implementing complete risk management strategies to enhance the possibility of success for start-ups.

Furthermore, in addition to above mentioned scholarly work comparative case studies and surveys conducted by Teberga et al. (2018) and Pukala, Sira, and Vavrek (2018) investigated to further provide practical insights into risk management approaches in various start-up settings. These studies provide a comprehensive view, demonstrating the diverse strategies for managing risk in various cultural and economic settings.

The theoretical significance of the thesis:

- The thesis presents a comprehensive model that combines traditional and contemporary risk management ideas specifically designed for start-ups. Offering a strategic method for managing risks.
- By analysing various scientific literature that focuses on risk management strategies and practices the thesis identifies key risk management concepts that are essential for start-up success. Subsequently, internal environment and risk assessment, technology and product risks, financial and marketing risks, and organizational risks then categorized to aid in a systematic exploration of the risk management practices and their impacts on start-ups.
- The thesis highlights the importance of managerial and entrepreneurial traits in the execution of risk management strategies and further states that entrepreneurial mindset and leadership commitment are crucial in creation of a culture that combines risk management as a critical part of strategic planning.
- The thesis provides insight into the practical application of risk management theories by critically evaluating empirical research on risk management for start-up success. Furthermore, the effectiveness of different risk management practices is assessed to provide evidence-based risk management strategies for increasing risk management ability. furthermore, the thesis explores integrations of risk management within overall start-up strategies.

The practical significance of the thesis:

- To succeed in different business areas and environments start-ups need to balance business strategies with local business environments and market demands. Entrepreneurial traits are shown to influence start-ups' ability to align with different environments.

- Well-structured, comprehensive, and integrated risk management shown to increase the long-term success of start-ups not only in mitigating potential risks but also capture surfacing opportunities.
- The Intra-organizational characteristics shown to influence start-ups' ability to grow, adapt to market conditions, and long-term success. Such characteristics as resilience, adaptability, agility, and innovation significantly influence start-ups' success.

Limitations of the thesis. There may be some limitations to this study. These limitations include (1) the use of qualitative research method, as qualitative research often uses the interpretations of subjective information such as personal experiences and opinions (Hennink, M., Hutter, I., & Bailey, A. (2020). In this case, was advantageous to obtain more detailed information. However, it is important to mention that the responses to the questions by informants can be subject to biases as the responses are often influenced by cultural and personal values, beliefs, and personal experiences. This can lead to potential bias in the data, which, in turn, can lead to potential misinterpretations. Another limitation of the study (2) is that the interviews were conducted in English. As English is not the native language of the informants, the understanding and comprehension of the interview questions may be limited.

Structure and scope of the thesis. The master's thesis titled "Risk Management for Start-up Success" is organised into an introduction, three main chapters, and conclusions. The thesis includes 10 tables and 3 figures to support and elaborate on the analysis conducted throughout the study. Furthermore, the thesis is supplemented with appendices, The bibliography of the thesis is consistent of 89 references.

1. THEORETICAL ANALYSIS OF RISK MANAGEMENT FOR START-UP SUCCESS

This chapter explores definition of risk management and its components, alongside definitions of start-ups and integration of risk management with overall start-up strategy based on recent literature. It critically assesses conventional and modern risk management methods, emphasizing their importance in start-ups' survival and growth in the uncertain business environment.

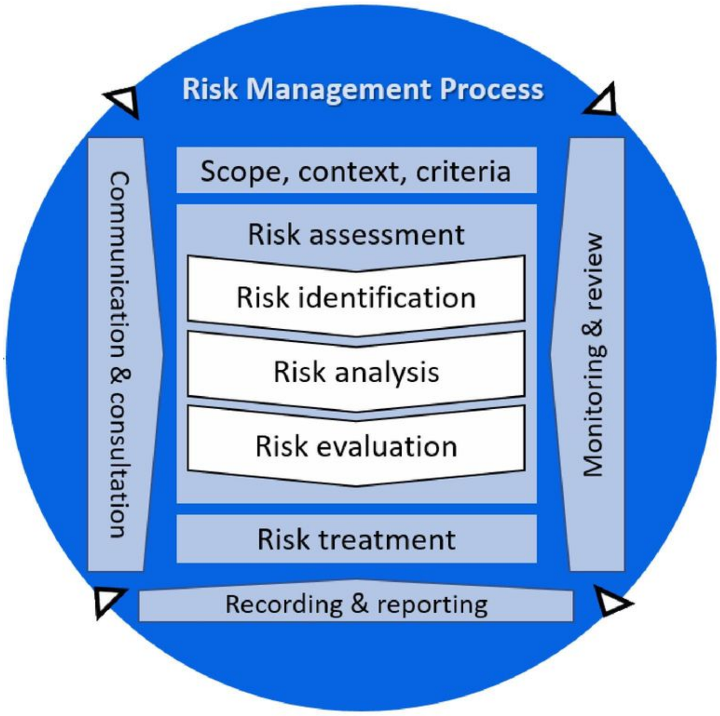
1.1 Definition of Risk Management and its Components

The varying definitions of risk management across disciplines reflect the distinct concerns, goals, and points of view that each discipline brings to the table. The evolution of concepts related to risk management is intricately connected with several historical, social, and technological changes. These developments have played a significant role in shaping how risk is seen and handled. According to scholar Attar (2011), risk management in a scientific approach that places emphasis on careful analysis, probabilistic reasoning, and measurement. From the scientific point of view, the objective of the scientific approach is to identify, measure, and manage risks on an objective basis. One of the tendencies of this method is that it puts measurable elements over subjective evaluation.

On the other hand, Berg-Beckhoff et al. (2017) argues that throughout history, the idea of risk has shifted from being regarded as external, pre-given threats (such as famines or natural disasters) to a concept that entails active management to limit the possibility of adverse outcomes. Risk began to be perceived as something that could be calculated and managed, signifying a shift towards a more proactive and calculative approach towards potential threats. This transition occurred because of the beginning of societal initiatives to control hazards, particularly with the goal of achieving a predictable level of security.

When exploring the historical background of the idea of risk in banking and finance, predominantly it was associated with the necessity of evaluating the possibility of future losses or gains. Subsequently, concepts such as time and probability were included in risk assessment, according to Rocha, Oliveira, and Capinha (2020) this reflected a larger cultural trend in an attempt to quantify and manage uncertainty, in the context of rapid technological advancements and the subsequent results they might have. That said considering that many disciplines have each own unique perspective they provide different viewpoints on risk management based on the specific circumstances and goals of their respective fields. A notable example of this is Berg-Beckhoff et al. (2017) publication on risk assessment on occupational and environmental health. According to Berg-Beckhoff et al. (2017) identifying potential risks, determining the probability of said hazards occurring, and evaluating the potential impact those hazards could have on human health or the environment was the main function of risk assessment. In order to successfully achieve this goal reflecting on a combination of objective data analysis and subjective judgment that is formulated by repetitively performing technical measures and observations of real-world consequences is practiced.

According to ISO 31,000, the international standard for risk management guidelines, risk management is a series of operations that aim to guide and govern an organization in relation to risk (Figure 1).



Source: ISO 31000: Risk management—Guidelines

Figure 1. General risk management process.

Therefore, risk management covers a broad perspective of approaches, from qualitative assessments that consider social, cultural, and subjective factors to highly quantitative, scientific methods. The need for interdisciplinary approaches that integrate different perspectives and methodologies to effectively address the multifaceted nature of risk is further complemented by the fact that diversity of definitions reflects the complexity of managing risks in various domains.

The historical evolution of risk management emphasizes the significance of taking a nuanced approach to risk management. The evolution of risk management theories from their classical roots to modern frameworks reflects the dynamic nature of business settings and the increased complexity of problems that firms, particularly start-ups, face. Historically, financial and operational risks were the primary focus of risk management, with a special emphasis on finding methods to prevent losses and protect assets (Johri, 2013). According to Tkachenko, Kwilinski, Tkachenko, and Puzyrova (2019), the scope of risk management has extended to include strategic, reputational, and regulatory risks as the business landscape has evolved. This growth is especially important in the context of start-ups and new market entrants.

Considering the changing realities of the business world the transition from a traditional-centric to a more comprehensive risk management perspective is a natural process rather than just a theoretical evaluation. Risk management for start-ups necessitates an approach that is beyond the standard risk management procedure considering the unique characteristics they possess and the volatile markets in which they typically operate. Thus, this necessitated a shift from solely on financial and operational risks-centric perspective to a more encompassing perspective with strategic and repetitional risks, demonstrating its adaptability to the needs of modern entrepreneurial endeavours.

When the complexity of risk management theories and their application in the context of the start-ups were examined, it is obvious that this change is more than just a shift in emphasis. This is a critical adaptation to accommodate the ever-increasing complexity and interconnection of today's corporate world. This shift from old to modern risk management approaches reflects the underlying transformations that have occurred in the corporate sector. It emphasizes the significance of agility and foresight in handling new problems and opportunities.

The prior risk management methods were primarily a reactive process, with the primary goal of reducing losses after they had already occurred. This strategy was mostly quantitative, with an emphasis on measurable risks, and it frequently neglected more extensive and qualitative risk components (Poliukhovych, Raicheva, & Ivanov, 2022). When corporations began to participate in more volatile and global markets, it became evident that they needed a more proactive and comprehensive risk management plan. As a result of this shift, modern risk management ideas emerged. These theories emphasize taking a holistic risk view and combine both quantitative and qualitative studies. According to Kovalenko (2017), contemporary theories advocate for risk anticipation, which develops a culture of risk-aware decision-making throughout the business.

Traditional Risk Management Theories and Their Application in Start-ups. Traditional risk management theories have been important in strategic decision-making in business, especially for small enterprises. Financial Risk Management, Insurance Theory, and Portfolio Theory have been essential for understanding risks and constructing mitigation strategies. According to Siemon (2010) Financial Risk Management utilized by start-ups for detecting, assessing, and mitigating financial risks by using tools such as hedging and derivatives, provides a systematic method for managing financial uncertainties. In addition, Kleyn (2020) presents Insurance Theory that provides a system that enables start-ups to handle risks over which they have no control. This approach proposes transfering any losses to insurance companies. In 1952, Harry Markowitz introduced a novel concept that advocated for diversification as decreasing investment risk which was called Portfolio Theory.

This strategy can be especially beneficial for start-ups seeking to strike a balance between growth and risk (Siemon, 2010). These traditional principles highlight the evolution of risk management from a more segmented approach to a holistic plan, which, while providing a solid base, also underlines the evolution of risk management. Considering the ever-changing environment that is associated with start-ups aforementioned theories need adjustment and modifications to include more comprehensive risk management. As start-ups face not only financial but also operational, strategic, and market-related risks. The shift in traditonal risk management theories to their application in the specific setting of start-ups exemplifies the continuous growth of risk management solutions. This change emphasizes the importance of implementing a thorough and flexible strategy in today's corporate environment.

Application in Early Stage Ventures. When applied to the establishment of new firms, these traditional principles provide both major insights as well as notable restrictions and limitations. Start-ups, which are defined by high degrees of uncertainty and limited resources, have unique challenges that may not align with these typical models when they are first launched.

I. Financial Risk Management: Despite the fact that Financial Risk Management provides approaches for managing market and credit risks, its application in start-ups is limited due to the ever-changing and unpredictable nature of their financial environments (Siemon, 2010). Because start-ups lack the historical data and market presence required for traditional financial risk assessment approaches, it might be challenging to successfully apply them.

II. Insurance Theory: Although Insurance Theory provides a way for risk transfer, start-ups may find insurance premiums to be unofferdable or may have difficulties identifying insurance products that are appropriate for their specific risks (Kleyn, 2020). Furthermore, relying on insurance may not be feasible given the risks associated with innovation and market acceptance, both of which are critical for small enterprises just getting started.

III. Portfolio Theory: Considering that start-ups mostly have concentrated risk profiles since they focus on particular products or industries Portfolio Theory might be not suitable in the effective implementation of this approach (Siemon, 2010). Since start-ups lack the necessary resources to widen their business interest or products compared with established enterprises where diversification is a more suitable strategy.

Of course, these traditional approaches in new businesses comes with some disadvantages. Brockman, Becherer, and Finch (2006) argue that these theories usually assume predictable and stable market conditions, which is not always the case for start-ups. This is one of the primary disadvantage of this theories. Because start-ups operate in an ever-changing environment, typical risk models may be unable to effectively reflect the intricacies of entrepreneurial risk-taking and innovation.

Furthermore, according to Kalyanasundaram, Ramachandrula, and Mungila Hillemane (2021) critical qualitative variables such as market innovation, leadership, and team dynamics are heavily overlooked by the theories that are quantitative-centric. The note of this aspect further highlights the importance of taking a more comprehensive approach to risk management in start-ups. The comprehensive and integrated risk management solutions should balance both traditional methods and new solutions that are specifically tailored to the difficulties faced by early-stage start-ups. In summary, a solid understanding of the fundamental foundation of risk management as well as a more comprehensive perspective should be taken into consideration in the specific and dynamic characteristics of start-ups.

Contemporary Risk Management Approaches in Start-ups. Contemporary risk management approaches represent a significant change when compared to traditional risk management methodologies. Researchers Majdalawieh and Gammack (2021) argue that enterprise risk management (ERM) is a more complete method since it integrates risk management with a company's strategic goals. Integrated risk management advocates for a more collaborative and all-encompassing approach to risk management, emphasizing the interconnectedness of risks that occur across many departments and functions within an organization thus making this method where all types of risk are considered during the decision-making process.

On the contrary, researcher He (2018) argues that strategic risk management corresponds to the systematic identification and control of hazards that may compromise the lasting strategic goals of an organization. These modern theories give a framework that is better suited for risk management in the context of start-ups, which operate in a dynamic and uncertain environment. Start-ups are vulnerable to a multitude of hazards that are frequently unexpected and interrelated due to their core nature of innovation and growth.

According to Yin et al. (2023), the application of enterprise risk management (ERM) in start-ups offers a more agile and responsive risk management strategy, allowing risk strategies to be aligned with overall business objectives. Because strategic decisions in start-ups usually include high risks and the prospect of rapid change, this alignment is critical to the company's success. It is especially important for start-ups to utilize integrated risk management considering the frequent and connected nature of start-ups' operations. This is especially true considering the fact that the spill over effect is very real for start-ups as all roles and departments get affected by it. Comprehensive and integrated risk management allows risks to be not considered in isolation but within the overall context of the overall risk profile of the start-up. Strategic risk management is an important management approach for start-ups to implement as they advance through the many stages of growth and development. Start-ups can anticipate potential challenges that could derail their long-term goals if they focus on strategic risks and consider them. Start-ups can not only decrease risks by taking a proactive approach to risk management, but they can also recognize and capitalize on possibilities that risks may bring.

Despite the fact that modern approaches to risk management bring a number of significant benefits to start-ups, these models' implementation can be complicated and resource-intensive, which might be problematic for start-ups with limited resources (Przetacznik, 2022). This is one of the criticisms directed at them. Because of the unpredictable nature of start-ups, certain components of these approaches may be less effective. This is due to the fact that these approaches typically require a certain level of consistency and predictability in order to function properly. Regardless of the complaints, the significance of contemporary risk management approaches within start-ups cannot be overstated. Their focus on integration, strategic alignment, and comprehensive risk assessment is closely matched with the requirements of start-ups, rendering them a crucial element of a start-up's plan for expansion and longevity.

Comparative Analysis: Traditional vs. Contemporary Risk Management in Start-ups. The progression of risk management subsequently led to a shift from conventional models towards more modern approaches.

A notable feature of conventional risk management methodologies is their focus on specific hazards, often with the ability to be measured or quantified. Financial Risk Management specifically addresses the risks linked to the financial industry and uses tools like hedging and derivatives (Siemon, 2010). Both Insurance Theory and Portfolio Theory advocate for diversification as a strategy to decrease risks associated with investment (Kleyn, 2020). Insurance Theory involves the act of shifting the burden of risk from insurance entities to insurance corporations. While these theories are successful in addressing specific risks, they often operate independently and may overlook the interconnected nature of hazards in start-ups. Contemporary theories adopt a more complete and integrated approach, as opposed to older approaches. Majdalawieh and Gammack (2021) define enterprise risk management (ERM) as a methodology that integrates risk management with the strategic objectives of a company. This approach ensures a thorough assessment of risks across the entire organization.

Applicability and Effectiveness in Start-ups. Modern theories often outperform earlier models in terms of their relevance and effectiveness when applied to the context of start-ups. Start-ups have various interconnected risks that may not be adequately addressed by traditional methods due to their rapid growth and dynamic nature. For instance, the strategic risk of market acceptance for a start-up is not an isolated process, but rather often interconnected with other risks such as financial, operational, and reputational.

Yin et al. (2023) argue that the full implementation of enterprise risk management (ERM) allows start-ups to effectively handle risks in a way that aligns with their strategic goals, rather than merely evading issues. Due of the potential significant consequences of strategic decisions, this strategy is crucial throughout the start-up phases. Real-world examples serve as additional evidence of these distinctions. For instance, a technology start-up may employ traditional financial risk management techniques to safeguard against fluctuations in currency values. However, it is plausible that this approach fails to mitigate the strategic risk associated with technological obsolescence. Conversely, a start-up employing enterprise risk management (ERM) can identify and mitigate this strategic risk by allocating resources to continuous innovation and market research, thereby aligning its risk management protocols with its overarching company strategy. A further example of this may be seen in the application of Integrated Risk Management in start-ups, namely in marine companies in China. Yin et al. (2023) argue that start-ups can benefit from implementing an integrated strategy that considers the interconnectedness of risks since these risks are not just financial but also operational, market-based, and innovation-related.

Table 1

Comparative Chart: Traditional vs. Contemporary Risk Management Approaches

Dimensions	Traditional	Contemporary
Focus Areas	Financial/Operational	Strategic/Reputational/Regulatory
Risk Management Methods	Quantitative	Quantitative & Qualitative
Outcomes	Risk Avoidance	Risk Optimization and Purposeful Risk-Taking
Applicability in Start-ups	Limited due to Predictable Market Conditions	High due to Dynamic Market Conditions
Strategic Alignment	Minimal	High

Source: created by the author

Traditional risk management theories provide fundamental tools and frameworks, whereas new theories offer a more holistic and integrated approach that aligns effectively with the dynamic and diversified characteristics of start-ups (see Table 1: Comparative Chart: Traditional vs. Contemporary Risk Management Approaches). Briefly, the shift from traditional risk management theories that present fundamental approaches to more modern risk management approaches that take into consideration the start-ups' more ever-changing and evolving nature.

The transition from a traditional, fragmented method of managing risk to a more inclusive and strategic structure is of great importance for emerging businesses. Start-ups, characterized by their natural volatility, lack of established protocols, and uncertain market conditions, face unique *problems that necessitate adaptable and agile risk management solutions. Modern risk management theories allow start-ups to not only reduce risks but also use them as opportunities for expansion and innovation, due to their flexibility. The progression of risk management ideas from traditional to modern frameworks has led to a significant change in how we perceive and deal with business uncertainty. This transformation has taken place inside the dynamic and demanding environment of start-ups. Most importantly traditional risk management theories provided the fundamental understanding, these ideas primarily focused on financial and quantifiable aspects of risks. However, they often lack consideration for the interconnected nature of the risks that exist within start-ups. Modern approaches differ significantly from traditional approaches as they offer a more complete and interconnected approach that links risk strategies with total business strategy. They emphasize the importance of perceiving risk management not as a separate, but rather as an important part of strategic planning and decision-making.*

1.2 Definition of Start-ups and Analysis of Risk Management in Start-ups

Definition of start-up

The definition of start-ups varies depending on the academic literature while there is no unified concept of start-ups, the overall agreement is that start-ups are dynamic and innovative entities within the global economy, which sets them apart from other organizations. When examining the various scientific materials, it becomes evident that start-ups are characterized as more than just entities that create novel enterprises but expand innovative business concepts. Slávik (2020) and Vonoga (2018), explored the technological aspects of start-ups. While Slávik and Srovnalikova (2020) have examined the human aspect and highlighted these aspects as differentiating points from well-established firms. Furthermore, Slavik, Hanak, and Hudakova (2020) present strategic viewpoints that contribute to a more comprehensive understanding of start-ups. On the other hand, Valente, Barros, Maia, and Cunha (2018) explore the integration of product, market, and supply chain decisions in their analysis. In combination these observations add to a sophisticated conceptualization of start-ups, situating them as adaptable and progressive organizations dedicated to fostering innovation, expansion, and the actualization of pioneering concepts.

In summary, start-ups are characterized as innovative, adaptable entities that have a significant influence on the global economy. Star-ups combine ambition, innovation, and human resources, all motivated by the objective of realizing visionary concepts into concrete solutions that tackle intricate issues. The concept of start-ups, as derived from scholarly literature, emphasizes their importance in promoting innovation, technical progress, and economic importance.

Risk Management in Start-ups. Risk management is an essential part of start-ups. Risk management was originally centered on finance and operations, but since then has evolved to include various risks that start-ups face (Johri, 2013). Start-up risk management includes financial, insurance, compliance, reputation, and strategic risks (Tkachenko et al., 2019). This expansion is crucial since start-ups often operate in highly dynamic and unpredictable environments. In order to practically integrate theories into practice, risk management principles must be able to adapt to the challenges start-ups face. Traditional risk management theories mentioned previously provide essential insights, but their direct application to start-ups is restricted. Scholars like Siemon (2010) and Kleyn (2020) discuss the shortcomings of Portfolio Theory and Insurance Theory by emphasizing how diversification may conflict with start-ups' resource constraints and business strategies as well as how start-ups sometimes struggle to adopt these approaches due to costly premiums and unique risks that may not be covered by standard insurance products respectively. Modern risk management systems like IRM and ERM are relevant to start-ups. These methods reveal threats and link them to strategic goals (Majdalawieh, & Gammack, 2021). These methods emphasize the importance of risk management in strategic planning and decision-making. Start-ups must balance risk-taking and long-term growth, making this an integral part of start-ups. Nonetheless, Przetacznik (2022) argues that applying these modern theories to start-ups is difficult. Start-ups with limited resources may struggle to deploy comprehensive risk management frameworks like ERM due to their complexity and resource needs. Start-up environments are fast-changing and unpredictable, making risk management approaches less effective. Therefore, a more agile strategy is needed. In summary, start-up risk management needs to adapt both traditional and modern risk management techniques to solve problems. Implementing this approach is essential for navigating uncertainty and securing long-term growth and success. Although difficult, it is necessary, especially with limited resources and start-ups' ever-changing nature.

Risk Identification in Start-ups. Start-ups face many risks, scholars such as Yin et al. (2023) and Xue-Mei, Zheng, and Yi-Ran (2019) identify different risks such as market risks, financial risks, and credit risks. Similarly, Teberga et al. (2018) believe that start-ups need the risk category because their small teams and dynamic processes make them sensitive to operational interruptions. Additionally, Kheir, Jacoby, and Verwulgen, (2022) argue that start-ups face many industry-specific risks as well. Technical and development process risks are sometimes worsened by regulatory compliance.

