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# Critical decisions at the early stage of start-ups: a systematic literature review

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## Abstract

This systematic literature review (SLR) identifies and ranks the decisions that can be considered critical for entrepreneurs at the early stage of the start-up process. The sample ( $N=56$ ) derived from the SLR contained primary publications from the A+ and A journals of the VHB-Journal ranking. Deductive and inductive approaches were used to define the critical decision domains. Then, the relevance of the domains was evaluated using the frequency of the selected studies. A key implication for founders is to understand that not all decisions that could be taken in the early stage may be critical for success. Most critical seems to invest time and effort in the, what we label the internal business and human core (Core People and Product Definition) and the external business and human core (Market segment selection and Partnerships). This study depicts an integrated view of the fragmented field of critical decisions in the context of early-stage start-ups by using a SLR. Thus, it creates value for theory-building and practitioners in entrepreneurship and innovation.

**Keywords:** Start-ups, Early-stage start-ups, Critical decisions, Key decisions, Entrepreneurship, Systematic literature review

## Introduction

Entrepreneurship is one of the key economic factors driving economic growth (Kritikos, 2014; OECD, 2004). Thus, the influence of the entrepreneurial sector on the economy must not be overlooked, as entrepreneurship can function as a staging point for economic (Carree & Thurik, 2010) and even social development (Pacheco et al., 2010). With their intrinsic motivation, work ethics, and intelligence, founders have exploited opportunities presented to them with a significant effect. Entrepreneurs have historically altered the shape and character of global and national industries and markets. With their pioneering spirit, they have been forging new products, introducing new organisations, and coming up with new technologies to ease customer problems, transforming societies and economies alike (Pahuja & Sanjeev, 2015). With 11 of 12 start-ups still failing (Startup Genome, 2019), there is a need to support the new venture development process. Despite the extensive research on start-up success (Bouredja & Bourouaha, 2022; Skawińska & Zalewski, 2020; Stuart & Abetti, 1987) and failure (Bednár & Tariskova, 2017; Calderón et al., 2019; Giardino et al., 2014; Kunert, 2018), there is a noticeable gap in the literature regarding a comprehensive analysis of critical decisions faced by

early-stage founders. Moreover, “the problem of explaining why some [ventures] succeed while others fail is crucial to the study of economic development” (Casson, 2003, p. 10). According to Kofanov and Zozulov (2018, p. 197), the start-up success evaluation is an extremely important issue, but it still remains to be fully resolved, and therefore further research is needed. This gap arises because mainstream economists and scholars alike have viewed entrepreneurship as an aggravating aspect in explaining how economies and markets function, thereby neglecting this crucial matter. Academic research has been studying and examining decisions from various perspectives and in different fields of interest. Scholars like Harrison (1975), Mintzberg et al. (1976), and Friday-Stroud and Sutterfield (2007) studied the decision itself. Decision-making has been investigated by authors like Delbecq (1967), Schwenk (1984), and Farsi et al. (2014). The decision-making process has also been subject to academic research by scholars like Mintzberg et al. (1976), Dean and Sharfman (1996), and Elbanna (2006). Even critical success factors in corporations have been studied (Belassi & Tukul, 1996; Harris, 2019).