Several approaches and frameworks can identify start-up risks. Teberga et al. (2018), argue that the NPVR (New Product Venture Risk) technique is very effective. This method helps start-ups, especially for those using new technologies, manage uncertainties and risks. In the area of marine start-ups, the fuzzy analytic hierarchy method and importance-performance analysis approaches have been used to assess and rank risks, including operational, financial, market, innovation, and disaster risks. Yin et al. (2023) propose an empirical method to aid start-ups in certain industries by tailoring their risk management techniques to align with their unique risk profiles. In addition, although these models provide useful frameworks for identifying risks, they nevertheless have shortcomings. One of the shortcomings of these models is that they are too broad and may not address the specific and complex risks. Moreover, the complex nature and resource requirements of specific frameworks, such as the extensive risk management framework, might provide challenges for start-ups with limited resources in implementing these frameworks effectively at the outset of their operations.

Risk Assessment and Analysis in Start-ups. Risk assessment for start-ups is usually conducted by utilizing both qualitative and quantitative approaches as this method enables start-ups to evaluate different perspectives of potential risks. Expert interviews and the Delphi method can be useful tools to explore and assess the qualitative nature of the potential risks. Scholars Tomy and Pardede (2018) argue that the utilization of a qualitative approach to risk assessment can be especially advantageous in the early stages of a start-up, where they lack quantitative data. Compared to qualitative methods that mainly rely on pragmatic knowledge and an intuitive approach, quantitative methods use statistical and mathematical models to perform risk evaluations. Poliukhovych, Raicheva, and Ivanov (2022) suggest that as the start-up grows and gathers more data, models like Monte Carlo simulations, sensitivity analysis, and financial modeling become more applicable and suitable.

Models for assessing start-up risks usually prioritize careful and structured approaches to estimate the chances of success for technological start-ups. A sophisticated and data-driven risk assessment strategy that utilizes machine learning techniques and strategic analysis is employed (Tomy & Pardede, 2018). On the contrary, start-ups may adopt a pragmatic approach to evaluating risks. Practical techniques sometimes involve using both qualitative and quantitative methodologies, which are adjusted to fit the specific circumstances of the start-ups. This is due to the limited resources and the dynamic nature of the environment in which start-ups operate. For instance, a dynamic system has been created to predict and control hazards by evaluating their numerical values. This system incorporates the essential elements of risk management and the most impactful risk management solutions from a pragmatic perspective (Gusev, Demidova, & Novikova, 2022). Although theoretical models offer a systematic approach to assessing risks, they often face criticism for their inflexibility and limited suitability. Moreover, the complexity and technological limitations of specific quantitative approaches may render it useless for start-ups with limited resources.

A growing emphasis is being placed on the development of flexible and adaptable risk assessment approaches capable of handling the unique challenges that start-ups encounter. This is done to bridge the theoretical and practical gap. This entails using qualitative and quantitative methodologies, as well as developing simpler models that are not only efficient but also applicable to dynamic environments.

Risk Mitigation Strategies in Start-ups. To reduce risks, start-ups must use a mix of theories and models tailored to specific risks. An Example of one of these methods can be given as financial bootstrapping which can be useful for start-ups that cannot attract investors to attain financial stability. This method is known for reducing expenses and looking for new opportunities within the company to finance the operations without depending on outside investments (Bjuggren & Elmoznino Laufer, 2014). Decker and Galer (2013) argue that Enterprise Risk Management (ERM) encompasses all aspects of a start-up's risk management. This strategy addresses financial, operational, strategic, and regulatory risks to reduce risk holistically. These strategies are typically used creatively by start-ups. Start-ups can use personal assets as collateral for bank loans to reduce financial risk (Bjuggren & Elmoznino Laufer, 2014). This method helps entrepreneurs get investment, but it also highlights their risk. Another case study uses an Adaptive Integrated organization Architecture framework to mitigate digital transformation risks. This strategy focuses on cloud and mobile IT risk management (Masuda, Shirasaka, Yamamoto, & Hardjono, 2017). These areas are increasingly important for tech start-ups. These theories and methods reduce risk, yet they have shortcomings. One of the issues is start-ups with limited recourses may find enterprise risk management (ERM) too complicated and resource intensive. Bank loans use personal assets, which raises concerns about the business's long-term survival and the owner's risk exposure.

Integrating Risk Management into Start-up Strategy. The incorporation of risk management into the overall business strategy of a start-up is not merely a preventive measure; rather, it is a requirement from a strategic standpoint. Considering that new businesses, known by their limited size and stage of development, are confronted with a distinct set of obstacles and uncertainties. In addition, as pointed out by Van Stel, Burke, Millán, and Roman (2013) the strategic choice regarding the start-up's scope can greatly affect risk management and consequently has impact on start-up's performance. Especially in settings where there is a significant degree of uncertainty and where innovation is incremental. A start-up that is smaller in size can offer better flexibility and agility after the company has been established. For start-ups to survive and thrive, making this strategic option in risk management is imperative. Start-ups encounter a formidable dilemma in finding a harmonious equilibrium between risk mitigation and the preservation of heir innovative advantage. Given the unclear circumstances, Yin et al. (2023) argue that enterprise risk management is critical, particularly for growing maritime enterprises. According to the results of their study, new businesses should think about how they handle risks to meet future needs while they are going through digital transformation. It is important to find this balance so that start-ups do not limit their ability to come up with new ideas while also keeping risks under control.

On the other hand, some scholars argue risk management should not be a part of a start-ups' strategy. One thing that could be said against standard risk management systems is that they might not work well with start-ups, which are always changing and evolving. Ashidiqy (2019) argues about why strategic risk management research is important. In addition, they say that standard risk management methods might need to be changed to fit the needs of new businesses.

Table 2

Components of Risk Management in Start-ups

Component	Description
Traditional Approaches	Focused on financial and operational risks, utilizing Financial Risk Management, Insurance Theory, and Portfolio Theory.
Contemporary Approaches	Incorporates broader risks including compliance, reputation, and strategic considerations through ERM and IRM.
Risk Identification	Encompasses market, financial, operational risks, and more, using models like NPVR for new technologies.
Risk Assessment	Utilizes both qualitative (expert interviews, Delphi method) and quantitative (Monte Carlo simulations, financial modelling) approaches.
Risk Mitigation Strategies	Includes financial bootstrapping, ERM integration, focusing on operational, strategic, and regulatory challenges.

Source: created by the author

To overcome these challenges, it is highly recommended that start-ups use flexible and responsive risk management strategies (see Table 2: Components of Risk Management in Start-ups) that align with their innovative nature and business objectives. This approach ensures that risk management is seamlessly integrated into the process of strategic planning, thus increasing the start-up's capacity to achieve sustainable growth and success.

In summary, start-ups are entities, with a focus on innovation, strategic agility, and with a major impact on the global economy. Start-ups must embrace and build risk management theories, which are challenging, nonetheless. Modern frameworks better suit start-ups' ever-changing, unpredictable nature. They manage more risks, including regulatory compliance, reputation, and strategic decisions. The unalignment between broad theoretical models and context-specific approaches that start-ups use has shown that risk assessment procedures must be adaptive and flexible. Start-ups need risk reduction strategies like financial bootstrapping and enterprise risk management. Due to start-up limitations, these strategies are often applied with adaptability and originality in mind. Adaptability is a strategic advantage for start-ups to navigate complex and risky *environments while maintaining their innovativeness. Risk management in start-ups' strategic frameworks is vital to sustainable growth and success. This integration ensures a balanced risk-taking strategy that promotes innovation and decreases unexpected outcomes. Startup risk management demands a blend of traditional and modern ideas, practical adaptation, and strategic insight. This balance is key to risk management. Maintaining this equilibrium is essential in navigating the complexities that start-ups face.*

1.3 Integration of Risk Management with Overall Start-up Strategy

To guarantee the long-term survival and success of the start-ups integrating risk management with overall strategy is not just simply essential but is one of the key factors considering the volatile environment start-ups operate. Both Tran, Solhaug, and Stølen (2013) and Fécamp, Mikael, and Warin (2019) agree on the unavoidable nature of risks nevertheless, their methods of risk management differ. Tran et al. (2013) argues for a common approach that considers both risks and costs. This is an excellent strategy for new businesses wanting to maximize their resources. Fécamp et al. (2019), on the other hand, propose employing machine learning approaches as a solution for risks in volatile markets. For new businesses in the tech and digital sectors, this approach is essential. Although both approaches have a common goal of risk management, Fécamp et al. (2019) and colleagues emphasize innovation and adaptation to volatile market conditions, while Tran et al. (2013) and colleagues prioritize cost-effectiveness and decision-making.

Bruner et al. (2020) and Fécamp et al. (2019) both emphasize the strategic importance of risk management, albeit they do so in different situations. Bruner et al. (2020) prioritize information security and stress the importance of effective risk management in protecting the essential assets of a start-up, including confidential data and intellectual technology. This is essential for maintaining a competitive advantage and customer trust. Fécamp et al. (2019) however, present evidence that illustrates the strategic advantages of advanced technology, such as machine learning, in risk management. By helping businesses navigate complex market dynamics and risks related to rapid technological progress and market instability this innovative approach allows a competitive advantage to emerging companies in the technology and finance sectors.

Another suggestion comes from scholars Rass (2017) and Tomanek and Juricek (2015) both offering insights into the deployment of theoretical models in risk management. To build useful game-theoretic frameworks and loss models, Rass (2017) offers a systematic approach. The authors discuss the suitability of game-theoretic models in risk management and propose a systematic approach to developing loss models. Adopting this technique is advantageous for new businesses as it allows them to effectively address advanced and persistent risks. Tomanek and Juricek (2015), however, focus mostly on integrating formal risk management measures into agile software development methodologies. Their approach, which integrates Scrum and PRINCE2, offers a structured framework for managing risks in agile project management. This strategy emphasizes the importance of flexibility and timely reaction in the software industry.

Another method of risk management that is based on threat modeling is presented by Flores and Perugachi (2023). This technique is crucial for start-ups that deal with sensitive information and compliance requirements such as the General Data Protection Regulation (GDPR). This strategy emphasizes risk mitigation by STRIDE and attack trees, when compared to the previous approaches, it places compliance and data security as a greater importance. Ultimately, the importance of incorporating risk management into start-ups' strategies is undeniable.

Risk and Opportunity: Iqbal, Khan, and Naseer (2013) provide a fresh viewpoint by establishing a connection between the identification of opportunities and the management of legal risks. Specifically in the areas of e-business and e-marketing, they argue that gaining an awareness of and effectively managing legal concerns can potentially reveal new opportunities. Because of this proactive approach to legal risk management, start-ups are able to investigate new markets and business models that are compliant and, as a result, less dangerous by nature.

The cost-effectiveness of risk management was the main emphasis of the investigation by Tran et al. (2013). In particular, they claim that start-ups can save money and run more efficiently with effective risk management since it leads to solutions that maximize resource allocation while simultaneously reducing risks.

Flyvbjerg and Budzier (2018) highlight the importance of risk assessment in project management. Comprehending the potential risks associated with significant operations and skillfully manging them is irrespirable for new businesses. An effective risk management strategy in this domain not only prevents excessive expenses and delays, but it also paves the path for enhanced project implementation and technological progress.

Therefore, risk management in start-ups serves a dual purpose: it is both a defensive mechanism and a strategic instrument for growth and innovation. In other words, it serves both purposes simultaneously. The integration of risk management into the basic strategies of start-ups allows for the protection of their assets, the utilization of emerging technology, the fulfillment of legal requirements, the optimization of resources, and the efficient management of projects. Through the utilization of this multidimensional approach, prospective risks are transformed into opportunities, hence highlighting the need of risk management as a fundamental component of strategic planning in start-ups.

Frameworks for Strategic Risk Management in Start-ups. As discussed in earlier risk management for long-term success and growth in start-ups is an essential element. Risk management frameworks can assist start-ups in the process of effectively identifying, evaluating, and mitigating the risks that are apparent to start-ups. That there is no universally applicable risk management framework. On the contrary, these frameworks allow start-ups to customize their risk management based on complex and industry-specific risks more easily by providing start-ups with methodologies and insights. The PCL framework introduced by scholar Nassef (2020) is one of the said frameworks. This framework provides proactive adaptation and contingency planning while providing strategies for loss incorporation. This framework strategy for effectively managing financial and non-financial risks that are especially important for start-ups. Similarly, the Unified Axiomatic Framework for Risk Evaluation by scholars Fadina, Liu, and Wang (2021), proposes quantifiable approaches to assess risks, an element that enables competitive advantage for start-ups in financial sectors. Another framework proposed by scholars Chong, Feng, Hu, and Zhang (2022) is Cyber Risk Assessment for Capital Management which combines insurance models and cybersecurity. This framework was proposed for technology start-ups and organizations that are dependent on digital platforms. Another pragmatic methodology for mitigating strategic and empirical risk for data-driven organizations was proposed by Levanon and Rosenfeld (2021) called Strategic Classification for Learning Settings which was developed learning environment in mind. The incentive Mechanism Design framework proposed by Alpcan (2010) utilizes game theory to manage risks across teams. To effectively integrate this framework for start-ups, it is important to take into consideration resource optimizations, flexibility, and scalability. That said start-ups can benefit from PCL and Cyber Risk Assessment frameworks by optimizing their limited recourses. The Unified Axiomatic Framework for Risk Evaluation and Strategic Classification enables the development of risk management methods that possess both flexibility and scalability. A Strategic Classification framework can be beneficial for technology-focused start-ups to enhance their risk management. Furthermore, these frameworks facilitate the involvement of stakeholders, thus fostering the establishment of trust and transparency. In summary, by adapting the aforementioned framework start-ups can benefit from more structured methods of integrating risk management with overall business strategy.

Balancing Risk and Innovation in Start-ups. Navigating the challenges of balancing risk and innovation is crucial for start-ups in order to survive in a competitive market. Start-ups, especially the ones in the tech and financial sectors, face the unique challenge of fostering innovation while managing the risks that come with it. Integrating risk management strategies that are effective in mitigating the risks while not stifling the creative and innovative spirit that drives start-up growth and success is a challenging process. This paradoxical interaction between innovation and risk management in technology industries was presented in the works of Jackson and Templeman (2016). They discuss the conflict between the necessity for strict cybersecurity protocols and the drive for innovation. Start-ups must successfully mitigate cyber risks without impeding their innovative capacities. In a study by Xu, Duan, and Huang (2018) utilization of A/B was proposed as a means for improving the efficiency of product development as it is essential to maintain a balance between innovation and risk management.

Another study by Murakami, Tsunoda, and Campos (2022) discusses the importance of precise risk recognition in software development. The utilization of mathematical models to precisely adjust these assessments could be beneficial in the improvement of risk evaluation among developers. On the other hand, Zumbach (2021) proposes Financial ARCH Processes as a viable option for start-ups in the financial sector to balance statistical features with calculated risk evaluation models as it is essential to risk management that is related to financial development. Angilella and Mazzù (2015) in their study present a credit risk model for start-ups that seek financial aid as it helps to understand and manage risks that are associated with innovative ventures. Ultimately, for start-ups to achieve a balance between risk and innovation is a complex process. It necessitates a combination of methodical experimentation, precise risk assessment, sophisticated risk evaluation models, and a profound comprehension of financial consequences.

Risk Management as a Strategic Tool. Strategic risk management in start-ups has evolved beyond recognizing risk solely as a danger that needs to be managed but become an essential element of business strategy. Thus, it is imperative to employ a proactive approach, where potential risks are evaluated and included in the process of making strategic decisions. Start-ups may enhance their ability to predict and navigate risks by employing new methodologies and frameworks. This method not only helps decrease risks but also facilitates the development of well-informed decisions that contribute to the resilience and long-term success of start-ups. Nonetheless, integrating risk management into start-ups' operations present distinct problems. This is primarily due to the dynamic and rapidly evolving character of start-ups.

The importance of proactive risk management in artificial general intelligence (AGI) enterprises is highlighted by Koessler and Schuett (2023) in their discussion of proactive vs reactive approaches. They argue that safety-critical sectors should implement sophisticated risk assessment procedures to show how ineffective reactive approaches are since they only deal with dangers after they have already occurred. In similar fashion, Fakhravar (2020) explores the application of fuzzy logic theory in risk assessment. This methodology represents a significant divergence from the traditional reactive methods that have been used in the past since it enables start-ups to navigate uncertainties and evaluate risks even when they have limited or unclear data.

Leidner (2015) proposes a systematic way to find risks when making strategic decisions. This approach ensures that risks are handled consistently and objectively, which helps them to be integrated with the organization's objectives. Chen and Zhu (2019) propose a model for the strategic decision-making process regarding security within the context of the Internet of Things (IoT). Their method is customized for IoT settings and makes use of simplified cognitive network representations, which helps startups to better handle security concerns. Similarly, a new perspective on the risk networks in financial systems is presented by Ellinas, Allan, and Coombe (2018) and they argue that start-ups in the financial sector may better categorize and understand potential dangers, allowing them to base their strategic decisions on thorough research.

Muntés-Mulero et al. (2020) investigate the obstacles that arise between risk management and agility while developing agile software. The continually shifting market and the requirements of users present substantial obstacles when it comes to efficiently detecting and managing risks. When it comes to start-ups, traditional risk management approaches frequently come into conflict with the requirement for agility and rapid organizational change. This framework combines risk management with agility and continuous development. This framework is flexible enough to accommodate start-ups, which enables them to incorporate risk management into their agile workflows.

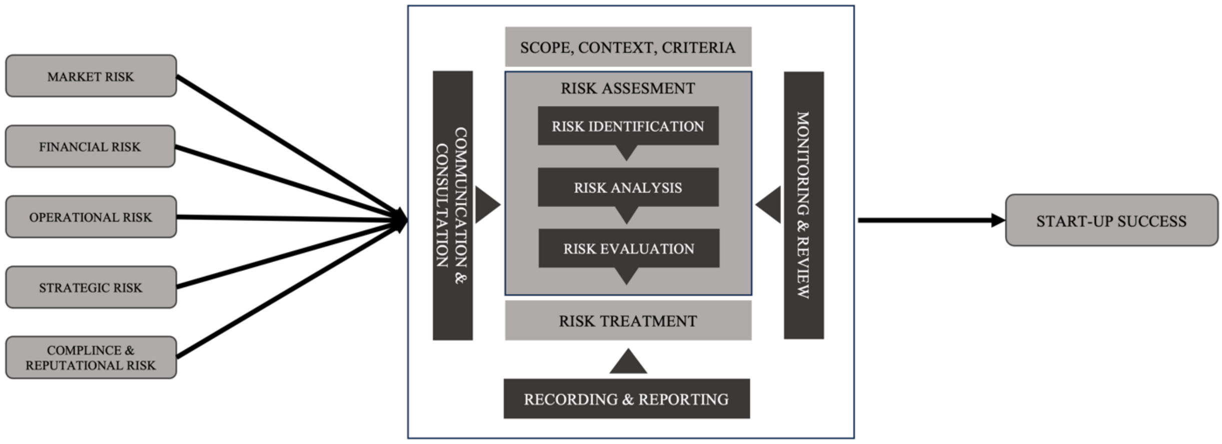
In addition, Rismani et al. (2023) highlight the difficulties in assessing and mitigating the social and ethical hazards associated with machine learning systems. They also emphasize the non-interconnected risk management systems already in place in this sector, which makes it more difficult for new businesses to enter. Rismani et al (2023) argue that safety engineering frameworks, such as System Theoretic Process Analysis (STPA) and Failure Mode and Effects Analysis (FMEA), need to be adapted in order to conduct a structured and efficient risk assessment in machine learning systems.

Another important issue highlighted by Bhujang (2012) is the difficulty of properly visualizing risk assessments in a way that is both comprehensible and actionable. Bhujang (2012) employs a methodology for graphical risk assessment tools that offers a viable alternative for start-ups. Start-ups can enhance the accessibility and effectiveness of risk assessments by utilizing graphical models and matrix representations.

In summary, incorporating risk management into the strategic decision-making processes of start-ups presents specific difficulties. It is essential to overcome significant obstacles, such as achieving a balance between agility and risk management, tackling social and ethical risks in machine learning systems, and efficiently presenting risk assessments through visualization. Start-ups can efficiently tackle these difficulties by employing suitable frameworks and technology. This ensures that risk management becomes an inherent and effective element of their strategic planning and operations.

Theoretical model of risk management for start-up success

Theoretical model presented in Figure 2 is derived from an examination of the theoretical research. Risk management is of utmost importance for the start-up success as it serves to protect the trajectory of the start-up strategy. The theoretical framework that is being proposed encompasses an all-encompassing strategy for effectively managing the diverse array of risks that are intrinsic to the start-ups.



Source: created by author in accordance with ISO 31000: Risk management—Guidelines

Figure 2. Theoretical Model of Risk Management for Start-up Success

Theoretical model of risk management for start-up success ensures that the risk management strategies are subject to continuous oversight and reassessment. It allows for the adjustment of risk mitigation actions in response to the evolving internal and external variables that influence the start-up's operations In essence, the model portrays a cyclic and dynamic process of risk management that is integral to a start-up's operational strategy. It underscores the imperative for ongoing assessment, proactive mitigation, and perpetual monitoring to navigate the uncertainties in volatility environments.

Risk management must be incorporated into start-ups plans in a comprehensive and critical manner if start-ups are to successfully navigate the dynamic and uncertain environment associated with them. This methodology surpasses the traditional perception of risk as a mere menace and instead positions it as a strategic tool that fosters expansion and innovation. Effective risk management in start-ups, according to the investigation's findings, requires strategic alignment of corporate objectives with risk mitigation, utilization of new technology, and compliance with regulatory requirements, in addition to risk avoidance. By employing controlled experimentation, precise risk assessments, and sophisticated risk evaluation models, it underscores the significance of maintaining an equilibrium between fostering innovation and mitigating associated risks.

In summary, risk management is an indispensable strategic necessity for start-up enterprises that are committed to ensuring their long-term viability and prosperity. Start-ups possess the capacity to convert prospective hazards into advantageous circumstances through the effective integration of risk management into their foundational strategy. This enables them to guarantee innovation and sustainable development in a fiercely competitive business environment.

2. EMPIRICAL RESEARCH LEVEL OF RISK MANAGEMENT FOR START-UP SUCCESS

This chapter explores works of different authors regarding risk management strategies and practices in start-ups, impact of entrepreneurial and managerial traits on risk management, as well as entrepreneurial and organizational factors in risk management.

2.1 Analysis of Risk Management Strategies and Practices in Startup

Findings from multiple authors and studies regarding risk management in start-ups and small and medium enterprises were evaluated. The main focus of the research was the role of ERMs, operational and strategic challenges as well as the correlation between risk management and company performance. In addition, the impact of innovations and open innovation techniques on start-ups was evaluated. In order to get a comprehensive outlook on these factors fourteen studies from 2012 to 2023 including different approaches and covering various geographies were selected.

Risk Management in Startups and SMEs. Teberga et al. (2018) conducted a study that provides useful insights into the assessment of difficulties and methods connected with risk management in the adoption of new technologies in startups. As part of the research process, two Brazilian enterprises, MercadoPago and GuiaBolso, were subjected to comparative case studies. The data was collected by conducting interviews with senior managers and analysing organizational documentation. The data was examined utilizing the Miles et al. (2014) framework, which involved consolidating the data, presenting it, and expressing and verifying the results. This qualitative methodology facilitated a comprehensive understanding of risk management strategies as they were applied in actual start-up scenarios. The study's primary discovery was that employing a deductive-inductive matrix to handle uncertainties and risks in start-ups might greatly assist them in navigating the intricate attributes of the Brazilian market, known for its volatility and substantial levels of uncertainty. Adopting clearly defined risk management strategies can help startups enhance their chances of achieving sustained development and success in the unpredictable realm of technology innovation.

A 2018 study by Pukala, Sira, and Vavrek (2018) targeted 25 start-ups located in Poland's Podkarpacki Science and Technology Park and investigated the effectiveness of risk management approaches and various financing strategies. Surveys and expert interviews were used as primary data collection methods. Researchers used The Analytic Hierarchy Process (AHP) in combination with expert opinions. The study found that start-ups often do not use risk management. Consequently, they often embrace risk as an unavoidable component of their operations without taking significant steps to decrease it. The data also showed that insurance was seen as the most efficient way for these organizations to finance risk. The survey found a lack of risk management adoption and implementation among start-ups, which could result in the continuation of an elevated level of company risk. The study underlined the use of effective risk management practices and leveraging risk financing methods by start-ups in order to address inherent company risks.

The study by Ade et al. (2020) conducted in Lagos State, Nigeria, investigates the influence of ERMs on the long-term sustainability of SMEs. This study is essential for understanding the effects and intricacies of ERMs in SMEs and can be used as a comparison for start-ups. The study uses a descriptive cross-sectional survey approach, administering structured questionnaires to 400 small and medium-sized enterprise (SME) operators in Lagos State. This method made it easier to acquire primary data, which was then evaluated using descriptive and inferential statistical techniques. The carried-out study highlights the considerable influence of Enterprise Risk Management (ERM) on the long-term viability of Small and Medium Enterprises (SMEs). The internal environment and risk assessment were identified as critical aspects of a company's long-term success. Start-ups should prioritize developing an internal culture that embraces risk management and developing robust risk assessment methods. The research underlines the significance of implementing comprehensive risk management strategies that combine various enterprise risk management (ERM) components to solve business problems effectively. It is evident that a lack of systematic implementation of ERM procedures among SMEs has significant consequences for new businesses. The importance of adopting comprehensive and integrated risk management approaches as a critical component for start-ups' success and long-term survival was highlighted. The research advises the integration of ERMs into the strategic and operational plans of start-ups as the findings establish the need for Enterprise Risk Management (ERM) in maintaining the long-term survival and profitability of Small and Medium Enterprises (SMEs) under difficult economic conditions.

Another study investigating risk management strategies used by start-ups was conducted by Ikhasari and Faturohman (2021). The study focused on a technology start-up in Indonesia during the COVID-19 outbreak. The research includes a risk management method that complies with ISO 31000 standards. To identify and analyse risks, SWOT Analysis, Analytical Hierarchy Process (AHP), and detailed reviews of both internal and external elements were utilized. The Analytic Hierarchy Process (AHP), a systematic framework for organizing and assessing complicated decision-making processes, was used in this study. Subsequently, corporate risks, financial risks, operational risks, reputational risks, and legal/ regulatory risks were classified as SM corporate risks. These risk categories were identified through CEO interviews and thorough assessments. Significantly, no risks were classified as critical; nonetheless, nine risks were classified as high and twenty-four as medium. The findings highlight the value of using a systematic and structured approach to identifying and assessing start-up risks. The analysis shows that start-ups face a wide range of risks and require an inclusive approach to properly mitigate them. The study underlines the significance of proactive risk management and strategic planning. The study emphasizes the need for risk management for businesses, particularly during difficult periods such as the COVID-19 epidemic. A company's ability to navigate unforeseen events can be considerably improved by implementing well-defined risk management standards such as ISO 31000 and applying methodologies such as the Analytic Hierarchy Process (AHP).

Karaarslan and Soylu (2023) perform a thorough examination of the major risk variables affecting start-ups in Turkey. The study used a qualitative technique involving semi-structured interviews with the founders of 23 Turkish enterprises from various industries. This methodology allows for a thorough analysis of specific risk variables across four major dimensions: organization and human resources, technology and product, finance, and marketing and execution. The study emphasizes that reliance on key persons, procedural efficiency, and the ability to manage financial and marketing factors are major predictors of firm sustainability and success. The study shows that organizations with varied and experienced teams, particularly those that integrate business and engineering competence, are better able to manage risks. Furthermore, it emphasizes the importance of technological and product improvement, emphasizing that enterprises with more advanced and market-ready technologies face less risks and are more easily able to attract finance. The article underlines the need of start-ups in Turkey's dynamic market fully understanding and efficiently managing these complex risks in order to ensure their survival and growth. Start-ups should implement complete risk management methods, with an emphasis on building organizational capabilities, boosting technological maturity, maintaining financial stability, and developing effective marketing tactics.

The analysis of academic works on enterprise risk management (ERM) has revealed some common elements that highlight its importance in the long-term survival and strategic planning of SMEs and start-ups. subsequently, three major themes (see Table 3: ERM in SMEs and Startups Research Synthesis): the importance of enterprise risk management (ERM), the importance of comprehensive risk management techniques, and the importance of risk identification and evaluation were identified.

Table 3

ERM in SMEs and Startups Research Synthesis

Theme	**Key Insights**	**Implications for SMEs and Start-ups**

Emphasis on ERM	Ade et al. (2020) highlight ERM's crucial role in SME sustainability in Nigeria, focusing on internal environment and risk assessment. Karaarslan and Soylu (2023) reinforce this by emphasizing ERM in organizational and financial risk management in Turkish start-ups.	ERM is vital for the long-term viability and resilience of SMEs in various economic contexts.
Comprehensive Risk Management Strategies	Ade et al. (2020) and Ikhasari and Faturohman (2021) underline the importance of integrated risk management strategies. Ikhasari and Faturohman advocate for a structured approach, adhering to ISO 31000 standards, aligning with Ade et al.'s comprehensive strategy approach.	Risk management is an integral part of business strategy, requiring structured and holistic approaches.
Risk Identification and Assessment	The studies collectively stress the importance of identifying and assessing risks, including technology and product risks (Karaarslan and Soylu, 2023) and a broad spectrum of risk categories (Ikhasari and Faturohman, 2021).	Effective operational and strategic planning in start-ups and SMEs hinges on rigorous risk identification and assessment.

Source: created by the author

The studies by Ade et al. (2020) and Karaarslan and Soylu (2023) conclude the importance of ERM in guaranteeing long-term viability as well as helping start-ups overcome their many hurdles, reinforcing its relevance in many economic scenarios of SMEs. Their research helps simplify ERM, especially the internal environment and risk assessment. Similarly, Ade et al. (2020) and Ikhasari and Faturohman (2021) emphasize the need for integrated risk management. The studies conclude that risk management should be an integral part of organizational strategy. Another significant insight from studies by Karaarslan and Soylu (2023) and Ikhasari and Faturohman (2021) is that there is a common emphasis on risk detection and evaluation and its importance on risk management in start-up and SME operational and strategic planning.

Strategic and Operational Challenges in Start-ups. Jayathilake (2012) conducted research in Sri Lanka exploring the risk management strategies employed by SMEs. The study mainly focused on four types of risks. Said risks are highlighted as hazard risks, strategic risks, operational risks, and financial risks. The study used a questionnaire to survey 200 SMEs. afterward, the collected data was analyzed by using standard deviation as well as correlation analysis. The main findings from the research showed that the was a lack of standardized and structured risk management approach amongst the SMEs in Sri Lanka. SMEs mostly relied on informal risk management systems that were based on business owners' experience and knowledge. It was also highlighted by the study that these SMEs lacked a systematic, standardized, and structured risk management approach. the study also discussed how the business plans of these SMEs were uneducated. The analysis of the study shows that utilization of self-reported data via questionnaires may be subject to biases, especially considering that risk assessment can be subjective. Nonetheless, the diversity of the data from 200 SMEs provides reliable grounds for the study. Finally, the study emphasizes that it is essential for SMEs and start-ups to have a structured and well-established risk management approach. It is also suggested that adequate training and development are required to increase owners' understanding of risks and risk management approaches.

The paper by Cantamessa, Gatteschi, Perboli, and Rosano, (2018) examines start-up failures in depth using an innovative and rigorous methodological approach. in order to identify the tendencies for start-up failures study examines 214 post-mortem reports acquired from the Autopsy.io website and CB Insights platform. The study utilizes a modified version of the SHELL model, which was originally used in aviation, to examine starting failures. Subsequently, the study categorized aspects of the failures into the following five different categories: software, hardware, environment, human, and organization. this is quite an interesting and unusual method that utilizes the inventive application of a model obtained from a distinct domain and its emphasis on qualitative data acquired from post-mortem reports. When compared to traditional quantitative assessments, this approach allows a more distinct understanding of cases of failure. The lack of alignment between the product and the target market, as well as an undefined business development plan and inadequate market positioning, were highlighted as the primary reasons for start-up failure. It was evident from the study that start-ups often place product development over comprehensive business strategy which eventually leads to the failure of the start-ups. That said it is important to remember that the SHELL model provides specific procedures to evaluate and categorize the start-up failures. But as mentioned previously it is important to remember that self-reported evaluations after the failure may be subject to biases. These reports may state the subjective viewpoints of informants. Also, it is important to remember that the companies that were analysed are the companies that chose to publically disclose the stories of failure, which may exclude other factors that might contribute to potential failure.

Kuckertz et al., (2020) conducted a study addressing the challenges and strategies that were used by start-ups in order to navigate the complexities that were apprehended due to the COVID-19 pandemic. The study used qualitative data obtained from 16 members of the German business ecosystem via interviews in combination with quantitative data that was obtained from the analysis of international public news coverage. By doing so, this approach allowed a thorough understanding of how start-ups managed the crisis while, at the same time, evaluating the effectiveness of the policy measure that assisted said start-ups. According to findings from the study, start-ups used the so-called “bricolage” method, which is creatively using available resources as a mitigation method. This, in turn, showcases the agility and adaptability of the start-ups. However, the study highlighted the gap between government support programs and the unique challenges of start-ups, as well as how typical policy measures may not be effective for these kinds of entities. Finally, the study concludes with the start-up’s resilience and adaptability in times of crisis while emphasizing that there is a need for more tailored government initiatives.

Kheir et al. (2022) conducted a study on the risk management processes used by medical device start-ups. The primary goal of this study was to improve the methodologies employed in start-ups to detect and analyze risks throughout the early stages of medical device development. The study used a qualitative interview method with seven entrepreneurs. The data was analyzed using thematic analysis to uncover relevant themes and patterns from the interview data. According to the research, startups in the medical device industry often have a restricted focus when it comes to risk management techniques, focusing mostly on technical risks such as product usability and development process hazards. The study found a substantial lack of inclusion of non-technical risks, such as business and project risks, which are as important for the success and adherence of these startups. Evaluation of existing methodologies highlights that start-ups in this heavily regulated and innovation-focused environment use a more comprehensive risk management approach that encompasses both technical and non-technical factors. Finally, the study underlines the importance of implementing a complete risk management plan in medical device enterprises.

The study by Slávik, Hudáková, Procházková, & Zagorek (2022) on the strategic factors that are vital for the success of start-ups provides important perspectives that contribute towards the success of the start-ups The study utilized qualitative interviews with the founders of 147 start-ups to obtain a deep understanding of the strategic approaches of these start-ups. The study identifies the key elements that contribute to the success of start-ups as the uniqueness and practicality of the business idea, the effectiveness of internal management practices, and the ability to navigate external market conditions. The study’s unusual finding discovered that start-ups usually lack a defined business plan and instead rely on intuitive strategizing, which can be either advantageous or disadvantageous. According to the researchers, while start-ups are skilled at dealing with critical issues, they usually lack well-established long-term strategic planning. While the qualitative method allows to get detailed information, as previously mentioned, the conclusions are based on self-reported data, which may be subject to biases as personal preferences may not fully reflect the wider start-up environment. Despite the limitations, the study provides important perspectives on the strategic aspects that are critical for the survival and success of start-ups. The study emphasizes the significance of a well-defined strategic framework that includes a clearly defined business strategy, efficient internal procedures, and comprehensive market expertise.

The study by Drzewiecki, J. (2023) explores the strategic management strategies used by start-ups in Poland. The study's primary focus is the relationship between business models and strategy formulation. The study utilizes a mixed-method approach where qualitative data was gathered through in-depth interviews with 152 Polish start-ups alongside literature reviews. The major findings highlight the prevalence of both strategy and business model approaches in Polish startups, challenging the widely held view that start-ups do not have formal strategic management processes. The study found a significant link between the presence of a structured plan and the purposeful management of business models. Notably, research has shown that as a company grows and expands, it tends to take a strategy-driven approach, prioritizing the alignment of its business models with well-defined objectives in order to achieve long-term success. By combining a wide range of quantitative data with in-depth qualitative research, the study's hybrid approach offers a full understanding of strategic management in startups. Nonetheless, the study's findings may have limited relevance due to its limited geographical scope, which focuses solely on Poland. When analyzing strategic plans, the use of self-reported data may introduce biases. Finally, the research highlights the ever-changing nature of strategic management in start-ups, where both strategy and business model approaches are not only crucial but also change as the organization grows. The study provides unique perspectives on the strategic management framework in start-ups, Highlighting the significance of building strategies and business models in a flexible yet orderly manner.

Table 4

Strategic Operational Challenges in Start-ups

Theme	Key Insights	Implications
Resilience and Adaptability in Crisis	Kuckertz et al. (2020) illustrate start-ups' use of bricolage during COVID-19, showing adaptability and innovation. Kheir et al. (2022) highlight adaptability in managing technical risks in medical device start-ups.	Emphasizes the need for start-ups to be agile and innovative, especially in crisis situations.
Comprehensive Risk Management	Jayathilake (2012) notes a lack of formal risk management in Sri Lankan SMEs, suggesting the need for structured approaches. Kheir et al. (2022) recommends a holistic risk management strategy for medical device start-ups.	Highlights the importance of adopting comprehensive and systematic risk management practices.

Strategic Planning and Business Models	Cantamessa et al. (2018) discusses the impact of inadequate strategic and business planning on start-up failures. Slávik et al. (2022) and Drzewiecki (2023) emphasize the need for robust strategic foundations and aligned business models.	Stresses the criticality of strategic foresight and evolving business models for long-term growth and success.

Source: created by the author

The analyses of research papers show resilience, adaptability, the significance of strategic planning, business models, and comprehensive risk management as vital parts of the start-ups (see Table 4: Strategic Operational Challenges in Start-ups). Scholars Kuckertz et al. (2020) and Kheir et al. (2022) discuss the importance of agility and innovation as well as resilience capabilities in crisis. Structured and thorough risk management was also emphasized by multiple scholars like Jayathilake (2012) where there is a severe gap in formal risk management techniques among Sri Lankan SMEs showing a dependence on informal risk management methods. Similarly, Kheir et al. (2022) note how medical device startups focus primarily on technical risks, emphasizing an urgent need for a more holistic risk management approach that includes technical and non-technical components. Scholars Cantamessa et al. (2018), Slávik et al. (2022), and Drzewiecki (2023) emphasize the importance of strategic planning and the development of effective business models for long-term start-up success.

Finally, the analysis of scholarly work emphasizes the importance of resilience and adaptation, particularly in crisis situations, and the importance of thorough risk management and strategic planning and business models are highlighted as crucial components for the success of start-ups.

Risk Management and Company Performance. The study by Mohammed and Knapkova (2016) investigated the relationship between comprehensive risk management and organizational performance. The study used a quantitative approach using hierarchical linear regression models to examine data from annual corporate reports from 2009 to 2014 on companies listed on the Prague Stock Exchange. The study found a significant correlation between comprehensive risk management and organizational performance. The study also emphasizes the importance of combining traditional risk management strategies, which mostly focus on defensive measures, with approaches that also take advantage of risk management opportunities. When analyzing the methods used by the study, it can be criticized that the use of data from publicly traded companies in specific regions may not accurately represent the wider range of companies. Nonetheless, hierarchical linear regression models are suitable for studying the impact of multiple independent variables on a dependent variable. Ultimately, the study emphasizes the significance of combining defensive risk management approaches with comprehensive plans that incorporate opportunities to enhance organizational performance.

Proksch, Stranz, Pinkwart and Schefczyk (2016) conducted a study investigating risk management methodologies used in Venture Capital firms. The study investigated data from nine venture capital funds and ninety-three venture capital-supported start-ups. The study used structural equation modeling to analyze the data that was obtained. This allowed researchers to analyze the relationship between various risk management approaches and the success or failure of the supported start-ups. The study found the significant importance of investment managers' experience and expertise in reducing the likelihood of a venture failing. This was contrary to the belief that frequently used governance systems in venture capitals impact the ventures' success. Moreover, the analysis showed that a significant degree of managerial backing is linked to increased risks. The study emphasizes the importance of experienced investment managers in effectively mitigating risks. But that said, the overdependence on the governance systems may negatively affect the risk mitigation.

Scholarly works by Mohammed and Knapkova (2016) and Proksch et al. (2016) in organizational and investment risk management emphasized the crucial need for comprehensive risk management and the need to go beyond traditional defensive strategies. Mohammed and Knapkova (2016) found a strong link between the deployment of comprehensive risk management methods and improved company performance. Similarly, the study of Proksch et al. (2016) emphasizes the importance of risk management in the context of venture capital investments. Another common theme in both studies was the emphasis on the need for risk management solutions to go beyond standard defensive postures. Mohammed and Knapkova (2016) advise an evolution in risk management approaches, recommending the incorporation of strategies that not only minimize risks but also capitalize on any opportunities that may arise as a result of them. This viewpoint is consistent with the modern concept of risk management as a dynamic and proactive activity within start-ups. Proksch et al. (2016) discuss this by criticizing the venture capital industry's overreliance on governance frameworks. According to their findings, while governance systems are common in venture capital risk management, they do not reduce the likelihood of venture failure. This further emphasizes more diverse and proactive risk management approaches that extend beyond traditional approaches.

In conclusion, the combination of data from studies highlights the critical necessity of comprehensive risk management solutions in improving organizational performance and lowering venture failure rates. Furthermore, they emphasize the need to move beyond traditional defensive measures, arguing for more adaptable, opportunistic, and diverse risk management approaches.

Innovation and Open Innovation Strategies. The study by Audretsch, Belitski, Caiazza, and Siegel (2023) investigated the influence of open innovation approaches and their effects on start-ups. The study utilized a mixed-methods approach using quantitative and qualitative research methodologies. The data was obtained from 4,401 firm-year observations and 405 start-ups in the

United Kingdom from 2002 to 2016. The study investigated the significance of information collaboration with external stakeholders, such as customers, suppliers, enterprise groups, and competitors. According to the study, start-ups benefit from open innovation. The study suggests that start-ups that actively engage in open innovation with a wide range of external partners, both locally and globally, achieve better innovation performance than their competitors. However, it is essential to keep in mind that the use of secondary data sources and focus on single geolocation-based start-ups may restrict the study's wider applicability. Due to the above-mentioned reasons and the nature of the data, it may not accurately represent all start-ups and their innovation strategies.

To conclude, the combination of research conducted across various geographical settings and industries offers a thorough understanding of risk management in start-ups and Small and Medium Enterprises (SMEs). The studies, in combination, emphasize the essential significance of Enterprise Risk Management (ERM) in the long-term sustainability and prosperity of these firms. These studies emphasize the importance of cultivating a risk-conscious culture, adopting comprehensive risk management strategies, and acknowledging the complex nature of risks.

2.2 Analysis of Impact of Entrepreneurial and Managerial Traits on Risk Management

The evaluation centered on the intricate dynamics between entrepreneurial and managerial traits and their impact on risk management in startups. This analysis delves into how different attributes of start-up founders and managers influence the strategic direction, operational challenges, and overall success of these ventures. The assessment synthesizes insights from pivotal studies conducted between 2015 and 2023, each exploring various facets of the start-up landscape across different geographical regions and sectors. These studies collectively offer a nuanced understanding of the relationship between the characteristics of startup leaders and the trajectories of their enterprises, particularly in terms of navigating risks and embracing innovation.

The study by Hyytinen, A., Pajarinen, M., and Rouvinen, P. (2015) investigated the relationship between entrepreneurial innovativeness, risk-taking, and start-up survival. The study questions the general assumption that being innovative is advantageous for start-up survival. The study used the probit model to analyze the obtained data from 1165 Finnish start-ups. Surprisingly, the study found that start-ups that are innovative have lower survival rates in comparison to those that are not innovative. Not only that, but the study also highlighted that the negative effects increased when the start-up owner had a higher risk appetite. This study argues that the negative correlation is associated with the increasing complexity of managing risk associated with innovation, as well as considering that risk-tolerant start-up owners are more likely to engage in riskier innovative activities. The study's findings showcase the inherent risks associated with start-up innovation. That said, while the study's methodology is well-organized and structured, its concentration on Finnish start-ups may restrict the study's wider applicability. In other circumstances, cultural, economic, and market factors may influence how innovativeness affects startup survival. In addition, as discussed previously on multiple occasions, the use of self-reported data may be subject to biases. The evaluation and classification of risk tolerance and innovativeness are very subjective topics. Nonetheless, the study's brave approach to questioning the de facto belief that innovativeness is always advantageous for start-ups proves that innovativeness can be both advantageous and disadvantageous, showcasing the complete nature of start-ups and risk management approaches associated with them.