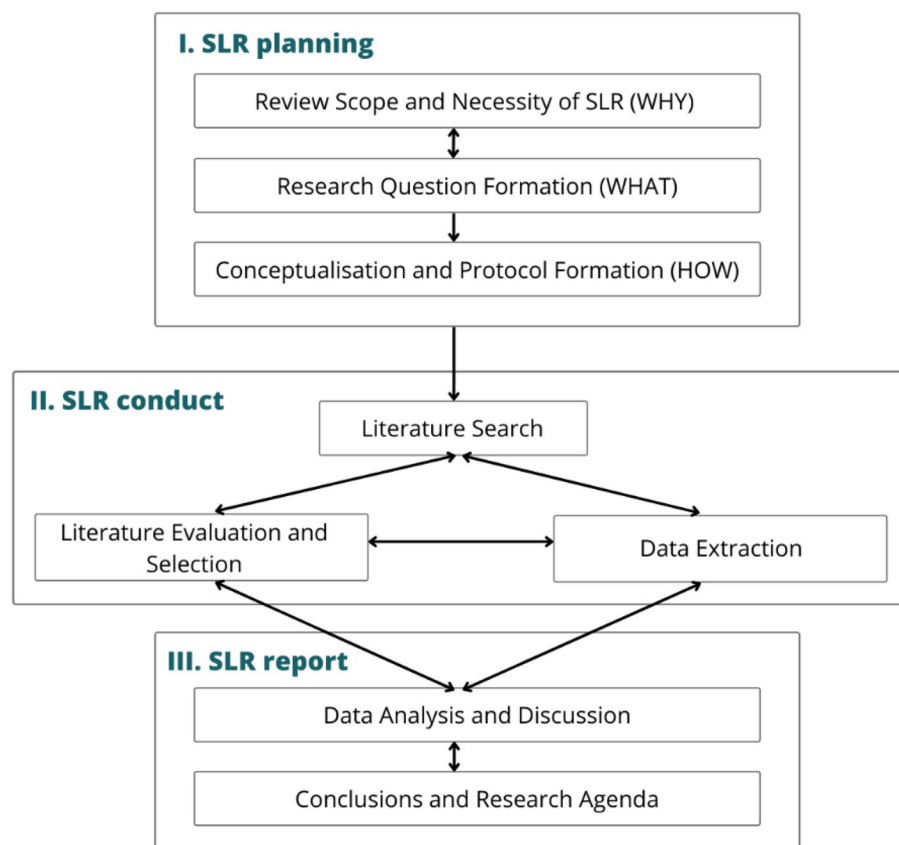
The literature stresses the importance of good decision-making skills for obtaining economic success. In particular, entrepreneurs can be seen as workers focussing on using judgement for economic decisions. As better judgement results in innovative advantages and exploitable arbitrage, it also lowers the misallocation of resources and operational risks (Casson, 2010). Entrepreneurs must constantly make decisions in their start-ups to deal with all sorts of obstacles and keep their competitive edge. While some decisions are trivial, others are crucial for the new venture. However, little is known about what are the set of critical decisions at the early-stage of start-ups. And the question remains: what are those decisions, especially those critical decisions, entrepreneurs must face and overcome in their start-ups to be among the one out of ten start-ups surviving and eventually becoming successful? In spite of the fact that a number of studies have clearly examined the key decisions made by entrepreneurs, little attention has been paid to prioritising and describing in an article what that group of key decision domains is, particularly for the early stages of development. Even when the literature indicates that initial founding decisions are significant for the development of a new venture in the following years (Beckman & Burton, 2008; Colombo & Piva, 2012; Doutriaux, 1992; Nerkar & Shane, 2008; Tornikoski & Renko, 2014). This research gap limits the understanding of the heart of the start-up process and the development of systemic tools to support practitioners. Thus, a systematic review of the critical decisions made by early-stage founders contributes not only to the success of individual startups, but has broader implications for the health and sustainability of the entrepreneurial and innovation ecosystem as a whole. Therefore, the main goal of this study is to systematically review and synthesise existing research addressing the critical decisions faced by start-ups over the past decades. By conducting a comprehensive systematic literature review, the aim is to provide a clear and insightful overview of the various studies in this domain. This endeavour seeks to contribute substantially to the advancement of theoretical understanding in entrepreneurship while simultaneously offering valuable guidance and support to practitioners embarking on their entrepreneurial journeys. Based on this challenge, our study aims to answer the following research question: *What are the critical decision domains at the early stage of start-ups?* For this purpose, we define a robust

methodology to conduct a systematic literature review (objective 1), we develop a categorisation system to assign and classify the studies (objective 2), and finally, we summarise the findings and discuss the results (objective 3).

## Methodology

This study seeks to compile the decisions of high importance for start-ups at the early stages based on existing literature. Therefore, a Systematic Literature Review (SLR) is conducted within the scope of the framework by vom Brocke et al. (2009), Tahir et al. (2016), and Kitchenham and Charters (2007). Since each SLR is tailored to a certain degree to the field of study and its subsequent research questions, only a few explicit methods and standardised guidelines are applicable (vom Brocke et al., 2009). Figure 1 typifies the process of a systematic review with its three main phases: the planning of the SLR, the conducting of the SLR, and the report of the SLR (Tahir et al., 2016).

While all types of SLR share the same core elements, such as giving essential insights into a particular scholarly topic and compiling and critically examining different academic published research sources, they can differ according to their specific study. SLR may be argumentative, integrative, historical, methodological, systematic,



**Fig. 1** SLR methodology: based on vom Brocke et al. (2009) and Tahir et al. (2016)

**Table 1** Core concepts derived from the research questions and keywords for the search

Core concepts	Keywords
Entrepreneurship	Entrepreneur*
Start-up	Start-up, start up, startup, small business, small firm, venture, new venture
Early Stage	Early-stage, early phase, early-phase
Decision	Decision*, decision-making, decision making, selection, choice*
Key decision	Key Decision*, key-decision*, strateg*, challenge*, critical

On these terms, the following keyword scheme was applied in the publication titles, abstracts, or keywords: everything with the words entrepreneur\*, start-up, new venture, early-stage AND decision\*, decision-making, selection, choice OR key decision, strateg\*, challenge, critical (see Table 2 for the search query).

or theoretical (Jahan et al., 2016). Following the taxonomy of literature reviews by vom Brocke et al. (2009), the conducted literature review focuses on research outcomes, has an integrational goal, is methodologically organised, utilises a neutral representation, targets general scholars and practitioners, and uses a representative coverage.

As a significant last step during the literature review planning, the systematic review protocol was developed. It is a “plan that describes the conduct of a proposed systematic literature review” (Kitchenham & Charters, 2007, p. 7). As a first step, the keywords of the SLR are conceptualised based on the core concepts occurring in the research questions (Table 1). An additional synonym search for the core concepts is performed using a dictionary to complement the keywords to reach a broad spectrum of potentially relevant terms. This concept of using search statements and extending them by using synonyms and related terms is described by Rowley and Slack (2004) as building blocks. These blocks were then used to create the search query. Tahir et al. (2016) emphasise that effective search strings are critical when searching for potentially relevant primary literature.