Contrary to the study by Hyytinen, A., Pajarinen, M., and Rouvinen, P. (2015) on Finnish start-ups, Ahn and Kim (2019) Investigate how material traits influence the performance of technology-based start-ups in Korea. The study analyzes the different aspects of managerial traits, such as demographic characteristics and the background of managers, and entrepreneurial traits, such as innovativeness, risk-taking, and progressiveness. The study accomplishes this by obtaining data from 248 technology start-ups and analyzing said data using multiple regression analysis. The study shows that entrepreneurs' gender, education, and background had no significant impact on start-ups' performance. While entrepreneurial traits such as innovativeness and progressiveness had a significant impact on non-financial performance indicators. Another interesting finding was that at the early stages of the start-ups, risk-taking had very little effect on product competitiveness and non-financial performance. The study utilizes a well-structured methodology by using clustered sampling to collect different responses from the start-ups. The study also classifies financial and non-financial performance as separate dependent variables and further breaks down the non-financial components into product competitiveness, organizational performance, customer performance, and goal achievement. Doing so enables the researcher to assess how managerial traits influence start-ups' performance. Finally, the study highlights the influence of entrepreneurial traits such as innovativeness and progressiveness as one of the aspects that impact the performance of technology-based start-ups in Korea.

The study by Imon Chakraborty, P. Vigneswara Ilavarasan, and Sisira Edirippulige's study (2023) investigates the factors that contribute to the success of e-health start-ups success. The study utilized a qualitative interview method with founders and essential stakeholders at e-health start-ups in India. The study used Braun and Clarke's thematic analysis technique to analyze the obtained data. The study classifies eighteen critical success factors into five themes: actor knowledge and communication process, service value and efficacy, robust technical infrastructure, revenue generation capability, and regulatory management capacity. This allowed researchers to get an in-depth understanding of factors influencing the success of start-ups. Despite the in-depth information obtained from the study, considering that the study focuses on single geo-location and the subjective nature of the data may limit the broader applicability of the findings from the study.

After an in-depth analysis of the works of Ahn and Kim (2019), Chakraborty et al. (2023), and Hyytinen et al. (2015), it becomes evident that entrepreneurial characteristics play a vital role in start-up success. The analysis also shows a complex relationship between risk and innovation. Ahn and Kim (2019) argue for the vital role of entrepreneurial traits in determining a start-up's success trajectory. Ahn and Kim (2019) focus on the direct influence of management traits in the context of technology-based start-ups, explicitly highlighting the impact of innovativeness and progressiveness on non-financial success measures. Similarly, Chakraborty et al. (2023) and Hyytinen et al. (2015) highlighted the significance of entrepreneurial characteristics in several sectors. The study conducted by Chakraborty et al. (2023) in the Indian e-health sector identifies several critical factors for start-up success. These factors go beyond technological expertise and encompass knowledge management and regulatory compliance.

On the other hand, Hyytinen et al. (2015) argue that increasing innovation efforts may decrease the success rates of Finnish start-ups. Ahn and Kim (2019) and Hyytinen et al. (2015) argue about the complex relationship between risk-taking and innovation in start-ups. According to Ahn and Kim (2019), certain entrepreneurial skills, particularly innovativeness, favourably promote start-up performance, albeit in non-financial areas. However, Hyytinen et al. (2015) argue that combined with a greater appetite for risk, increased innovative push may negatively impact start-up survival.

In conclusion, studies highlight the necessity for a distinct understanding of the dynamics between entrepreneurial traits, innovation, and risk management. Considering that success in start-ups is not one-dimensional. However, it is a complex combination of factors, including innovativeness, adaptability, risk management strategies, and the ability to navigate the distinct challenges and opportunities of different market environments.

2.3 Analysis of Entrepreneurial and Organizational Factors in Risk Management

The analysis offers a comprehensive exploration of the factors that shape the trajectories of start-ups, focusing on the intersection between entrepreneurial traits, organizational characteristics, and the dynamics of innovation and risk management. This assessment synthesizes findings from three pivotal studies conducted between 2003 and 2024, each providing valuable insights into different aspects of startup development across various sectors and geographical regions.

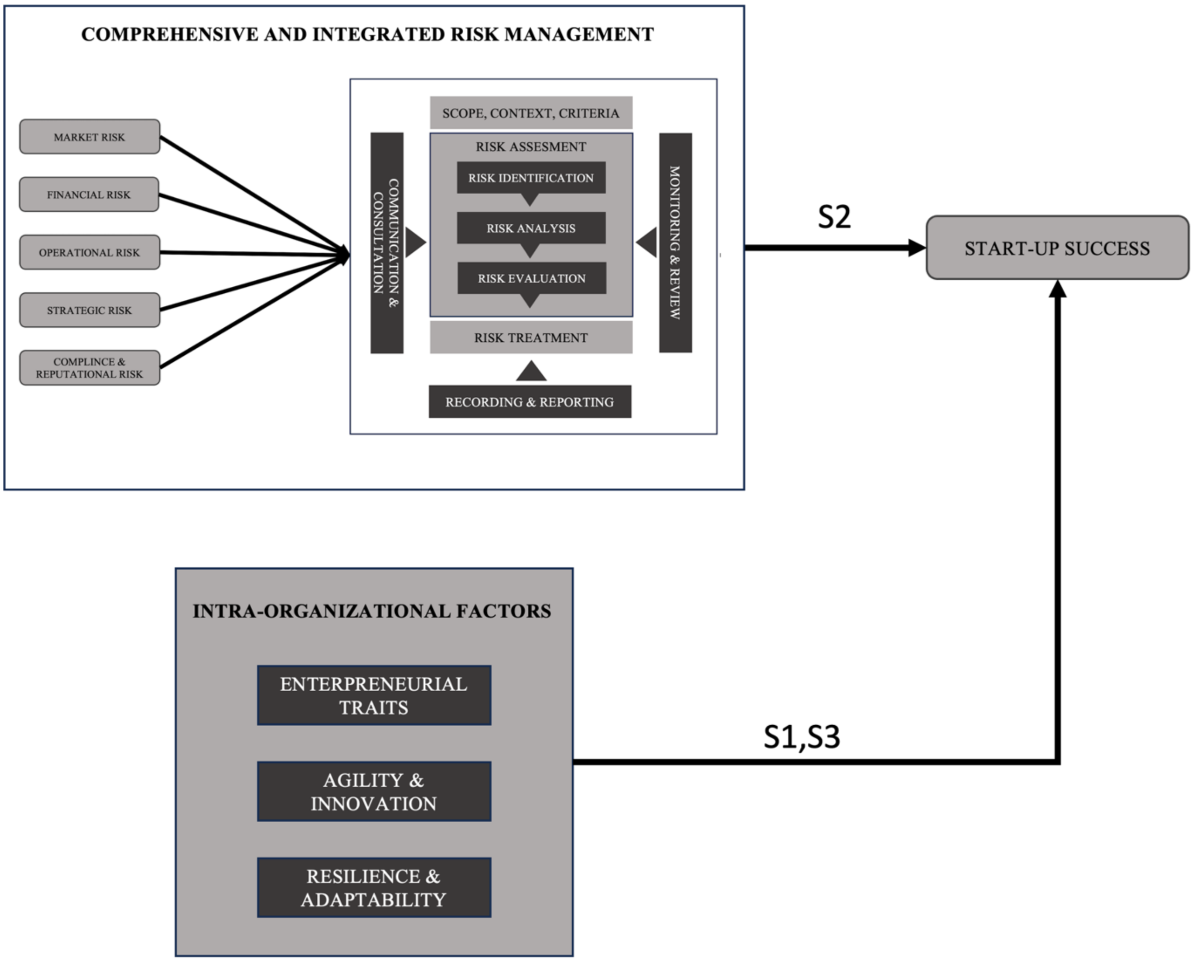
The study by Thurik, Bosma, and van Gelderen (2003) investigated the factors influencing the success and failure of emerging entrepreneurship. The study investigated 517 people who have been starting a business for three years in the Netherlands. According to the study, there were 195 successful and 115 failed attempts. The study collected data with the use of phone surveys, and then regression analysis was used to analyse the obtained data. According to the study, initial start-up financing, market risks as well and full-time commitment were identified to have a significant impact on entrepreneurial success. Furthermore, the study emphasized that lower market risks and full-time commitment to the start-up are associated with positive outcomes, while initial financial requirements tend to have a negative impact on start-up survival. The study emphasizes the importance of market perception, level of commitment, and financial planning in the pre-start-up phase. That said, it is important to consider the shortcomings of the study, such as relying on self-reported data that may be subject to biases, as mentioned previously.

The study by Groenewegen and de Langen (2012) investigated characteristics important to the success of radical innovation start-ups. The study investigates how entrepreneurial and organizational traits influence the survival and growth of these businesses. The study used a questionnaire survey to categorize factors such as the uniqueness of innovation, entrepreneurial risk-taking, and organizational structure in 75 Dutch start-ups. According to the study, organizational variables such as networking, business strategy, and use of investor funds towards the survival and growth of start-ups were identified as important elements. Furthermore, the study identified that the uniqueness of innovation was advantageous in critical turnover growth, but the same was not true for employment growth. Interestingly, years of industry and management expertise had a negative effect on growth, insinuating that radically innovative start-ups benefit from less conventional approaches. Finally, this research provides important insights into the dynamic interplay of entrepreneurial and organizational elements in the context of radical innovation. While distinctive innovation and specific organizational practices are critical, typical entrepreneurial experiences may not always be favorable to success in this high-risk, high-reward environment. These findings challenge conventional notions regarding start-up success and provide a more nuanced view of the role of innovation in entrepreneurial endeavors.

The study by Chakraborty, I., Nandhini, K., Ilavarasan, P. V., and Edirippulige, S. (2024) investigated the important factors that promote front-end innovation in female-focused technology start-ups, also known as fem-tech. The study analyzes data obtained by a survey of various fem-tech stakeholders using Partial Least Square Structural Equation Modeling (PLS-SEM). According to the findings of the study, process practice and decision-making activities, especially in entrepreneurial orientation, had a significant influence on front-end innovation in fem-tech start-ups. In addition, the study highlighted that in order to create an entrepreneurial trajectory and promote innovation, human, social, and structural capital, as well as intellectual capital, are critical. The study also emphasizes the collaboration between key stakeholders, such as healthcare professionals and institutions and start-ups in order to improve human and organizational capital development.

The analysis of academic works has revealed multi-dimensional factors influencing start-up success. These factors predominantly include the role of entrepreneurial and organizational traits and the impact of innovation and risk perception. Groenewegen and de Langen's (2012) work contributes significantly to our understanding of the characteristics that drive start-up success in radical innovation. Their emphasis on the relevance of organizational characteristics, notably strategic business planning and the formation of formal network connections, is critical to the survival and success of start-ups. In a similar way, Thurik et al. (2003) provided early stages of entrepreneurship, emphasizing the importance of full-time involvement and the allocation of investment funds and financial struggles. Their findings indicate that these elements are critical to establishing a solid foundation for emerging entrepreneurship and increasing the likelihood of success. Chakraborty et al. (2024) add to this discussion by investigating the domain of fem-tech businesses and highlighting the crucial roles of entrepreneurial orientation and intellectual capital. Their research reveals how these characteristics work as catalysts for innovation within this specialized industry, ultimately fueling the development and advancement of fem-tech businesses. Groenewegen and de Langen (2012) also explain how innovation's distinctiveness might increase turnover. This discovery establishes a direct link between the uniqueness of a start-up's innovation and its commercial success, underlining the importance of unique innovations in the marketplace. On the other hand, Thurik et al. (2003) investigate the relationship between perceived market risk and venture success. Similarly, Chakraborty et al. (2024) add to these findings by highlighting the crucial significance of inventive procedures in enhancing front-end innovation, specifically within the fem-tech sector. Their research illustrates the crucial role of tailored innovation, specifically designed to meet the unique requirements and characteristics of this market, in achieving success.

Entrepreneurial and organizational characteristics as well as the influences of innovation and risk perception are emphasized to be the crucial contributors to start-up success. They provide invaluable insights into the diverse mechanisms through which start-ups can navigate the complex intricacies of business development. For practitioners, investors, and policymakers, these findings offer a nuanced perspective on the multifaceted nature of start-ups, advocating for tailored approaches that recognize the unique characteristics and needs of different start-up. This synthesis of academic research underscores the intricate interplay of factors that contribute to the successful evolution and growth of start-ups in various contexts.



Source: created by author

Figure 3. Research Model of Risk Management for Start-up Success

Collectively, these studies underscore the necessity for a nuanced understanding of the dynamics between entrepreneurial traits, innovation, resilience, adaptability, agility, and risk management. They demonstrate that success in start-ups is not a one-dimensional outcome driven solely by technological advances or traditional business judgment. Instead, it emerges from a complex blend of factors including innovativeness, adaptability, risk management strategies, and the ability to navigate the unique challenges and opportunities of different market environments. Research conducted across various geographical settings and industries offers a thorough comprehension of risk management in start-ups. The studies jointly emphasize the essential significance of risk management in guaranteeing the long-term sustainability and prosperity of these firms. These studies reveal key themes that emphasize the significance of cultivating a culture that is conscious of risks, adopting thorough and organized risk management strategies, and acknowledging the complex nature of risks, including those arising from technological progress and market uncertainties. Entrepreneurial and organizational characteristics as well as the influences of innovation and risk perception are emphasized to be the crucial contributors to start-up success. They provide invaluable insights into the diverse mechanisms through which start-ups can navigate the complex landscape of business development. This synthesis of academic research underscores the intricate interplay of factors that contribute to the successful evolution and growth of start-ups in various contexts. Based on these findings the Research Model of Risk Management for Start-up Success (Figure 3) was created to explore the dynamics of the intra-organisational, entrepreneurial trains and comprehensive and integrated risk management in start-up success. The following statements were formulated to further investigate these findings.

Statement 1: Entrepreneurial traits influence start-up success.

Statement 2: Start-ups that implement comprehensive and integrated risk management strategies have a higher chance of long-term success than those that do not.

Statement 3: Intra-organisational factors (resilience and adaptability, agility, and innovation) influence start-up success.

3. EMPIRICAL RESEARCH OF RISK MANAGEMENT FOR START-UP SUCCESS

In this chapter research methods, research data analysis and discussion of the results, and evaluation of research results are presented.

3.1 Research methods

Aim of the research - to explore the influence of entrepreneurial traits, risk management strategies, intra-organisational factors (resilience, adaptability, agility, and innovation) on start-up success.

Objectives of the research:

1. Explore the link between entrepreneurial traits and start-up success, including the ability to manage strategic and operational challenges.
2. Examine the link between comprehensive and integrated risk management strategies and long-term start-up success.
3. Investigate the link between intra-organisational factors such as resilience and adaptability, agility and innovation and long-term start-up success.

Methods of the research. This study implemented a qualitative interview-based methodology, which allows researchers to generate various research questions and analyze and understand phenomena from a different perspective (Kemparaj, U., & Chavan, S. (2013). The study utilized thematic analysis. This method involves methodically identifying and classifying codes and themes that are considered important in characterizing the phenomenon. An extensive and iterative examination of the data is necessary (Fereday & Muir-Cochrane, 2006). As a result, the notes and recordings from the interviews were transformed into codes, which were further categorized into themes by recognizing recurring patterns in the data. Regarding interview questions, there are four components that have been established (see Table 5).

- 1st part "The effects of Entrepreneurial and Managerial Traits on start-up success" (1 – 3 questions). The aim of this part is to find out the influence of entrepreneurial traits in the success of start-ups.
- 2nd part "Comprehensive and Integrated Risk Management Strategies on the long-term success of start-ups" (4 – 6 questions). The aim of this part is to find out the influence of risk management strategies in the context of start-ups, focusing on understanding their impact on a start-up's success.

- 3rd part "Effects of Resilience and Adaptability on the success and sustainability of start-ups." (7 – 9 questions). The aim of this part is to find out the importance of resilience and adaptability in crisis situations.
- 4th part "Effects of Agility and innovative capabilities on the success of start-ups during crises" (10 – 12 questions). The aim of this part is to explore the concepts of agility and innovation within start-ups, assessing their impact on navigating crises and achieving success.

Table 5

Interview Questions

Topics	Questions	Aims of Questions
Effects of Entrepreneurial and Managerial Traits on start-up success	1. Can you describe some key entrepreneurial traits you believe are essential for start-up success?	To find out the influence of entrepreneurial traits in the success of start-ups.
	2. How do you think traits like innovativeness and risk-taking influence a start-up's ability to overcome strategic and operational challenges?	
	3. In your experience, have you observed a correlation between certain entrepreneurial traits and start-up success? Could you provide examples?	
Comprehensive and Integrated Risk Management Strategies on the long-term success of start-ups	4. What are your views on the role of risk management strategies in the success of a start-up?	To find out the influence of risk management strategies in the context of start-ups, focusing on understanding their impact on a start-up's success.
	5. Can you describe what you consider a comprehensive and integrated risk management strategy for a start-up?	
	6. From your perspective, do start-ups with strong risk management strategies tend to have better long-term success? Please share any specific examples or experiences.	
Effects of Resilience and Adaptability on the success and sustainability of start-ups	7. How important do you think resilience and adaptability are for a start-up, especially in crisis situations?	To find out the importance of resilience and adaptability in crisis situations.
	8. Can you give examples of how resilience and adaptability have impacted the success of start-ups you are familiar with?	
	9. In your opinion, what are the key factors that contribute to a start-up's resilience and adaptability?	

Effects of Agility and Innovative capabilities on the success of start-ups during crises	10. How do you define agility and innovation in the context of start-ups?	To explore the concepts of agility and innovation within start-ups, assessing their impact on navigating crises and achieving success.
	11. In what ways do you think agility and innovation contribute to a start-up's ability to navigate crises and achieve success?	
	12. Can you provide examples where agility and innovative capabilities significantly impacted a start-up's journey, particularly during challenging times?	

Source: created by the author

Survey sample. The semi-structured interviews were conducted online and in person with eight start-up founders and experts in the field. The interview participants were selected based on the selection criteria created by the researcher (Baker, S. E., Edwards, R., & Doidge, M. (2012). These criteria were as follows: the participants must have adequate knowledge about risk management and start-ups and be involved in various industries from various geolocations. As a result, start-up founders and experts in the field from various industries such as tech, education, real estate, and food/supplements in different locations were recruited (see Table 6) until data saturation was accomplished as further coding was found no longer necessary and considering that the number of participants adheres to the recommended guidelines, as stated by numerous articles and books the recruitment of the participants finalized. (Dworkin, 2012), (Guest, Bunce, & Johnson, 2006).

Table 6

Participants of the interview

Participant	Job Title	Industry	Location
Participant 1	Co-founder	Tech	Lithuania
Participant 2	Founder/CEO	Tech	Morocco
Participant 3	Founder/CEO	Education	Italy
Participant 4	Start-up Mentor/COO	Tech	Japan
Participant 5	Founder/CEO	Education	Morocco
Participant 6	Founder/CEO	Food and supplements	Latvia
Participant 7	Founder/CEO	Real-Estate	Latvia
Participant 8	Founder/CEO	Tech	Japan

Source: created by the author

Research organization. As a result, the researcher developed a set of original interview questions, including exploratory questions, to obtain thorough responses from participants (see Table 5). In order to protect the anonymity of participants the real names of the participants were replaced by" Participant". The interview period took place between February 2024 and March 2024 with eight participants (see Table 6) who are either CEOs and founders of the start-up or in a position related to the start-up. Interviews were conducted both in-person and online, taking into account the location and convenience of the participants. All interviews were conducted ranging between 30 minutes to 40 minutes, and "Microsoft Teams", a video conferencing tool, was used for online interviews. Participants were given an overview of the study in advance and were asked to consent to the use of their information in the study. Upon obtaining the consent, all interviews were recorded in audio format in order to be used later for analysis. The interview audio recordings were utilized throughout the analysis process by the researcher. Throughout the interviews, besides audio recording, hand-written notes were taken by researchers as the interview progressed. Also, when participants mentioned something close to the core of the topic, the researcher asked for further details, which were not on the list of questions. In order to obtain as much unbiased data on sensitive topics as honestly as possible, a neutral tone of voice was used by the researcher. In order to avoid influencing the participants' answers, the researcher did not use any personal opinions and did not interrupt the participants.

3.2 Research data analysis and discussion of the results

Entrepreneurial Traits for Start-up Success

The analysis of the interview data on entrepreneurial traits and their impact on start-up success reveals numerous significant themes. These themes are grouped into traits and their influence on overcoming hurdles, as well as observations on the relationship between traits and start-up success (see Table 7)

Table 7

Entrepreneurial Traits for Startup Success

Main Theme	Sub-theme	Description	Illustrative Quote
Essential Entrepreneurial Traits for Startup Success	Communication and Leadership	Highlighting the importance of strong communication skills and leadership abilities for navigating the startup environment and leading teams effectively.	P1: "communication is number 1" P3: "Leadership. Ability to learn all the time."

	Vision and Ambition	Entrepreneurs need a clear vision for their startup and the ambition to see it through, which are critical for guiding the startup towards its long-term goals.	P2: "You need to have a lot of ambition." P5: "main characteristic an entrepreneur should have first one is, is a big vision."
	Resilience and Persistence	The capacity to endure hardships and persist despite challenges is essential for startup success, enabling entrepreneurs to navigate the ups and downs of the startup journey.	P2: "resilience is a key trait to have." P8: "the essential element...is not to give up."
	Innovation and Risk-taking	Innovation and a willingness to take calculated risks are pivotal for differentiating a startup and driving its growth in competitive markets.	P2: "innovation and risk taking are correlated."
Influence on Overcoming Challenges	Strategic and Operational Innovation	The role of entrepreneurial traits in addressing both strategic and operational challenges, through innovation and strategic risk-taking.	P3: "innovative hazard is taking us with stocks as a crucial part of entrepreneurship."
	Adaptability and Learning from Failures	Entrepreneurs' ability to adapt based on feedback and learn from failures is vital for overcoming challenges and steering the startup towards success.	P5: "You have to learn a lot from mentors."
Correlation Between Traits and Startup Success	Commitment and Dedication	A strong commitment to the startup and dedication to its mission correlates with its success, as entrepreneurs fully invested in their venture are more likely to overcome obstacles.	P1: "dedicating yourself to this startup 100%"
	Focus and Persistence	Maintaining focus on the startup's goals and persisting through difficulties are traits that significantly contribute to achieving success.	P5: "An entrepreneur should be focused on one thing."

Source: created by the author

Essential Entrepreneurial Traits for Start-up Success. Participants consistently highlighted the importance of communication and leadership skills. P1 (…communication is number 1) emphasized communication as crucial, noting successful start-ups often have a co-founder with strong public speaking and presentation skills. P3 (…Leadership. Ability to learn all the time.) and P4 (…strong leadership, somewhat visionary) also pointed to leadership as a key trait, indicating that an entrepreneur must continuously learn and have the ability to lead and attract talent. Furthermore, a clear vision and high ambition were mentioned as critical traits. P2 (…You need to have a lot of ambition.) talked about the necessity of ambition to venture beyond conventional paths, while P5 (…main characteristic an entrepreneur should have first one is, is a big vision) and P7 underscored the significance of having a big vision and being an ambitious leader. Alongside clear vision and high ambition, the ability to endure hardships and being persistent in the face of challenges was frequently mentioned. P2 (…resilience is a key trait to have) highlighted resilience, and P8 (…the essential element for at least continuing a start-up...is not to give up.) emphasized the need for resilience. Innovation and the willingness to take risks were identified as pivotal. P2 (…today leading companies in tech are the ones who dare to take risks.), P3 (…You have to be innovative.), and P8 discussed the role of innovation and risk-taking in creating a competitive advantage and differentiating a start-up from competitors.

Influence on Overcoming Challenges. Innovativeness and risk-taking were highlighted as essential in addressing both strategic and operational challenges. Participants P2 (…innovation...can help you gain a strategic advantage.) and P3 (…innovation is a crucial part of entrepreneurship) noted that these traits help in finding new solutions and improving processes. Another notable mention was that the ability to adapt based on market feedback and learn from failures was seen as vital for navigating through challenges. P5 (…You're gonna have to be patient...You have to learn a lot from mentors) and P6 (…Adaptability has proven fundamental) discussed the importance of adaptability and creativity in responding to market demands and competitors.

Influence Between Traits and Start-up Success. A strong commitment to the start-up and dedication to its success were mentioned as traits that correlate with success. P1 (…dedicating yourself to this start-up 100%) and P2 (…I think this is an example...based on my personal experience) shared personal experiences illustrating how dedication and patience contributed to their start-ups' achievements. Furthermore, the necessity of maintaining focus on one's goals and persisting despite obstacles was emphasized. P5 (…An entrepreneur should be focused on one thing.) specifically warned against the dangers of shifting focus and advocated for concentrating efforts on a single project at a time.

The data suggests that combination of entrepreneurial traits such as patience (P5), strategic thinking (P1, P3), and analytical skills (P1, P3) contributes to success. This combination provides a more comprehensive view of the entrepreneur's profile, indicating that success is multifaceted. Operational challenges and the need for adaptability are recurrent themes (P3, P4, P5). The ability to innovate operationally (P3) and adapt strategies based on market feedback (P6) indirectly supports the importance of being progressive and open to change.

In summary, the analysis reveals that successful entrepreneurs are distinguished by their ability to communicate effectively, lead with vision and ambition, persevere through adversity, innovate, and take calculated risks. These traits not only contribute to overcoming strategic and operational challenges but also show an influence on the overall success of start-ups supporting Statement 1.

Comprehensive and integrated risk management

The examination of the interview data on the role of risk management methods in the success of a start-up uncovers detailed viewpoints on its importance, implementation, and outcomes. This analysis classifies themes into the necessity of risk management, strategies for comprehensive risk management, and the correlation between risk management and long-term success (see Table 8).

Table 8

Comprehensive and Integrated Risk Management

Main Theme	Sub-theme	Description	Illustrative Quote
Necessity of Risk Management	Fundamental for Success	Risk management is viewed as essential for the success and survival of start-ups, particularly in mitigating unforeseen challenges.	P1: "planning ahead for potential risks...it's very crucial."
	Learning from Failures	Recognizing and learning from past failures through effective risk management is crucial.	P2: ".com bubble...if we had implemented risk management strategies, we wouldn't have a bubble that crashed."
Strategies for Comprehensive Risk Management	Identifying and Mitigating Risks	Strategies involve identifying potential risks and developing plans to mitigate them, including financial, market, operational, and legal risks.	P6: "identifying all potential risks...strategies are developed to mitigate these risks."
	Balancing Innovation and Risk Management	Balancing the need for innovation with risk management is crucial; too much focus on avoiding risks can stifle innovation.	P2: "innovation might slow your company...it's a risk you have to take."
	Preparing for Internal and External Risks	Comprehensive risk management considers both internal processes and external market conditions or events.	P5: "External risk is very important and you have to be prepared...for big events and external events."
Correlation Between Risk Management and Long-Term Success	Mixed Views on Direct Correlation	Opinions vary on whether strong risk management strategies directly correlate with better long-term success, though they are generally seen as beneficial.	P1: "I don't think it's directly related...in the long run, yes."
	Importance of Adaptation and Flexibility	The ability to adapt and be flexible, possibly even more so than having a rigid risk management strategy, is deemed crucial for long-term success.	P5: "In the early stage of a company risk management...when you go big...very important."

	Case Examples and Personal Experiences	Some participants shared specific examples where risk management benefitted their start-ups, while others pointed to other factors as more influential in achieving success.	P6: "companies like 'Spotloc' and 'teazzy'...good at managing risks."

Source: created by the author

Necessity of Risk Management. Most participants agreed on the essential role of risk management in start-up success. P1 (… planning ahead for potential risks...it's very crucial) and P3 (…the analysis of risk, it's always important) highlighted the risk of not having a strategy in place and the benefits of planning for potential risks. Examples like the ".com" bubble were mentioned by P2 (… com bubble...if we had implemented risk management strategies, we wouldn't have a bubble that crashed) to illustrate the consequences of inadequate risk management, suggesting that learning from past failures is crucial. The COVID-19 pandemic was referenced by P3 (…COVID situation...many company were more innovative, so they restarted) as a scenario where risk management could make a significant difference in a start-up's ability to pivot and innovate.

Strategies for Comprehensive Risk Management. Participants P1 (…having advisory board with the skills...for each risk vertical) and P6 (…identifying all potential risks...strategies are developed to mitigate these risks) discussed the importance of identifying potential risks across different areas of the business and developing strategies to mitigate them. Furthermore, a tension between risk management and innovation was noted, with some participants such as P2 (… a negative correlation between innovation and risk management) and P4 (…early-stage start-ups...very aware of like risks...they actually fall behind on growth.) arguing that too much focus on risk management could stifle innovation. The necessity of considering both internal and external risks, including market changes and unforeseen events, was emphasized by P5 (…External risk is very important, and you have to be prepared...for big events and external events).

Correlation Between Risk Management and Long-Term Success. There were mixed opinions on whether strong risk management strategies directly correlate with better long-term success. Some participants like P2 (…Having a strong risk management strategy...would benefit the company in the long run) believed in its importance, while others like P1 (…I don't think it's directly related) saw it as less critical compared to other factors like innovation and market demand. Furthermore, the ability to adapt and be flexible in response to risks was seen as more crucial than having a rigid risk management strategy, illustrated by P5(…. In the early stage of a company risk management...when you go big...very important).

While some participants shared specific examples of how risk management benefited their start-ups like P6 (…companies like 'Spotloc' and 'teazzy'...good at managing risks), others such as P8

(…a start-up that has a stronger risk management system than necessary loses speed) questioned its direct impact on success, pointing to other factors as more influential.

In conclusion, the thematic analysis suggests that while there is a general agreement on the importance of risk management for start-ups supporting statement 2, opinions vary on its execution and direct influence on long-term success. Participants highlighted the need for start-ups to balance risk management with innovation, prepare for both internal and external risks, and adapt their strategies as they grow. The insights suggest that effective risk management is not just about avoiding risks but also about enabling start-ups to navigate uncertainties more confidently and sustainably.

Resilience and Adaptability for Start-up Success

The thematic analysis of the interview data regarding the importance of resilience and adaptability for start-ups, particularly in crises, reveals nuanced insights into their critical role, impact, and key contributing factors. This analysis is structured around three main themes: the importance of resilience and adaptability, examples of their impact on start-up success, and factors contributing to a start-up's resilience and adaptability (see Table 9).

Table 9

Resilience and Adaptability for Start-up Success

Main Theme	Sub-theme	Description	Illustrative Quote
Importance of Resilience and Adaptability	Essential for Success	Resilience and adaptability are crucial for startups to survive and thrive, especially in response to crises and market changes.	P1: "I think it's essential, because I think companies... they need to adapt."
	Balance Between Resilience and Smart Adaptability	While resilience is key, smart adaptability—knowing when and how to pivot—is crucial for navigating market trends and challenges.	P3: "It's about being smart too, not just resilient... If I see there's no way through, it's not about being stubborn."
Examples of Impact on Startup Success	Adapting Business Models	Successful adaptation of business models or product lines in response to external pressures demonstrates the power of resilience and adaptability.	P2: "...we switch to CRM solutions...definitely I think this is something that has helped us grow out of the difficulties."
	Overcoming Crises	Startups that navigate through global crises, like the COVID-19 pandemic, highlight the importance of being resilient and adaptable.	P5: "During COVID...we went through it very well. But what helped us a lot is our kind of leadership within the company..."

Key Factors Contributing to Startup Resilience and Adaptability	Leadership and Team Dynamics	Strong leadership and cohesive team dynamics are foundational for fostering a startup's resilience and adaptability.	P2: "One would be the founder or the decision makers...people who genuinely believe in what the company is doing."
	Financial Stability and Resource Management	Having the financial resources to weather tough periods and a focus on reinvestment and proper compensation are crucial for maintaining resilience.	P5: "First thing, first thing is, is reinvestment...we invest everything into marketing."
	Stakeholder Relationships and Corporate Culture	Positive stakeholder relationships and a supportive corporate culture enable startups to adapt and remain resilient amid challenges.	P2: "And last I would say it's relations with your main stakeholders...having a good relationship or partnership...is also something that can help with the resilience."

Source: created by the author

Importance of Resilience and Adaptability. All participants stated the sentiment that resilience and adaptability are not just beneficial but essential for start-up survival and success, especially in crises. P1 and P4 emphasized the necessity of pivoting and adapting business models as market conditions change, highlighting it as second only to making sales in importance. The discussion also touched on the balance between being resilient and making smart adaptations in response to market trends and challenges. P3 pointed out that resilience is valuable, but adaptability and knowing when to pivot is also higlighted as crucial for success.

Examples of Impact on Startup Success. Participants shared examples where start-ups successfully pivoted their business models or product lines in response to challenges, such as P2's shift from VoIP to CRM solutions, underscoring adaptability's role in overcoming obstacles. P5's start-up resilience during COVID-19 due to a strong team spirit and the ability to quickly adapt to changing circumstances demonstrates how resilience and adaptability can guide a startup through global crises.

Key Factors Contributing to Startup Resilience and Adaptability. The founder's mindset, leadership style, and team dynamics were frequently mentioned as critical factors. A cautious, data-driven approach by the founder (P1) and strong, invested leadership (P2) were highlighted as essential for fostering resilience and adaptability. P6 emphasized the strength of team dynamics and a culture of mutual support as key to resilience. Financial resources to keep the company afloat during tough periods (P2) and a focus on reinvestment and proper compensation for employees (P5) were identified as crucial for maintaining resilience. Positive relationships with main stakeholders (suppliers, clients) and a positive team culture where issues are addressed directly were also seen as important (P2).

Creating an environment where the employee and employer are supportive of each other fosters resilience (P5).

In conclusion, the thematic analysis underscores the vital importance of resilience and adaptability for start-ups, particularly in navigating crises. Successful start-ups, as exemplified by the participants, not only pivot in response to market demands but also cultivate a supportive corporate culture, strong leadership, financial prudence, and positive stakeholder relationships. These elements combine to form a foundation that enables start-ups to withstand challenges, capitalize on opportunities for growth, and sustain long-term success supporting statement 3.

Agility and Innovation in Start-up Success

The thematic analysis of the interview data on agility and innovation within the context of start-ups highlights the nuanced understanding of these concepts, their contributions to navigating crises, and their impact on a start-up's journey through challenging times. The analysis is structured around three main themes: definitions of agility and innovation, their roles in navigating crises and achieving success, and examples demonstrating their significant impacts (see Table 10).

Table 10

Agility and Innovation in Start-up Success

Main Theme	Sub-theme	Description	Illustrative Quote
Definitions	Agility	The ability to adapt swiftly to market changes or internal challenges.	P2: "Agility is how fast you can adapt to the circumstances of the market you're operating in."
	Innovation	The development or enhancement of products, services, or processes.	P5: "Innovation... investing in R&D as much as possible. So you can be very flexible with new decisions and new trends."
Role in Navigating Crises and Achieving Success	Navigating Crises	Agility and innovation enable rapid adaptation to unexpected situations and market demands.	P1: "This kind of model helps you adapt to different crises... It's definitely an important factor."
	Achieving Success	Facilitates sustainable growth by fostering continuous improvement and quick adaptation to market needs.	P4: "...how quickly they realize growth... the agility of making that decision... is very important."
Examples Demonstrating Impact	Adapting Business Models	Successful pivoting of business models or product offerings in response to changes or crises.	P1: "...everyone started opening online shops... This move might be seen as innovation."
	Innovative Solutions	Leveraging technology to enhance traditional services or create new offerings.	P5: "...introduced technology into education services, significantly enhancing its value proposition."
	Agility in Crisis	Swift shifts in focus or business strategy to survive financial or market-related challenges.	P8: "...focused on receiving development project orders from other companies to secure sales."

Source: created by the author

Definitions of Agility and Innovation. Agility is largely defined by the ability to adapt swiftly to market changes or internal challenges. Participants like P1 and P2 describe agility as adopting new product features based on trends or improving internal processes for efficiency. P3 emphasizes the ease of making changes within a start-up due to its typical organizational structure. Futhermore, innovation is seen as the development or enhancement of products, services, or processes. P2 and P5 discuss innovation as either introducing new products or applying technology to traditional services, enhancing their value proposition and efficiency.

Role in Navigating Crises and Achieving Success. The ability to innovate and remain agile is crucial during crises. P1 points out the importance of having a clear innovation and agility model to adapt to unexpected situations, such as political upheavals or the pandemic. P2 and P3 highlight the necessity of innovation in adapting economic models to meet new market demands or operational challenges. Agility and innovation contribute to a start-up's success by enabling rapid adaptation to market needs and fostering continuous improvement. P4's emphasis on the quick realization of product-market fit as a measure of agility, and P5's discussion on the importance of reinvesting in R&D for innovation, underline their central role in sustainable growth.

Examples Demonstrating Significant Impact. Several participants shared examples where start-ups successfully pivoted their business models or product offerings in response to market changes or crises. P1 mentions businesses going online during the pandemic as a form of innovation, while P2 talks about shifting from VoIP solutions to CRM due to infrastructure challenges. Start-ups leveraging technology to enhance traditional services or create new offerings exemplify innovation's impact. P5's start-up introduced technology into education services, significantly enhancing its value proposition. The importance of agility is highlighted by P8's example of shifting focus from app development to securing development projects from other companies to avoid bankruptcy. This adaptability allowed the start-up to survive challenging financial times.

In conclusion, the thematic analysis underscores the critical importance of agility and innovation for start-ups, especially in navigating crises and achieving long-term success. These concepts are not static, they involve continuous evolution in response to internal and external pressures. Successful start-ups are those that can swiftly adapt to changing market conditions, embrace innovation in their products and processes, and leverage these strengths to overcome challenges and capitalize on opportunities. The insights from the participants reveal a deep understanding of the dynamic interplay between agility, innovation, and success in the start-ups supporting statement 3.

3.3 Evaluation of research results

Statement 1: Entrepreneurial Traits Influence Start-up Success. The results of this study highlight the vital role of key entrepreneurial attributes in start-ups' success. These traits include the ability to communicate effectively, leadership, having a clear vision, having a high level of ambition, being resilient, being innovative, and being willing to experience risk. Participants in the study identified these characteristics as essential, with effective communication and leadership constantly highlighted as important for the leadership of start-ups and the development of teams throughout the study. The study's findings regarding the influence of innovativeness aligned with the findings from the study conducted by Ahn and Kim (2019), stating that innovativeness benefits non-financial success measures in start-ups. On the other hand, while participants of the study highlighted willingness to experience risk as an essential characteristic for entrepreneurs, Ahn and Kim (2019) concluded that risk-taking had very little effect on the success of the start-ups in the study. This can be attributed to the difference in the geolocation and cultural differences of the selected research participants, as this study had participants from different industries and cultural diversity. In contrast, Ahn and Kim (2019) focused only on the technology start-up in Korea. Despite the difference in research methodology, the findings from the data were in agreement with the fact that entrepreneurial characteristics such as innovativeness benefited start-up success. Based on this, it can be said that characteristics such as innovativeness are common elements for the success of start-ups. Findings from the study by Hyytinen et al. (2015) conclude that the negative effects increased when the start-up owner had a higher risk appetite. The findings from the study contrast with this notion as participants highlighted the willingness to take risks as an essential characteristic for start-up success. The findings from the study validate Statement 1 by indicating that entrepreneurial traits influence the success of start-ups.

Statement 2: Start-ups that Implement Comprehensive and Integrated Risk Management Strategies Have a Higher Chance of Long-term Success Than Those That Do Not.

The results of this study highlight the necessary implementation of comprehensive risk and integrated risk management in start-ups. The findings from the study by Ade et al. (2020) established the significant influence that comprehensive risk and integrated risk management have on the long-term viability of small and medium-sized enterprises (SMEs). These findings were in alignment with the findings from this study where the participants of this study agreed on the essential role of risk management in start-up success. The participants of the study highlighted the risks of not having comprehensive and integrated risk management practices in place and the benefits of planning for potential risks. Similarly, findings from the study by Ikhasari and Faturohman (2021) demonstrated the efficacy of systematic risk assessment in navigating start-up challenges, particularly during the

COVID-19 pandemic. The COVID-19 pandemic was also mentioned by the study participant as a scenario where risk management could make a significant difference in a start-up's ability to pivot and innovate. This further supports the influence of well-structured risk management strategies on the longevity of start-ups. This notion was also stated by the participants that there is a need for start-ups to balance risk management with innovation, prepare for both internal and external risks, and adapt their strategies as they grow. The insights suggest that effective risk management is not just about avoiding risks but also about enabling start-ups to navigate uncertainties more confidently and sustainably. The comprehensive body of scholarly work, in conjunction with the research, highlights the essential role that strategic risk management plays in ensuring the success of start-ups. Not only does the incorporation of comprehensive risk management methods reduce the likelihood of potential risks, but it also places start-ups in a position to capitalize on emerging possibilities, which in turn improves their chances of achieving success over the long term, supporting the statement 2.

Statement 3: Intra-organisational Factors (Resilience and Adaptability, Agility, and Innovation) Influence Start-up Success

The research data clearly reflect the influence of intra-organizational characteristics such as resilience, adaptability, agility, and innovation on start-up success. These findings align with those of other scholars. The research conducted by Kuckertz et al. (2020) supports this statement by presenting how entrepreneurs exploited bricolage as a strategy to adapt and develop during the COVID-19 crisis. This study highlights the important role that agility and innovativeness play in overcoming extraordinary problems. In addition, participants shared examples of start-ups that successfully pivoted their business models or product lines in response to challenges, underscoring adaptability’s role in overcoming obstacles. The findings of this study highlight the vital importance of resilience and adaptability for start-ups, particularly in navigating crises.

On the other hand, findings of the study by Hyytinen et al. (2015) conclude that innovative start-ups have lower survival rates in comparison to those that are not innovative. The findings of Hyytinen et al. (2015) are in contrast to this study's findings, as participants of this study also emphasized innovation as an important factor in start-up success. The finding of the research is also in alignment with the findings of the study conducted by Audretschet al. (2023), concluding the importance of innovation on start-up success aligning with the study participants' emphasis on the critical importance of innovation for start-ups.

The insights from the participants reveal a deep understanding of the dynamic interplay between agility, innovation, resilience, adaptability, and success in start-ups. This was exemplified by the participants as well, not only pivoting in response to market demands but also cultivating a supportive corporate culture, strong leadership, financial prudence, and positive stakeholder relationships. The findings of the study demonstrate how intra-organizational factors such as resilience, adaptability, agility, and innovation influence start-ups' success, alongside the findings of the scholarly works by other authors supporting Statement 3.

In summary, the assessment of the outcomes of the research in comparison to the scholarly literature demonstrates a significant alignment and mutual reinforcement. The relevance of entrepreneurial characteristics, comprehensive risk management techniques, and intra-organizational elements like as resilience, adaptability, agility, and innovation emerge as essential themes in the process of comprehending the mechanisms that underlie the success of start-ups. This in-depth analysis illustrates the intricate interplay of individual, organizational, and strategic elements that collectively contribute to the growth trajectory and long-term viability of a start-ups. It serves to highlight the multiple nature of start-ups and the complicated nature of the interplay between these aspects. In order for start-ups to successfully navigate the dynamic and fast-changing environment integrated and comprehensive risk management that takes into consideration intra-organizational factors, the agility and innovation capabilities of star-ups is essential. Well establishes risk management for start-ups required to be comprehensive, flexible and non-restrictive. It is also essential for risk management to balance the start-ups innovative capabilities and risk associated with it.

CONCLUSIONS

1. After examining the definition of risk management and its components, it was revealed that risk management was defined differently by different authors and organizations. However, there was general agreement that risk management is a tool that enables organizations to take advantage of opportunities while protecting them from potential risks. In addition, an examination of scholarly work revealed that risk management has evolved from merely focusing on protecting organizations from financial risks toward a more comprehensive approach that includes strategic, operational, and reputational risks. This is important to safeguard start-ups from uncertainties that surround them. The examination also revealed the importance of implementing a more distinct approach that integrated risk management with the overall business strategy of start-ups.

After investigating the definition of start-ups in different scholarly works, it was revealed that while there was no unified definition, there was general agreement that emphasis on innovation was a differentiating factor when it came to distinguishing start-ups from other organizations. In addition, it was also revealed that start-up risk management was mainly focused on urgent technological risks while overlooking more general strategic and operational risks. Subsequently, risk management for start-ups should not focus on immediate risks but should also include wider business risks. It was also revealed that a more comprehensive risk management approach that aligns with the strategic and operational objectives of the start-ups needs to be implemented.

2. After investigating the integration of risk management with the overall start-up strategy, it was revealed it is essential for start-ups to incorporate risk management into their overall business strategy in order to ensure their long-term success and survival. Strong risk management approaches are necessary in order to keep the agility of start-ups while preventing risks and taking advantage of possible opportunities in a fast-changing market. According to research findings, start-ups with solid risk management plans are better suited to efficiently manage risks, which in turn supports continuous growth and innovation.

3. After investigating the empirical level of research for risk management for start-up success, it was revealed that there is a lack of implementation of complete risk management strategies among start-ups. Mostly, these strategies tend to concentrate solely on technical or immediate risks. According to the findings of the analysis, a risk management strategy that is more comprehensive and encompasses a wide variety of potential risks, including financial, strategic, and operational risks, as well as intra-organizational factors, should be implemented. Based on the findings, it was determined that start-ups that implement such all-encompassing risk management approaches have a greater chance of overcoming challenges and achieving success over the long term.

4. The empirical evaluation of the research model revealed that entrepreneurial traits influence start-up success. Additionally, it was concluded that strategic risk management is essential to ensuring

the success of start-ups. Not only does the incorporation of comprehensive risk management methods reduce the likelihood of potential risks, but it also places start-ups in a position to capitalize on emerging possibilities, which in turn improves their chances of achieving success over the long term, showing that start-ups that Implement comprehensive and integrated risk management strategies have a higher chance of long-term success than those that do not. The empirical evaluation of the research model also revealed a deep understanding of the dynamic interplay between agility, innovation, resilience, adaptability, and success in start-ups. This showcases intra-organizational factors (resilience and adaptability, agility, and innovation) that influence start-up success.

SANTRAUKA

Aktualumas. Daugybė mokslinių tyrimų apie startuolių rizikos valdymą rodo jo svarbą. Tyrimai rodo, kad rizikos valdymas yra labai svarbus pradedantiesiems verslininkams, ypač tokiose neapibrėžtose ir inovatyviose pramonės šakose kaip IT ir naujosios technologijos. Dėl dinamiškos ir dažnai neužtikrintos finansinės aplinkos startuolių rizikos valdymas yra gyvybiškai svarbus siekiant įveikti finansinę riziką ir gauti augimo ir inovacijų išteklių. Šis tyrimas pabrėžia, kad reikia sudėtingų rizikos valdymo strategijų, pritaikytų startuolių iššūkiams. Taigi startuolių rizikos valdymo tyrimai gali pagerinti išlikimą ir inovacijų diegimą neapibrėžtose rinkose.

Darbo objektas - rizikos valdymas startuolių sėkmei užtikrinti.

Tikslas - ištirti rizikos valdymą, siekiant pradedančiųjų įmonių sėkmės

Šio tyrimo uždaviniai yra šie:

1. išanalizuoti rizikos valdymo apibrėžtį ir sudedamąsias dalis bei aprašyti, kaip jos konkrečiai taikomos startuoliams.
2. Ištirti rizikos valdymo integravimą į bendrąją startuolių strategiją.
3. Išanalizuoti empirinių tyrimų lygį rizikos valdymo siekiant pradedančiųjų įmonių sėkmės.
4. Suformuluoti tyrimo modelį, pagrįstą teorinių ir empirinių tyrimų vertinimu, ir atlikti šio modelio empirinį vertinimą.

Darbo struktūra ir apimtis. Magistro baigiamasis darbas "Rizikos valdymas pradedančiųjų įmonių sėkmei" kruopščiai suskirstytas į įvadą, tris pagrindinius skyrius ir išvadas. Šį dokumentą sudaro 84 puslapiai. Darbas praturtintas 10 lentelių ir 3 paveikslais, kurie pagrindžia ir detalizuoja viso tyrimo metu atliktą analizę. Be to, disertacija papildyta priedais, Disertacijos bibliografiją sudaro 89 literatūros šaltiniai.

Tyrimo modelis empiriškai tikrinamas taikant kokybinio interviu metodiką, o surinkti duomenys analizuojami taikant teminę analizę.

Reikšminiai žodžiai: Rizikos valdymas, startuoliai, startuolių sėkmė, startuolių rizikos valdymas.

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Appendix 1

INTERVIEWS

1. **Can you describe some key entrepreneurial traits that you believe are essential for start-ups success?**

P1: Well, as a personal trait, I think communication is number 1, because I truly believe that from what I've seen as well, like most successful start-ups, they had Co-founder who was at the same time a salesperson or a speaker like a public person and he had really good communication skills, presentation skills, so people who simply liked that person. So, I truly believe that's something that you can, you know, train or go, you know to educate yourself on that behalf. So that's one and second thing. Well, I think you should be critical, have ability to take decisions based on the data, not based on the feelings, not based on the feedback that you get from someone. like but truly you know be cautious about everything you hear, everything you see and rely on data so data analyzing you know skills as well. But yeah, still most important is the, you know, communication.

P2: OK, sure. So, in terms of entrepreneurial traits, I would say first of all is ambition. You need to have a lot of ambition in order to not to follow the standard path, which is to look for a job, et cetera. You have to be daring, you have to dare to say that you can find clients on your own. You need to be resilient because entrepreneurship is not a paved path. You will encounter difficulties and so resilience is a key trait to have. You have to be, I would say extroverted. You have to be good with people so you can talk to people, manage a team, have a good communication and be open to to others. And also, be accepting of your own failures because not everything is going to go according to your plan. So, you have to accept your, I would say, limits and just think about what you can do to improve them. So, I would say these are some of the most important traits for an entrepreneur.

P3: About key entrepreneurial traits, OK. Leadership. Ability to learn all the time. Learn new things, learn from mistakes. Analytical skills. I mean related to numbers, but not only numbers. Also to figure out other kind of situation commutative skills, because if you are great entrepreneur but it's complicated for you to interact with other people, it's complicated. And yeah, I think these are probably the most important characteristics for an entrepreneur.

P4: I would say strong leadership, somewhat visionary would be helpful, better to have deep industry knowledge for whatever they're looking into. Founder market fit we call it, that would be very helpful. And also, the ability to hire people, I think just the ability to attract new talent into their team would be very beneficial as well. Yeah, I would say those 3 for now.

P5: So basically, the main characteristic an entrepreneur should have first one is, is a big vision. Definitely you cannot start anything if you don't have a clear vision and the big vision about your project. So, you have to be clear with yourself, put small and reachable targets but a big vision in order to reach it in like 10 or 15 years time. Second thing is, is patience. Patience is very important because results are not gonna show up like directly. Definitely. You’re gonna have to be patient for at least two to three years in order to start seeing some positive things about your projects. So, vision, patience, and you have to learn. You have to learn a lot from mentors. You have to surround yourself with the with the very like qualified mentors and people that you can trust. Because you're gonna have to share your numbers, you're gonna have to share your vision. You're gonna have to share everything about your company with your mentors in order to direct you in the right direction. Because you're gonna make mistakes. It's OK to make mistakes, but you have to learn from those mistakes and learn from the people that already like went through those moments and they're gonna help you a lot, pass through them. Fourth thing you gonna have to listen a lot because. You're gonna meet people all over events and conferences. So, make sure you listen more than you talk. So, whenever you, attend or meet people, you have to listen, learn from them, learn from their experiences in order to apply those experiences into your business. So, I think those are the four main characteristic in entrepreneurship.

P6: I believe that the most important entrepreneurial traits are resourcefulness, creativity, flexibility, passion, and persistence. Resourcefulness, creativity, and flexibility give founders the ability to find innovative solutions to difficult challenges. Passion and persistence, however, drive their dedication and commitment to their vision and goals. These traits together provide the perfect guidance for founders to navigate their unpredictable journey of entrepreneurship, increasing the chance of success.

P7: I would say, vision, problem that will be solved with new product or service in the market, team with ambitioned leader and finance.

P8: I think it is to never give up. When you are trying to build a team from the ground up, pitching a product, or asking a VC for funding, you will be refused again and again at various points in your life, more than you have ever experienced before. If you turn down at some point of it, you will drop out of the startup field. To be precise, rather than being essential for success, it can be said that the essential element for at least continuing a startup, whether it ultimately succeeds or fails, is not to give up.

2. **How do you think entrepreneurial trades influence a startup's ability to overcome strategic and operational challenges?**

P1: I don't think that's very essential. Innovativeness, OK. But you know, I think this step where startups either fail or go up is sales, not ideas, not innovativeness, not like say risk, but like sales. If you manage to do sales, then it's good. And then of course maybe first time you need to pivot, but ability probably to you know be able to solve something, I think that's thing and it's maybe more related to risk taking. So, I would suggest that risk taking is more important than innovativeness.

P2: OK. So just you mentioned innovation and risk taking, OK. So, when it comes to innovation you can talk about radical innovation or incremental innovation. For example, I'll mention our case, we are a managed service provider. We didn't invent the product that we're selling but the innovation is in how we provide that service. There are a lot of competition that provides exactly the same service. But our onboarding process everything that's like if you take your value chain and try to innovate across all the its components. What I mean by that is customer service, your billing and etcetera. Then you gain a competitive advantage that you can use to stand out from the market that's in the incremental innovations sphere which I'm more familiar with. But from the radical innovation perspective I would also say that today leading companies in tech are the ones who dare to take risks. For example, if you take Uber as an example, you're taking a risk by betting on the fact that people would agree to pay a stranger and go on a car ride with them, someone that they don't already know. So that's a huge bet but today it becomes part of our I would say culture. Anyone can order an Uber. We even use the term Uber as a verb to mean I would say a specific business model. Risk taking is important because you cannot guarantee success when starting a company and it's a simple equation that applies also to the stock market which is the higher the risk the higher the reward. When you start a star- up the risk of you failing is huge and I would say that innovation and risk taking are correlated because the more your innovation is radical the higher the risk is. And by that it's also correlated with the reward because if you invent something new that's never done before then you have a blue ocean in that market. So the market you've created is free. There was no market for the iPhone because the before the iPhone was created. So today I would say that's a segment on its own. So I would say this is my commentary on the innovation and risk taking and how they can help you gain a strategic advantage as a start-up.

P3: I think these are some in, I mean probably are the two ingredients that without this you are like a normal company in a startup. You have to be innovative to be innovative you have to try something that others didn't have in mind. So, innovation it's it's of course it's something that it's really, let's say on the top, let's say it's something that is going far away but is going on a direction that can have risk, can be, can be a failure, can fail. But an entrepreneur knows that in order to succeed one time, probably you have to fail many times. And it's a risk. That is entrepreneur taking consideration failures. It's something that you live together with failures. You have more failure than success. Success is, I mean the last try that was with good with good races and taking risk. It's something that with analytical skills you can find a way, you can be sure, you can try to compensate, you can understand the sides, that the quantity, the value of the risk. In case it's complicated to to know it, you know the question that people have. No, it's normal. Question is if it's not work entrepreneurs have, if it's work, this is the different point of view. It's about mentality, mindset. Yeah, mindset. It's an another characteristic of entrepreneur. So how do you think this innovative hazard is taking us with stocks as a crucial part of entrepreneurial ship?

How do you think it influences strategic challenges, let's say strategic challenges in the context of startups and also operational challenges where we see this influence of this characteristic in these scenarios?

For example, when you're trying to do something that you have to do systematically, a normal people are doing every day at the same time in the same way, with the same methodology. An entrepreneur after that did the same operation five times. He's starting to think how to make it automatic or how to make it with in short time or with less effort or with less resource. This is the the mentality of entrepreneur trying to make process and procedure or automatic or with the less time or with less rest in operational way. I'm saying so entrepreneur is trying to make and sometimes you can be wrong, you can make mistake because probably when you are trying different way you are wrong. You can commit some error, or you can waste some resource or you can waste time etc. But it's a a way, It's the process for the innovation you know. If you want to improve, you have to change how you are doing something. Otherwise, there is no innovation and you will doing the same things at the same time and with the same result all the time. But innovation in operational way is something like that you have to do. You have to try to help or to implement operation in different way related to strategy. Also, this can be for example if you are producing some products and so on. You can take a percentage of it for experimental use or for technological topic. I don't know, but I think here you you have also balance of the risk. You cannot push everything in experiment, let's say could be a part of it and after try to understand if it's convenient or not. I see thank you very much.

P4: I think the innovativeness is very crucial for when the startup needs to accelerate or when they see an opportunity and they take it. I think it's really important on the other hand for like being aware of the risks. I think they need to be aware of that, especially when their business is not going well. So both sides are very important and I feel like that affects how they see risk on a day-to-day basis. And I see there are two different types of founders there who see those two, who see those two perspectives differently.

P5: Actually, this question can be asked can be answered in general, but depending on the market and the situation you are in, the risk of, the level of risk can be higher or lower. For example, if we talk about like well developed countries, the risk you're gonna take will not be as high as developing countries as in developing countries. If you're gonna start a new idea for introducing your idea in the market, you're gonna have to take risk without knowing what's coming next. You're gonna take risk in a bloody word. So, you have to jump, you have to try, you have to fail, you have to try to convince people with your products or your services. So, mistake taking is very important in my in my case, we had to take many times we had to take risks without knowing what's coming next. We have, we had to invest a lot of money without knowing if this strategy would still don't know because we don't have any, how can I say any examples of people that were doing this, this service before. So, risk taking is mandatory. If you don't take risk, you're not going to learn. I'm talking about learning. I'm not talking about success or failure. You're gonna learn either positive or negative. You learn by taking risks. So, let's again depending on if you're in an emerging country or a well-developed country, innovation is very important because in like well developed countries you're going to find many competitors in many kinds of departments or services let's say. So basically, innovation can be very efficient if it's in the in the developing country because the market is still open for new ideas. You can develop new ideas be very innovative and introduce this product and try to to sell this product to companies or individuals. But in in well developed countries, you have to be very, very innovative and bring new ideas that are not already implement in the market. So yes, innovation can be very important sometimes. Or I know like very a lot of startups that already took existing ideas, developed them a little bit more and now they are doing very well. So, it's not, it's you. You don't have to be all the time innovative. You can just take an existing idea, work on it properly, make it better than the others, and you're going to succeed.

P6: Differentiation is crucial for success. Being innovative is the key to standing out from competitors and capturing the attention of customers. However, innovation often involves taking risks, as not every idea will pay off. Striking a balance between being innovative and managing risks effectively is essential for long-term success.

P7: Both traits affect start up's ability to overcome challenges, but I think more important is vision, plan and ambitioned leader who believe the idea and are ready to take the risk to overcome challenges.

P8: Innovation, in other words, is the uncertainty as to whether or not a business will succeed, but I think it is also the very reason why a start-up is a start-up.
A business that is not innovative (i.e. one that is almost certain to succeed) belongs not to the start-up category but to the small business category, which is a model that aims for small, steady growth. Therefore, first, I recognize a start-up as an individual/team that is capable of risk-taking in challenging the uncertainties of the business. Innovation is an essential element for an early-stage start-up to excel over other competitors. Without it, as mentioned above, there would be no point in being a start-up. The more you start your business by offering a product with an innovative element that no one else offers, and the more people recognize that it is a good element, the more likely it is that your competitors will imitate you. In order to resist those imitations, the start-up further invests all of its team's resources in its innovation and risk-taking. If this fails, it is just the end of the business, but since what start-ups can do while established companies cannot is to locally invest resources, so they have no choice but to bet on it (i.e., risk-taking). The question you ask is the impact on the ability to overcome difficulties, and I recognize that this is a prerequisite for being a start-up, because I think start-ups without the ability to innovate and risk-taking are already on the way out.

3. **In your experience, have you observed A correlation between certain entrepreneurial traits and startup success? If you did, could you please provide an example?**

P1: Yeah, probably the same thing that people are the salesperson or they kind of, they are very good speakers, so like good communication skills. I believe that's the trend that I can observe. That's one. And I had something else. Ah, and dedicating yourself to this startup 100%, like that's again another one. Like the people who like work one job and they do startup like, you know, free, free time. It's like either they don't succeed, or it takes lots of time, you know. But if you go 100% in, then yeah, it works better.

P2: Personally, I would say my first experience is at my current start-up. I've been working for close to three years now on the same project and today it's my main income. So, this is what I do for a living. I think that if I wasn't patient enough to carry out or ambitious enough to start that project while I was studying, I wouldn't be able to make a living out of this project because it would still be at an early stage. I was in my third year at college when I first started this project, I wasn't profitable at all but again I was OK with it because I had the ambition to start this project and also, because I was a student so I didn't have that much of expenses anyway. So, I didn't look at it with the same KPIs that you would look at a standard start-up. I didn't care if we have stable monthly recurring revenue or if our margin was superior than 30%. These were not KPIs that I kept in mind. What I kept in mind were able to deliver a good product We have I would say a proof of concept and then based on that today, which is 2 years later, we are running a profitable company with. So, I think this is an example that I can give which is based on my personal experience. I don't think that today this company would have existed if I didn't show patience and ambition to start this in the 1st place.

P3: Yeah, affect because for example in my case I'm not so commutative or I need to develop some leadership skills and for me it's complicated people that follow me in the ideas in the project. So of course there is correlation, because there are people with good commutative skills that probably have bad ideas that succeed to at least to collect money and have a team and after fail. And so correlation about these topic. I think that especially at the beginning, the most important part is to involve people involve people. It's better than convince people if you involve people in the in the project, in the activities that you need to develop for your project. You can have a team and you can have let's say like a soldier that work with you. Otherwise, if you have to convince people, probably also the idea it's not great let's say. But if you have to convince people, this means that your way to talk with people, your communication skill, it's not enough. It's not well developed let's say.

Of course, with your team, sometimes was necessary to push your startup forward. It's always necessary to push. It's always necessary to take responsibilities on what we are doing, even if it's a good result or even if it's a bad result. You can do this and recognize where is the problem. You can do this if you have analysis to analyze you know the business data and so on. You can understand where is the problem and these make the environment more let's say professional then personal because rough when everything is going good everybody are great, everybody other no doing compliments to the other between department, between person. Because everything is going good but nobody knows why is going good but it's good. Problem is when situation start to have some problems. For example, if we have less selling in this mound, why?, What happened? And if the story is continuing, who is the responsible of this loss? Which department, IT marketing, the analyst or the developers? Who is the responsible of and after you know what happened in this contest that everybody are thinking that the other is cheating or are not doing their job but not professional and so on Because it's and this is the happen in many companies because as I said, nobody knows why it's not going good and everybody are against each other’s. It's like a a fight where everybody is against the others. And this is, it's a big problem to to manage even for a Greek leader it's really complicated to manage a situation like this. So in this type of situations, I saw the value of characteristics such as like leadership, communication and being a risk taker to to be the innovator, to be the leader, to lead the company out of this situation.

P4: It's it's hard to say because I feel like there are actually a lot of external factors that come into play as well. I would say very strong leadership is helpful for the startup to grow to a certain extent I think which would mean like decisiveness, clarity in their decision-making process and being able to communicate to their stakeholders very straightforwardly. I think that is helpful in for example taking the startup to let's say even like product markets fit and maybe even series eight. I think that's because it's very like communication skills and the sense of direction is essential to bring the startup forward and this means for fundraising, for building your original prototype and bringing it to market. I think all of those in hiring, I think those all come are directly linked to those characteristics. So, to a certain extent, especially in the early stages, I think that's really important.

P5: Definitely. And the first thing that came to my mind when you ask this question. I know many entrepreneurs that that that do this, this, this, this mistake. They start with something, or they start with an idea. After 2-3 months they jumped into another idea. After 2-3 months again jumping it's another. So, the main characteristic and it this is very important, I forgot to mention it in the first question. An entrepreneur should be focused on one thing. You cannot do many things, OK? If you do many things, you will never give full energy or full time into on into both things. And instead of giving 100% of your time and energy into one thing, you're going to divide your time into two things and you're you. You will never be very successful in both. You have to make one full focus like work on its full 100% energy, 100% time. Make it successful then move into the other thing. OK so all entrepreneurs that are that are thinking of starting in a project focus on only one project don't do two things at the same time. You'll not be successful in need in either on this on this too thank you thank you very much. So, so can we say that then characters is like innovativeness or disk taking ability to create a clear vision, clear communication, have a operational ability. All of these characteristics contribute to start-ups access.

P6: Undoubtedly, certain entrepreneurial traits significantly shape the trajectory of start-up success. Through our journey, we fervently advocate that adaptability, creativity, passion, and resilience are paramount. Adaptability has proven fundamental, driving our continuous adjustments to meet market demands. For example, our initial prototype underwent significant refinement to align with evolving customer preferences and industry trends. Creativity distinguished us early on, capturing attention with innovative solutions. Passion has undeniably fuelled our journey, propelling us through late-night sessions and hard challenges. This unwavering commitment infuses every aspect of our work, fostering a culture of innovation and determination. In essence, it is the combination of adaptability, creativity, passion, and resilience that has propelled our start-up from its humble beginnings to its current position. These traits continue to guide our actions and aspirations as we navigate the dynamic landscape of entrepreneurship.

P7: In both situation everything starts with an idea about needs what the idea is able to solve. If you find a solution that will solve people problems, that's a big possibility that entrepreneur will be succseed.

P8: answered from previous question - I think it is to never give up. When you are trying to build a team from the ground up, pitching a product, or asking a VC for funding, you will be refused again and again at various points in your life, more than you have ever experienced before. If you turn down at some point of it, you will drop out of the startup field. To be precise, rather than being essential for success, it can be said that the essential element for at least continuing a startup, whether it ultimately succeeds or fails, is not to give up.

4. **What are your views on the role of risk management strategies in a success of a startup?**

P1: I think it's very important. So, I think like one of the biggest issues that for startups that they don't have risk management or risk strategy at all. They don't think about that and once they face it They need to put too much effort on that. So I think planning ahead for potential risks at with potential solutions it's very crucial.

P2: I think there must be founders tend to be risk takers. They would want to bet the company or on some sort of innovation and sometimes that can lead to loss. And a specific example that I can give you" .com" bubble, I think if we had implemented in the early 2000s, which is the the Web 2.0, if we implemented risk management strategies, we wouldn't have a bubble that crashed the stock market. Because basically what founders did is they just take a new idea and place a ".com" on it and spend a lot of budget in advertising and in Super Bowl commercials as opposed to financial resilience. So if you let founders just be founders, they might as well ruin the company. So we must have someone in the organization, I would say at an early stage it's acceptable because, well, you don't have much to lose anyway. But starting from the point where you have a minimum viable product and a customer base and you would like to grow this company, some risk management strategies need to be implemented either by the founder himself or for the founder by someone else who manages for example the financial aspects of the company.

P3: Yes, risk management strategy. I think that in all companies, people, entrepreneurs should consider the risk. And as we know from the from the COVID situation many companies close it, many many company were more innovative, so they restarted. They reinvent their business model, they start to sell new or to have new service, new products and so on. So in this kind of situation also where risk management strategies make the difference. So what can I say, you can prevent or you can plan some risk or trying to minimize and so on. But at the same time there are other things that we cannot. How can I say. You cannot prevent that one of your member will leave the company, one of your member will have a baby, someone get crazy and you know in in the startup it's not easy to replace a person, because if you have a developer, this developer that you have, it's much more than a normal developer, It's part of the team, is part of the project. He developed the idea also and it's not the same to take another developers. So of course there's aspects we cannot control, but about the the ones that we can control and maybe predict, it's a good idea or good strategy to create some type of a plan for those stuations where we have a somewhat control or the stuations that we think we can predict it. So I think that the analysis of risk, it's always important prepare a plan, a long plan to make it to normalize it.

P4: I think understanding risk in terms of for example there I guess competitive advantage, how may that be an advantage or it could it be actually replaced by some other competitor, it could be an IP risk, it could be a patents kind of issue, things like that. They need to be aware I think is one thing.

Second is this, I think like in terms like data, data leakages and stuff. This is especially important when it depending on the industry they're in. For example like data protection services software like sauce related services where they have a lot of privacy, information related to privacy. I think that is like the basic line when they build products. So I think having that sense of awareness is important as well. My expertise is more on the early stage startups and to be honest, I don't see many umm very clear risk management strategies in a lot of the early stage startups. So in that sense I haven't really seen a strong like difference. Actually, I could even say that the ones who are very aware of like risks like especially legal risks and things like that, they actually fall behind on the growth and they end up, for example, not using enough money when they should be accelerating and they end up slowing their growth. So I actually see that for early stage startups. I know that it's different for middle to later stages, but from my view that's mainly for the early stage startups.

P5: OK, let me give you my own experience on on this question. In our company basically we, we are in the education and consulting company well known in Moco and we've brought innovative ideas and we've combined technology, education, technology with existing ideas going on on the market and services. So basically in the educational market and Marco we had to take many risks because you know education is an important topic to all parents in all over the world. You know they have to invest in education of the kids, same as health, same as food. So it is in the first priorities of all the parents and people. So in order to to be present in the market and and take like the trust and learn that like make making people believe in you and giving the the, the, the giving you their kids into like to into shaping the future is is very important. So you have to take many risks and invest a lot of money. And I'll think about this risk management, because in this field there are many competitors in in in that work. So each of them work in a different way. So some of them are real reliable and others are not. And the the ongoing ideas about these kind of startups sometimes can be a bit bloody because clients sometimes went through bad experiences with some agencies. So we had to invest a lot of a lot of money in in into marketing, into into strategies, into communication, especially communication with clients. We had to to to hire many profiles that are are are very well into into the communication of with clients. So basically the risk we took is to jump and invest a lot of money in in order to to to hire like developers to make an application which was the 1st last time we have an Ed tech application in Oracle and we didn't know if this will match the market or not because local like we we never heard about like an application where you can apply for your kids etcetera. So this is a this is a new thing in market. So investing in these kind of things and hiring the right people and making mistakes because sometimes we had, we had, we had we had some moments where the developers just quitted suddenly and left the application open with many bugs and mistakes and we had to deal with with the with the stress of parents and students and etcetera. So we've learned a lot from mistakes, we've learned a lot from from from past experiences and and these moments made that made us like stronger and we believe that investing into into into these services and putting a lot of money into these services is is very mandatory. So and you have to hire the right profiles from the beginning like paying small money for savings and having a bad product is not is not a good idea, you know, you know what I mean? I prefer now investing a lot of money, hiring the best people in the market, taking a lot of risks and having the best product. Then saving, saving into into the, into the investments.

P6: Effective risk management is vital for start-up success. In our experience, while start-ups face multifaceted risks, the spectre of a tarnished reputation loomed the largest in our considerations. Our approach to risk management was characterized by its simplicity and pragmatism. We prioritized every aspect of our image, from presentations to social media and packaging, to cultivate credibility. Our strategy centred on meticulous attention to detail and unwavering commitment to excellence, recognizing that in the eyes of our clientele, credibility often outweighs the product itself.

P7: The risk management is important part of the successful development of the business, but sometimes you have to take the opportunities what market is offer and you have to be very aggressive to push things the right direction, that sometimes are very riskfully.

P8: I believe that an entrepreneur's perception of risk is greatly influenced by the kind of career he or she has had up to that point. For example, I was an engineer at a large Japanese company, and I received a lot of lectures on risk management during my in-house training. Because of that experience, even after starting my startup, I prepared a legal advisor as early as possible, and I make it a point to check every detail even if it is small things. I believe that risk management is not about success, but rather about avoiding mistakes that could lead you to fall into a pitfall without realizing it. Therefore, I believe it's best to maximize the help of lawyers and other experts

5. **Can you describe what you consider a comprehensive and integrated risk management strategy for a startup?**

P1: I would say that having either the team or having advisory board with the skills that you don't have on your own because you there's some risks related to product development, risks relative financials risks related to the sales. So if you have at least one advisor per each risk vertical, that's something that you can manage and I consider as comprehensive.

P2: In my opinion, a comprehensive and integrated risk strategy is a strategy that would look at the risks of failure or loss that a start-up would have across its core activities. So it would for example take a it's value chain and look from top to bottom. So from our suppliers perspective what are the risks involved from our partners or and different stakeholders, what are the risks involved? But this strategy cannot be limiting. Meaning it can't prevent potential for innovation. It should just make the company viable and not limit its growth. So I would say there is like a negative correlation between innovation and risk management because well, I like I mentioned earlier, the higher the risk, the higher the reward. And for you to take a high risk, you should innovate. But if you implement risk management strategies, then you are also limiting yourself in terms of what you can do in terms of innovation. So a comprehensive and integrated risk management strategy should take into consideration that not innovating is a risk in itself. So it should leave room for innovation and for people to take initiatives.

P4: I actually haven't really thought of the difference comprehensive risk management versus integrated comprehensive risk management. I mean, I would think like for example, having guidelines for very clear standard operating procedures would be 1, documenting especially. I think that's really important so that all employees follow the same actions, that's one. Another one would be clear report lines, knowing whom to reach out to, at what situation and at you know. I'm sure there's like different risk levels, but being able to report at the appropriate timing would be another. I guess those two are essential. I could think of others like swift recovery, like not just documenting like how how to act when, but also conducting it in a speedy manner. I think it's important and just also being observant of the possible risks that could be, that could be not just the role of the founders, but also at the operating level as well, knowing when a certain risk may arise and being able to discuss it before the risk actually occurs. That could be related to corporate culture as well.

P6: It begins with identifying all potential risks, such as financial, market, operational, and legal risks, and understanding their impact and potential harm to the business. Next, strategies are developed to mitigate these risks. This could involve implementing internal controls or securing insurance, for example. Finally, to enhance the effectiveness of these strategies, they should be regularly monitored and reviewed. A comprehensive and integrated risk management strategy ensures proactive decision-making, protection, resilience, and continuity.

P7: Focuss on the proceses, smart decisions, advices from superadvisers/menotrs, risk monitoring and review.

P8: The importance of a "comprehensive and integrated risk management strategy" will depend on the type of business the start-up is in. It may be more important for a start-up that sells security products related to national defence, and relatively less important for a start-up that sells D2C (Direct to Consumer) goods, for example. Generally speaking, start-ups do not have the luxury or need to devote more resources to risk management strategies than SMEs or enterprises in similar businesses in the same domain. If a problem should arise, it is sufficient to take sincere measures to deal with it, even if it is later on each time.

6. **From your perspective, do startups with strong risk management strategies tend to have a better long-term success. And if yes, can you please share a specific example?**

P1: I would answer to this question no. I don't think it's directly related. I think risk management is kind of number 6-7 in a scale of importance. And the success of a startup doesn't correlate directly. I think in the long run, yes, but I think you know it depends on how you see it. Risk of not having sales that's a risk that needs to be managed. So you need to have a good sales manager. So if you consider this as a risk management kind of strategy, then yes. So you know it depends, but just to have a risk management strategy as a checkpoint wouldn't work. You need either use it or or just to know how to say convert in, in other word turn it into opportunity. Yes, definitely, I think in the long run, basically in the long run what happens that founder is not either capable. If have enough time to cover all the things and then you need to get your board or or new people and at this stage already once you cannot do anything on your own. You need to think about the strategy and operations. That's where you need to have all the risk management strategy in place. Otherwise you will fail to dofurther work. Once you know the company will start growing really fast

P2: Of course, I would say that you should have a risk management strategy. I would say it doesn't mean your strategy have to be written and it doesn't have to be a huge part of your work. It can just be some would say common sense specifically financially speaking. If I can give a specific example I would say this isn't based on some kind of calculation that I did, but for example, when I hire someone I make sure that we have I would say available at least a year of their salary. Because I as a founder I believe that I am the one who should take the risk, not the people who work with me. These are people who should, who shouldn't. They shouldn't be scared to lose their jobs for them to properly perform. So just having some policies as a founder helps your startup grow. And this is something that I also share early on in interviews for example, I tell new hires that you're joining a new company. Of course, there's always going to be a risk, but we didn't reach out to you or we didn't give you, this opportunity, if we weren't sure that at least your job is secure and, you don't have to worry about anything as long as you perform well. But also financially speaking you should have some risk management strategies with about payment collection. This is a problem specific to the Moroccan market because regulations are weak and you can't oblige someone to pay you on time so you must have a strategy for you to get back your debt. And sometimes 80% of Moroccan start-ups fail just due to treasury issues. It's not that they're not performing sales-wise, it's just that they can't get back, the money that they owe to other clients. So that's I would say a few examples of I would say risk mitigation strategies that can be implemented or actions not even strategies. For start-up's you must have just specific processes and actions that are gonna evolve into a strategy once you grow big enough to implement one. Having a strong risk management strategy or any type of risk management strategy would benefit the company in the long run. I think it would benefit the company across, I would say all departments, whether it's finance, whether it's sales. We don't talk about risk in sales a lot because we think what's the risk of selling something. I think there is a risk in the sales department, which for example, I'm in the tech field and if our sales department sells a feature that we can't deliver, this is a risk that involves a financial risk because we're going to have to refund the customer. it's also a risk reputation-wise because we promised something that we couldn't deliver. So there is risk within every department and, if you have a risk management strategy, it can help you in the long run to run a profitable company

P3: I think that it's not something that can influence the life of a company, because in my opinion a company can can work, can run. If you have customers more about than than risk, because I mean the risk can be a situation. Of course it's also depending on the situation that happened, but a part of it the the life or death, let's say it's depending on revenue more than the planned risk. If you have money, you can cover risk, let's say. But if you don't have money, even if you have a great plan, it will be complicated to follow it.

P4: I feel like this is very intertwined in how the corporate culture is. So a culture that has, for example, frequent check insurance is very, I think likely to catch these small signs of risks at an early stage that I've seen. Also companies that are I because my expertise in more early stage, I think they're a smaller scale, but at smaller scales it's better to have the team not so siloed. If it's siloed, it's so much easier to overlook the risks and I've seen that happen several times even if there was a documentation it risks get overlooked or risks that get produced actually in in between teams because they're not communicating well. So to solve that I I think a more you know, I guess like not not just high load teams but more like the the teamwork in between each group is necessary. So I guess it connects to the frequent check insurance as well and also just having them all documented so that people know when things have been said. Documentation has been very, very successful for a lot of the startups I think so and I think that's very important. But I I feel like all of this, the foundation would be the corporate culture of being transparent and communicating thoroughly within the team.

I could see like the the siloed issue it was is definitely a problem that I've seen, especially when it's on its earlier stages or even when the company is at like maybe 100 people. If it's too siloed, you have many, many operation operational risks happening on a weekly or even daily basis. So I've seen that happen that has been hindering a startup's growth. This is also the case especially if everyone is remote, it can be even harder because communication isn't as transparent. So I've seen that especially within COVID. Other than that I guess, yeah, often times I I have to admit for early stage startups it's hard to prevent the risks from happening. They they usually it it just occurs and then they have to respond to it quickly. That's just because they don't have enough resources or you know the people to find the risk and prevent it early on. So I I to be honest I've only seen cases where the where the risks become an issue and they actually work on it. But so I I don't know if that's actually, you know taking them to to success but I feel like having I guess like having that swift communication within the team is I guess essential for them to at least overcome the issue as quickly as possible.

P5: I think in my opinion is very OK to not care about the risk management in the beginning, because where, when is the risk management very important is when you go big. When you go big you have to take into consideration risk management because if you go big and make a mistake and and not being prepared for it can be very destructive. But if you are in the early stage testing this technique than the other than the other than the other is very OK you can fail and you can start again it's part of the of the process. So in the early stage of a company risk management.

In my opinion when you make a brand well known brand, you have to take it into consideration very much. And there I I have many examples regarding this topic. So as I've said, when you go, when, when the starter, when the startup is going bigger and it's getting well known in the market, they have to include risk. Why? Because if you want to start up to be successful, what will get, what will make it successful is the people working in that, OK. So if you don't have the right profiles, the right people, the right collaborators, you're not gonna succeed. You cannot make it alone. You need a good thing.

Example if you have if you have a team of two people taking care of marketing good profiles and you have a big campaign going on like you have to take into account the risk of those people leaving the company or getting sick or not being able to work because they have an issue in their family or personal life. So basically if you go big and take many risks you have to have a backup. That's my biggest learning you always have to prepare for big events and bad events. So you need the backup team every time you are planning to work on a big thing so if people go out you have to replace them directly, so you don't have to link your company with the name or with the profile. you don't have to put all the trust in one profile or two profiles. You have to have the mindset of if you come in the company doesn't count on you can leave tomorrow. So that's the mindset a startup should have and that's the biggest risk. Other than that, if you have a good team, a good, a good process, a good service you can jump into with taking risks into the market easily. But if you don't have backups on the right team, we cannot take any risk from the beginning.

Is it not only about internal problems that can arise but it it also take a consideration about external problems, maybe something like a pandemic happening, maybe regional challenges. Someone from competitors enters the market, they disturb the market. And you know you've asked the right right question on the right time because I'll give you every example going on now in Morocco. In Morocco we had, we had, we are in educational services and we had the in work a big strike of profits and a strike that was ongoing for like 3 months. And this influenced us so much because students they they before like applying to our services. The before before the strike, they were very open into applying into services and taking and taking our services. But when the strike was ongoing they could not trust anymore what's going on because they they didn't have a clear vision of of the future if they're gonna get their high school diplomat or do they do they gonna finish the exams or no. So they we had a direct a direct impact on our finances and and our sales because of this of an external issue which was the strike processors. So we had to deal with this and try to. Change our communication, our script, our communication style and we have to adapt our services into making people trust our services more even if there was an ongoing strike of professors. So definitely you you cannot just take into consideration in turn on risk. External risk is very important and you have to to be prepared every day and on weekends and holidays for big big events and external events. So we have to be to to to to have an emergency team. We have in our start up in the emergency team that gather within minutes if we have an issue we have to talk about or we have the competitor that that did something new or strike with us or we're talking about about us. We we have also another problem of of social media because in social media people will either talk good about you or bad and sometimes the bad people will not automatically be with you your clients they can be competitors that that hire people they they pay people in order to to to influence the social media comments etcetera on on Instagram, Facebook, YouTube. So basically we have to deal with that as well and find the right strategies in order to counter attack this this this paper. So definitely you have to get to always have an emergency emergency team into into into this that can directly react and find solutions. Reputational aspect of this should be also included as a popular risk management strategy.

P6: While we haven't done a deep dive to prove how strong risk management leads to lasting success, our experiences with companies like "Spotloc" and "teazzy" tell us something important. These small companies have done well in competitions because they're good at managing risks. By avoiding potential failures and making smart choices, they showed us how important it is to handle risks wisely for long-term success.

P7: In my opinion, startups with strong leadership and risk management strategies tend to have a better chance of achieving long-term success. While there's no guarantee of success in the highly dynamic and uncertain world of startups.

P8: The necessary and sufficient risk management system will depend on the domain and business of the start-up, as mentioned above, and will also depend on the phase of that start-up. Therefore, what constitutes "strong" depends on the definition. If I were to follow my intuition, I would say that a start-up that has a stronger risk management system than necessary loses speed at the cost. Speed is the second most important thing for a start-up, next to not giving up. Therefore, I guess that start-ups that take such a system will fail before it leads to long-term success.

7. How important do you think resilience and adaptability are for startups, especially in a crisis?

P1: OK. So I think it's essential, because I think companies when they start the business, they pivot and essentially they have a bit different product or a solution. If they want to be successful, they need to adapt. I think what is one of the cores if not probably second most important thing after doing sales.

P2: I think resilience is not just a character trait, it's also sometimes it's also due to external factors such as financial difficulties, you can't afford to to keep the company afloat and so that's just beyond your capability as a founder. But showing resilience is extremely important. For example, if you can face this adversity and adapt and overcome the challenges that the market throws at you, then definitely you can actually grow a company. I would say risk proof or recession proof. I would say for example a specific case that I can give is changing our line of products. We started initially with the product line that is mainly focused on voice over Internet Protocol solutions, so telecommunication solutions for businesses. But now since we had some some issues especially in our specific markets related to the IT infrastructure of our clients. But the client's IT infrastructure is not solid enough to equip it with VIP system. So we switch to CRM solutions because these wouldn't rely on the IT infrastructure of the customer and these are solutions that give us a higher margin than a hardware solution. So definitely I think this is something that has helped us grow out of the difficulties that we were facing within our specific markets.

P3: I mean, sometimes it depends. If you're trying to sell newspapers today, you know newspapers are selling fewer copies each year, both in print and digital subscriptions. So, yeah, in this kind of business, being resilient is okay. But you also need to see the trends, so being resilient in this situation... It's about being smart too, not just resilient. And in what you're describing, it would be more about adaptability, right?

So, you should find a balance because I believe I'm really resilient. I've gone through very difficult situations, pushing myself, telling myself I have to get through it by working hard. I'm not someone who loses motivation easily. No, I mean, when the situation gets worse, I find even more energy to push through. That's something inside of me. But there's also adaptability. If I see there's no way through, it's not about being stubborn. It's about being smart and understanding that we need to change.

So, when you recognize the need to change, I think that's a smart ability. You understand that now you have to change. And having this kind of characteristic is important because everyone faces difficulties. People and companies might face challenges, maybe because competitors were more innovative or found new ways to attract customers. And if you notice some loss, it means you need to change something. So, in this case, you have to be resilient, recognize the problem, and work harder or differently to solve it.

P4: Very important because in some cases you need to pivot, you need to pivot your business. A lot of the companies within during COVID, they have to change their business model because they weren't able to make money out of the current business model because maybe the borders were closed and they couldn't serve the client outside of the country, things like that. Those are, these are risks that you you couldn't have predicted before because it just came all out of the blue. But that's when you need that resilience and adaptability because you need to make those quick decisions before your cash runs out. And that's especially for the executives.

P6: There is no doubt that both qualities are essential in business-related activities. Having resilience in one's character arsenal enables founders to bounce back from setbacks and continue moving forward despite obstacles. Adaptability, however, is crucial for maintaining the flow and smooth operation of the business. Both qualities, in our opinion, are even more important in crises because the pressure becomes even greater and, at times, can seem unconquerable. Often, the reality is that a lack of resilience and an inability to change, along with specific circumstances, lead to the ruin of dreams and, eventually, the start-ups that people have worked so hard to build.

P7: I think adaptability is very important, especially in crisis situations. Staying focused and resilient is very important for startups.

P8: I think it is very important. When things go wrong, I think the only way to break out of a crisis is to adapt to the situation and quickly try different means, wondering what this or that means.

8. **Can you give examples of how resilience and adaptability have impacted the success of start-ups you are familiar with?**

P1: Yeah. For example, let's say I started digital marketing audit center three years ago and I was selling only the audit. But during that time, I found that clients who buy that they actually need a bit different service. And in most of the cases either they need advisor or they need kind of just general service provider for the digital marketing and the audit is just a point to enter the market. So that and that in me starting an agency rather than just on the service.

P3: As I mentioned, we're in the midst of a storm. Despite facing challenges last year, I viewed it as our best year because we had grown to seven employees. I thought our organization was becoming almost autonomous, which would allow me to shift my focus to other projects.

You might not be familiar with our work, but we collaborate closely with students, offering them internships. My goal was to create a self-sufficient organization. I had two new ideas I was eager to develop, believing we were in a good position to manage any issues that might arise. However, this summer, an incident occurred where some students got into a dispute in our village, leading half of them to leave.

This left us with financial burdens, including salaries, rent for apartments, and utility bills. In the aftermath, it seemed like everyone wanted to avoid taking responsibility, and the situation was mishandled. Eventually, nearly everyone departed, leaving only two employees and myself. I'm literally responsible, not just because I live there, but because it's not in my nature to abandon ship.

So, I decided we had to start over. I'm determined to rebuild the organization because I believe in our model. We have interested participants, experienced individuals, and ongoing projects. It's definitely feasible; we've proven it by successfully operating with seven staff members. Though we encountered management issues, I'm optimistic. With a fresh team and the lessons learned from this experience, I'm confident this year will be better

P4: Let me think I, So I guess one start up, because of COVID, they struggled their their revenue dropped. They honestly, it was really difficult for them to proceed with their business. But at the same end, because they were running out of cash, they were also fundraising. It was very, very difficult. But they also refused to pivot their model because I think they've been doing this model for so long. I guess they were already past Series A, they were already into like B or C So it was very, just very difficult for them to pivot from Angstar from scratch at that moment. So I think I wouldn't say failure because in the end they did survive. So I think that is a a result of the of the Founders resilience. But I think it was a very tough time, a tough year or two for them because due to that they had to do a lot of restructuring, they had to do many layoffs. So I'm sure a lot of their employees maybe like the majority of them had left during that time.They were constantly fundraising, which was taking a toll on the founders mental health So I I mean in the end they were able to survive and they're still existing, which I think it's good, but it did affect their business negatively to quite an extent. So I would say resilience kind of helps them survive. But I feel like they weren't able to quickly adapt as in they weren't able to think of other business channels or that or even decide to take that leap of faith to pivot so that they could have maybe found other ways of fundraising.

P5: So basically let me talk again about my startup and giving my own experience. Our company is was was launched in 2019, so almost five years ago and we we had to go through very hard moments and we have to be, we had to be resilient. We went through COVID as well and our company was only almost two years old and we went through coverage and thanks God we succeeded and went through it very well. But what helped us a lot is our kind of leadership within the company and also the trust of or clients, made us very resilient. And let me talk about the internal part of of it. During COVID for example, which was a big pandemic and that killed many, start-ups around the world, why do we have to survive first? Because the internal, how can I say the internal spirit and the company is very young. I can tell you that the average pace is between 25 to 28. The youngest profile we have within the company 50 people that is I would say 30 years old. So it's a very young spirit and that's helped us a lot survive because the the the team gave their by themselves and they came to their management and they asked them like to to to not get any payment for like 3 to four months. They were OK with that because they wanted the company to survive and they wanted to invest as well from their time without getting any compensation on it. And that helped us a lot financially covered time and of course we gave them many bonuses after that. But the the idea is in order to be resilient you have to have a great spirit within the company. Because if you don't have a supportive spirit, a family spirit in your start up, you cannot be resilient by yourself, OK, You have to be like strong all together and hand in hand in order to go to the bad moments and hard moments financially or external situations. This is about the internal part of it, about the external part of it. Resilience is also like a big topic in in our in our case in Morocco because because some unexpected things happened a lot happened a lot. For example the strike I've told you, new competitors enter the market and try to to get the prices of services like cut them into half and try to take all our clients. But here is where the the the trust of people into the company comes into action. Because if you build a great brand and and make people like trust you and make an ambassador's program because we have a lot many programs and many ways to making customers loyal to us and talk about us without spending any money in marketing. So this is where you have to not care about a lot about what's happening outside. I'm talking about competitors and other companies and doing the same thing. We have to work and try to make your brand as strong as possible. Because if you spend your time spying on others like making research on this competition that one and that one, you'll just lose energy and focus. But if you focus a lot on your your job make and your company the greatest ever it all the other like benefits will follow, things will follow, marketing will follow, strong brand will follow, loyalty will follow. So just the resilience inside your company make your brand strong make your thing strong and you're gonna you're not gonna be afraid of anything else later on.

P6: There was a time when we thought that our product was too complicated to create. Our team had invested countless hours of work and research into the imagined concept, yet it seemed like we were not making any progress at all. However, it was a bit later when we realized that setting achievable short-term goals was key. By continuously adapting to the problems, we faced and pushing forward towards our little goals, we were able to overcome this challenging period, even with numerous hurdles along the way.

P7: Airbnb: When Airbnb first started, it faced numerous challenges, including regulatory hurdles, skepticism from investors, and slow growth. However, the founders displayed resilience by persistently iterating on their business model and adapting to changing market conditions. This adaptability played a significant role in Airbnb's eventual success

P8: I do not yet consider myself a "successful start-up," so I write from a "not-yet-failed" perspective, but I scrambled to generate sales by all means when we were about to run out of funds. Taking into account the capabilities and resources of our team, we stopped developing our own apps for our core business and focused on receiving development project orders from other companies to secure sales. This adaptation allowed us to avoid bankruptcy for a while.

9. **In your opinion what are the key factors that contribute to a startup resilience and adaptability.**

P1: So probably I think it's cautious mind of founder. Because basically you know no one else will initiate change rather than founder, because in a startup if a person kind of has clear pathand know how he's evaluating success (KPI’s). And if you're not following KPIs, then you need to raise questions such as: What's wrong? And then you need to analyze data and based on the results from the data, you need to pilot.

P2: I would say first of all, one would be the founder or the decision makers. They need to be invested in the company, not as people who just come at the end of the year to collect checks, but people who genuinely believe in what the company is doing and in its mission and who are personally involved in its success. And for example, to me a founder who would pay themselves first is a bad founder who's not ready for I would say, or who doesn't have enough resilience because the equation should be inverted. As a founder, you get paid last when the suppliers are paid, when the employees are paid, and then it's your turn and that is because you should take the risk. So I mentioned the founder and the decision makers. I also would mention financial abilities. The resilience comes from having financial resources. So having the cash to keep the company running through a period until I would say you find a solution is definitely something that helps. And last I would say it's relations with your main stakeholders. So for example, this is something that has happened to us when payments that are still due. If you have a good supplier relationship then you can call your supplier and extend the payments deadline so that you can solve your internal issues. So definitely having a good relationship or partnership with the the various internal and external stakeholders is also something that can help with the resilience. But I mean on paper, flexibility, strong relationships, strong leadership, a positive corporate culture or positive team culture I would say is important as well. For example, you must be good to people and to have good relationships with them. But you also must have the courage when someone is underperforming or not doing their job properly, to tell them that they're not doing their job properly. And you must be honest about it and I would say straightforward if you want to terminate a collaboration that you have with a specific partner, supplier or employee. So that doesn't make you a bad manager or bad leader. It might seem as if you're being rude or mean, but it has to be done, otherwise the start-up would not succeed. So I would say yes, all these factors do contribute, but we would still have to define them carefully in order not to have the opposite effect.

P3: I believe it's crucial to consider the behavior and actions of people around you in the workplace. I've experienced this firsthand with a colleague who significantly impacted me. He became a father in August, coincidentally at the same time we were dealing with a fight and some minor issues. It was a challenging period, and though I was happy for him, his new responsibilities at home seemed to interfere with his work. He had been with us from nearly the start, contributing to the main science projects.

I understand the challenges of parenting; my own daughter was born not long before his child, and I too faced difficulties. However, I remained focused on my job because I believe in taking responsibility, especially when you're part of a team. Working alone gives you freedom, but teamwork requires a different level of commitment.

This colleague's behavior caused several problems. He failed to take responsibility in various aspects, including managing student issues, handling documents, and maintaining the office's orderliness. I recall one incident vividly: before leaving for a trip to Romania, I noticed a paper on the floor. Returning two weeks later, I found it still there, indicating his neglect even in the smallest tasks, which showed a lack of concern for our shared workspace.

This situation highlights a broader issue. In a startup environment, it's not enough to focus solely on your immediate tasks. You need to think holistically, considering the overall well-being and functioning of the organization. His failure to do so demonstrated a lack of the kind of mindset and skills necessary for startup success. Unlike in more structured environments, working in a startup demands a broader awareness and a commitment to collective success, not just individual responsibilities.

P4: Resilience and adaptability. I feel like it's very connected to how the founder is or like the executives. It's a mixture of optimism and but also being very logical optimism and the logic and yeah just pure. I think leadership showing the direction, sense of direction to the team in those hard times. I think it's very important for the executives and that is what will help the team adapt. Yeah. So that's one resilience. I think on the other other hand is more of an organizational challenge. Even if the the executives are resilient, it needs to be actually spread through the whole organization because if the organization decides to give up at that moment and they're they decide to like quit, I feel like that's added challenge on the executives to hire to find new people to overcome the the tough time. So I think resilience is more about, umm keeping the organization together and that's where the corporate, the strength of the corporate culture comes into play.

P5: First thing, first thing is, is reinvestment because nowadays young entrepreneurs you're going to, you're going to have no, you're, you're definitely have not just this, they want a quick gains, OK. They just want to start a company making money and living a good life and the travelling etcetera. But our mindset and our structure is different. We almost reinvest 90% of of our our, our budget. So basically reinvestment's going big quick, we've we started, we've started with one office, now we have 7 offices around Morocco. So basically we have to to to to not to not to gain from the beginning. I've told you in the first in the first question at least at least you have to reinvest everything for the next 5-6 years when we start. So this is the biggest the biggest resiliency I, I, I could say because start-ups usually they they get they get like the the the the how can I say the they they wanna they wanna leave from their games. So basically reinvestment, invest everything into marketing. We invest everything into opening new locations. If it's a client face to face service we invest everything into research and development. So basically we invest all of our money. This is the first thing. Second thing, try to to take care of your employees. This is very important, especially when it's a start. Pay them because the the mistake a lot of entrepreneurs make when they start they pay very little so they come to the employee. OK, I I'm I'm going to give you this amount of money. But you have to be patient with me because it's a start up. I cannot pay you a lot of money. This is a false mistake. This is a false understanding. You can do this with a partner, hire partners, give them shares and they will work with you without any compensation. But if you don't want employees have to pay them. Pay them very well from the beginning so they can be loyal to you, OK? Because at the end of the day if you hire an employee he he he has well to pay. He has maybe a family to take care of. So if you take care of your employee, he will give you the best and he will give you all his time into making the company better. So young entrepreneurs, they have to take care of the employees, pay them well, if they don't have the right the enough like budget, get partners and then reinvest everything into the company. So in a sense we can say that strong leadership and creating an environment of a positive culture where the employee and the employer are equal and they take care of each other. Thus creating a so-called a positive corporate culture right to to back this up this residence and adaptability.

P6: In our perspective, although having designated leaders for various tasks can be beneficial, we attribute a start-up’s resilience and adaptability primarily to the strength of its team dynamics, characterized by mutual support, transparent communication, and a culture of friendship, which not only fosters goal attainment but also sustains team unity and prevents burnout by prioritizing a healthy balance between work and camaraderie.

P7: Strong Leadership, Clear Vision and Mission, Resilient Team, Financial Stability and Resourcefulness

P8: First, the founders must not give up. As a team, we must have flexible characteristics. This is an environment where changes occur on a daily basis, so the team must be as flexible as a willow tree and be able to adapt to changing strategies and tasks.

10. How do you define agility and innovation in the context of start-ups?

P1: I, well, I probably would say adopting your product based on the market trends. Let's say now we have AI trending as a key concept and there are plenty of the companies that are adding AI functionalities to their core features of the product and enhancing that. So that's what I call like innovative, you know, in the context of of of startup and agility, it's probably like the different models what you can use.

P2: I would say agility is how fast you can adapt to the circumstances that of the market you're operating in. And sometimes this agility has to do with various departments. For example, sometimes we can speak of agility when it comes to customer delivery. So what's your global lead time when it comes to delivering a project or a product. And I think these two go hand in hand but sometimes innovation might slow your company and this is something that you have to accept if you want to innovate. Sometimes you would have to for the lack of bandwidth forget about your current operations and focus on innovating and creating something new. And that is a risk. It's a risk that you have to take. Do I want to innovate? or do I want to improve the existing conditions to become more agile?, like I said, for example, do I want to improve the way we manage our clients? and how we work with them? Or do I want to start a new product line? These are things that sometimes might go hand in hand and sometimes they might go in opposite directions, because in order for you to be agile, you must improve all of your internal processes. And if we're talking, like I said, about incremental innovation, this goes hand by hand. But if you want to radically innovate and start something new, then this comes at the expense of the processes that you've already set in place and the time that you want to have as a founder to improve your existing processes and serve your existing customer base.

And how I define innovation as when considering that from perspective of startup, I would say it's a set of actions that aims to improve, enhance or redefine a set of products, services or actions. So I would say that, for example when an employee is sitting on his desk and he has to do manual entry on an excel file If that specific employee creates a Python script to automate that task for me, he has enhanced the way he operates and he reduced the margin error and so he innovative and it can be on a small scale or it can be on a larger scale.

P3: And the agility is something that is inside the startup because it's a team with the few person and it's easy to change way to change route, to change methodology to change test, because you have a few person and it's easy to to manage. So the agility is depend on this. There is no hierarchical structure almost because you can talk directly and do it in easily. It's not like director sub director, supervisor and employees and so on.

We can say that this cast and dynamicness of startup, it is also true, so, so-called agent is also true for the market as well, let's say for a product development for changes in a market. So because my opinion, it's because the reducing number of person can do it easily in a more effective way.

P4: Agility is definitely umm how quickly they reach product markets fits and from there on how quickly they realize growth. It's the matter of how quickly they can run the PDCA of any product making process or or anything like a project or a growth initiative, AB testing so on and so forth. I think that's the agility that they need and just being very aware of their environment, their the markets changes and being able to quickly adapt to that also innovativeness. I think, to be honest, I feel like any startup is innovative to an extent. I think this is it matters on what problem they're trying to solve. Maybe the solution isn't super innovative, but the fact that they're finding a new trying to find a new solution maybe like as in the tech may may not be as innovative, but maybe the solution, the approach itself is innovative. So a value that hasn't been created in the market yet or at least hasn't been pursued to the extent would be enough innovativeness, I feel like, for the startup to grow.

P5: OK for me, agility is not only a word that we can apply for multi national, so it can also be applied for startup. And it's important for startup to be agile because you have to be able to move quickly and take this as quickly. So because we live in book a word, it's very changing every day, you know so I so you have to be able to switch directions very quick. So this is the right meaning for agility for me. o in order in order to move very quick, you have to remove the barriers of bureaucracy. You have to to to to be like able to take decisions very quick without waiting for the response of the worse than your boss. You will have to check with the board. This should be done in minutes. You have to take this very quick, very, very agile, enter new markets very quick, don't think twice. So basically this is the meaning of agility for me and innovation. This is this is where reinvestment come comes into action. So you have to be ready to put all your money into R&D. If a startup is not innovative enough, they can buy very quick or not very quick. But we can take the case of many, many examples around the world. Or in Morocco, you have, for example, a great bakery that is very well known. But a new startup coming with a new idea can like kill them quick because the old bakery is not very innovative. Basically they they they they were like very comfortable with their sales and they were saying that OK we're well known in the in the market you can we don't need to be innovative enough. This is a this is not a good idea because as I've said at the beginning it's a it's a changing world. So you have to to to to innovate as much as possible, invest in R&D as much as possible. So you can be very flexible with new decisions and new trends. And also innovation is that innovating ways of doing business differently. So compared to the bigger corporations who have like a structure good way of doing things, startups come in, they change it, they disrupt the market, they gain a capital in there.

P6: Both qualities are undoubtedly essential for every start-up. Without agility and critical decision-making, no business can succeed and thrive. Without innovation, fewer people may be intrigued and attracted to the business. However, we want to emphasize that typically, the factor of quality comes before the factor of innovation. In our opinion, there is no reason to create a completely innovative product if there is a struggle to maintain its quality. In such cases, it is better to refine an existing idea rather than introduce a new one.

P7: Agility refers to the ability of a startup to quickly and effectively respond to changes in its environment, whether it's market conditions, customer preferences, or technological advancements. Agile startups are characterized by their flexibility, adaptability, and willingness to experiment. Innovation involves the creation and implementation of new ideas, processes, products, or services that add value to customers or solve existing problems in novel ways.

P8: Agility refers to the ability to execute the various pivots that can occur in a start-up (market pivots, problem pivots, solution pivots, strategy pivots, etc.) and the daily actions of hypothesis testing of means, not by planning and then executing, but by modifying the plan as it is acted upon. It refers to the ability to implement detailed iterations in which the plan is revised as it is acted upon, rather than being executed with a plan in place.

Innovation is the irreversible change it brings to the customer. It is the ability to make

11. **In what ways do you think agility and innovation contribute to a start-up's ability to navigate crises and achieve success?**

P1: Basically, I think if you have some sort of innovation and agility model in your company, a kind of process where you're measuring your successes or failures, it's already a big help. This kind of model helps you adapt to different crises, like political ones or others we might know about. It's definitely an important factor. It's easier to manage things when you have a clear model in mind. Without it, you might face some struggles. But then again, it also depends a lot on the founder's strategic thinking and their ability to analyze performance, maybe through specific KPIs or something like that. So, yeah, if you're following a results-oriented approach, it's helpful in a crisis, but without a clear model, it's probably going to be tougher to handle

P2: I would say that if we speak about crisis then definitely there is an event tthat changes the way your economic model operates. So for example, most of the successful companies today operate by a subscription based model and this is due to the fact that the on premise or one time payment model was not, efficient enough for them to have a recurring revenue. So I think that's by innovating in either your internal process or in new products that you're launching. Then definitely you have a future proof start-up. If you take Netflix as an example, it started as selling DVDs for movies et cetera. But they have shown great ability to adapt to the market conditions and today they are the leader when it comes to streaming services. So this is, how having those traits would help you not only navigate crisis but also build a startup that's successful on the long run.

P3: The constant challenge lies in how instructions and directions are received and acted upon by others. Consider the scenario before the pandemic: we had a clear roadmap for our startup's direction. Then, the pandemic hit, disrupting our plans entirely. In such a scenario, being agile and innovative became crucial for survival.

However, agility alone isn't enough. After adapting to immediate changes, the next step requires generating new ideas for implementation. It's not sufficient to just say, 'I'm agile.' Without fresh ideas, agility doesn't really help much. This is similar to what I mentioned earlier regarding having a risk plan. It's great to have one, but without innovative ideas to execute when challenges arise, the plan itself is of little use

P4: Agility for sure is extremely important to manage times of crises. Definitely, because they they just need to be very much aware of any change. Like COVID was a very good example. You don't know when the borders will close, you don't know when the borders will open again. So a lot of companies had to go into survival mode. I think the the agility of making that decision was depending on how quickly you made it, that dictated how how many more months you had to survive. That kind of agility is very important and also even agility to get past the I guess prototyping phase and reaching product market fit as soon as as possible is really important especially for early stage because it not not even during times of crises. But when you have limited cash you need to reach product market fit as soon as possible. So that making sure that that you can achieve that within the shortest amount of time is very important for a start-ups and and also for innovativeness innovation. I think I mean this is more like I guess being very creative during times of crisis especially for example where you have to consider whether to pivot or not. There's so many other risks that you have to you have to be considered of. But amongst all those all those risks and the and the crisis, the time of crisis are put in, you need to just find new ways to just try out and see how the result is. So being innovative in the sense of being creative I think is very important to get past that time.

P5: So this is a good question because a startup, if we compare it with the big structures and big multinationals there, then I would say the startup should always look into their they they they will have to to to see how many, how much money they need in a year in order to survive. OK, for example, the startup will need $50,000, I'll give you an example. But the big company will have to to to to take into account at least $20 million or something. So this is a big, big and important important aspect of the startup. Startup will not need much money to survive. OK, so to all startups we'll have to use this in order to be designed. Because if we take the example of more, I don't know if this is in all countries or no, but in Morocco governments give a lot of money to start, a lot of money. I can tell you that if you're going to start to start up today in Morocco, they can invest up to 70% with you. You only need to to come up with the 30% or find an investor. And this is this helps a lot the the, the, the, the startups or the entrepreneurship environment because you can rely on someone else and you can take more risk. For example, if you if it within the first or second year you cannot pay your monthly or yearly charges. You can rely on the government into helping you with that. And this will allow young entrepreneurs and startup into taking more risk and more agile and spending more money and taking they can like risk that multinationals or other companies cannot take. I don't know if this is the case in other countries or no but at least we have many many benefits today from the government startups. For example if you if you start a startup and and do not succeed into into making it and making it like successful you just you just have to prove your spendings where did your money go and then it's fine you can start a new start up again you know so this environment allow you so much to take risks and so I also this this this is very important and that you have to to note it that the the government of the country can help you succeed or. For sale as well So if you have, if you have a good start up and entrepreneur environment in your country, this will allow you to be like free your mind from from charges and salaries and rents and take take a lot of fix and be inside.

P6: Being agile helps you respond quickly to what customers want and stay ahead of the competition. When things get tough, like during crises, agility, and innovation are even more important. Start-ups can use their agility to change plans, try new things, and deal with uncertainties. And by being innovative, they can find clever solutions to problems and bounce back stronger. Overall, being agile and innovative is key for start-ups to thrive in the long run.

P7: Agility and innovation play crucial roles in helping startups navigate crises and achieve success in several ways: Adaptability to Changing Conditions,Efficient Resource Allocation, Competitive Advantage.

P8: I think that implementing various means quickly is a very important attitude to overcome a crisis. I feel that innovation is a word that describes the result of an activity rather than a word that describes a team's ability. If we can aim for innovation and make it happen, I think it will naturally contribute greatly to our ability to overcome the crisis and achieve success.

12. **Can you provide examples where agility and innovative capabilities significantly impacted a start-up's journey, particularly during challenging times?**

P1: When we consider the pandemic period, we noticed that everyone started opening online shops, including those who didn't previously have them. I'm not certain if this reflects agility, but it definitely shows innovation capabilities. It's like, if they saw an opportunity, they realized they needed to go online, especially when their physical businesses were closed. This move might be seen as innovation, but it could also be viewed as a necessary action in that context. So, how you interpret this might vary, but it certainly demonstrates adaptability.

P2: So we had an issue with collecting payments from our customers and when we did a root cause analysis, we found out that the issue was customer satisfaction. So if a customer is not satisfied, of course they're not going to pay on time. And So what we did is implement a set of processes like a project management methodology and satisfaction surveys that we sent to customers each time a product was delivered and they had to answer. And we tracked the Net Promoter score and the customer effort score in order to have good relationships with these customers. So we would send them a survey and if they replied, they were not satisfied, we would call them back and try to fix the issue. And if they replied that they were satisfied, then we would call them again to upsell other services that we can suggest. So this allowed us to have a customer base that has a customer lifetime value which means that they will have repeat purchases and therefore this helps us be more resilient as a company because it's recurring revenue. We have no contracts that's are being paid each year. So it adds stability to our business model.

P3: The constant challenge lies in how instructions and directions are received and acted upon by others. Consider the scenario before the pandemic: we had a clear roadmap for our startup's direction. Then, the pandemic hit, disrupting our plans entirely. In such a scenario, being agile and innovative became crucial for survival.

However, agility alone isn't enough. After adapting to immediate changes, the next step requires generating new ideas for implementation. It's not sufficient to just say, 'I'm agile.' Without fresh ideas, agility doesn't really help much. This is similar to what I mentioned earlier regarding having a risk plan. It's great to have one, but without innovative ideas to execute when challenges arise, the plan itself is of little use

P4: Yeah, I guess I was surprised earlier today to see one startup that made a press release that they had successfully fundraised and I have known this startup since when I I used to work as a venture capitalist. So I I've, I've known this startup from when they were at seed stage. They finally got to pre A, but when I was speaking with them, they were still funding for their seed stage and it was during COVID. It was really difficult because their model was more like they wanted to use like I guess celebrities and use it like as a marketing tool or something like that. And it was just really difficult then during COVID because I think the ad, the ad market was kind of struggling. It was just the, I think the market and the spending of companies have kind of dwindled. So in that sense it was a little difficult for that founder to even get money from people. But I found out earlier today with that press release that they've changed their business model to become more of like a subscription style marketing tool. The marketing tool itself I'm sure is not that technologically innovative, but the fact that he's completely switched his model to become more of a software driven and that can that doesn't really need to be affected by COVID or like the market And I think he changed his target users as well which made it easier for him to kind of sell. So I saw that and I was really happy for him. I think like I've seen that over the past year or two, maybe he's tried like several other business ideas, but he decided to go with this one which got him cash to run his business and going to move on to pre A and going on to Series A. So yeah, I I feel like that's one example that I saw and the the fact that he was able to raise money was the proof of it.

P5: Definitely this is an existing example in my start-up because as I've told you education is very important and customers spend a lot of money on this. So when we first launched the company we had the specific service but within the time we've learned to be innovative. So basically we took existing ideas in the market, we've hired developers, we've hired marketers, we've hired many people, many bright profiles and we've brought technology into these services. So this is the agility and innovation I'm talking about. So basically we took existing ideas within an existing market. Basically we we had many like customers already within our initial service but we've decided to add another service. We've took the business model, added technology, hired the right profiles and make it the best service in Morocco. So this a right example of agility and innovation. Why, how did we succeed to make this into reinvent with the help of reinvestment with the help of hiring right profiles and with the help of right mindset within the company. Everyone wanted this company to be the first in Morocco.

P6: Since our goal was to develop an innovative food product, we knew that we would encounter challenges in perfecting our recipe. Throughout the start of our journey, we found ourselves needing to redo our product multiple times to make it more appealing. Our initial recipes could have been much better in terms of taste, but we remained open to receiving feedback from our customers, always seeking ways to refine and adapt our product as quickly as possible. Guided by this mindset, we now have made numerous alterations to our recipes, each introducing different flavours.

P7: Zoom: During the COVID-19 pandemic, Zoom, a video conferencing startup, experienced a surge in demand as remote work and virtual meetings became the new norm. Zoom's agility allowed it to quickly scale its infrastructure to accommodate millions of new users, adapt its pricing plans to meet the needs of different customer segments, and release new features to improve user experience.

P8: answered on previous question: I do not yet consider myself a "successful start-up," so I write from a "not-yet-failed" perspective, but I scrambled to generate sales by all means when we were about to run out of funds. Taking into account the capabilities and resources of our team, we stopped developing our own apps for our core business and focused on receiving development project orders from other companies to secure sales. This adaptation allowed us to avoid bankruptcy for a while. Agility and adaptability were important in a crisis situation. I think it was important to choose a sure-fire way to innovate in a crisis situation because you cannot afford to gamble on uncertain options to innovate.