In order to conduct a high-quality literature review, it is crucial to assess the quality of primary studies in the field under investigation (Kitchenham & Charters, 2007; vom Brocke et al., 2009). While “there is not only a vast amount of potentially relevant sources but also a great deal of the literature of diverse quality” (vom Brocke et al., 2009, p. 2208), the quality of articles can be ensured by choosing and searching the appropriate electronic databases (Jahan et al., 2016) as well as by reviewing high-quality journals (Vom Brocke et al., 2009).

To ensure the appropriateness of the chosen electronic databases (Jahan et al., 2016), they had to satisfy the following scholarly criteria:

- Access: unrestricted access and full text must be granted to all articles retrieved by the search query.
- The option to use search strings and filters: advanced search options increase the quality and efficiency of a search by allowing the use of special commands, Boolean operators (e.g., NOT, AND, OR), truncation of words, and the specification of the location of search terms within the article (Rowley & Slack, 2004).
- Quality: the database should be mentioned in several other SLR’s by scholarly authors and provides high-quality journals to ensure a high stock of quality journal

**Table 2** Search query used in the databases

Query
FIND (Entrepreneur* OR Start-up OR Start up OR Startup OR "small business" OR "small firm" OR venture OR "new venture") AND ("Early Phase" OR early-phase OR "early stage" OR early-stage) AND ( (decision* OR decision-making OR "decision making" OR selection OR choice*) OR ("key decision*" OR key-decision* OR strateg* OR challenge* OR critical) ) IN (Abstract OR Title OR Keywords)

articles (Ferratt et al., 2007; Kitchenham & Charters, 2007; Levy & J. Ellis, 2006; Melville & Gurbaxani, 2004; Willcocks et al., 2008).

Scopus and EBSCOhost were selected as suitable databases for the literature review. At least two databases should be chosen since “no single source finds all the primary studies” (Kitchenham & Charters, 2007, p. 25). The journals were selected considering the internationally renowned German VHB-Journal 3 rating by the German Academic Association for Business Research. According to the research context, the following fields were recognised as relevant: entrepreneurship, entrepreneurial decision-making, business, and strategic management. For the initial search, only journals rated A+ or A were considered. We did not limit the search to a particular range of dates to avoid restricting the initial search results. A list of journals is presented in Appendix A.

Criteria for selecting studies (see Table 3) were defined using the research question before the execution of the search and refined through the search process, as Kitchenham and Charters (2007) recommended.

To ensure high-quality primary studies, they must be published in top-ranked journals. Furthermore, all studies must be final publications to have been peer-reviewed. No changes are made afterwards to the primary studies, which would result in misleading data. Next, the exclusion criteria for this SLR are presented in Table 3. A vital exclusion criterion mentioned by Kitchenham et al., (2009, p. 9) is the exclusion of “duplicate reports of the same study.” If “several reports of a study exist in different journals, a complete version of the study ... [should be] included in the review” (Kitchenham et al., 2009, p. 9). If duplicates are not excluded, they will lead to severe bias in the literature

**Table 3** Inclusion and exclusion criteria for the search process

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> <li>● Fulfils journal ratings A+ or A</li> <li>● Final publication</li> <li>● The study covers the topic of critical decisions in start-ups at the early stage</li> </ul>	<ul style="list-style-type: none"> <li>● Duplicate reports of the same study</li> <li>● Not available in English</li> <li>● Access to the full paper is not available</li> <li>● Not related to the subject of study</li> <li>● Does not fulfil all the quality criteria</li> </ul>

review results (Kitchenham & Charters, 2007). Since English is the leading scholarly language worldwide, all non-English primary studies were excluded. Also, full access to the entire article was required not to be excluded immediately. Furthermore, any primary study that did not meet the quality criteria was excluded.

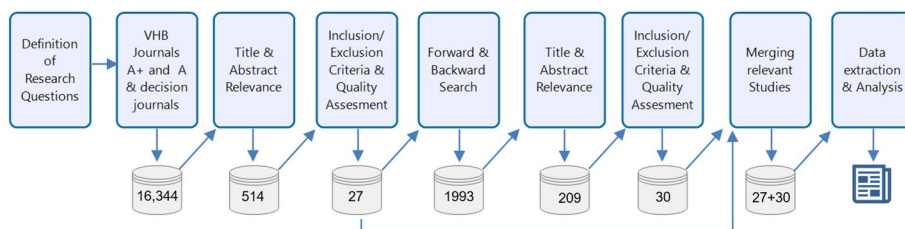
The SLR is started using the formed search query (Table 2) to Scopus’s search database, revealing 7092 articles. Relevance to the topic and relevance to the research questions are ensured by reading through the articles’ titles, abstracts, keywords, and, if necessary, the conclusions of the studies. Likewise, the search was conducted in the EBSCOhost to cover the 14 journals, adding 9251 studies. The initial search was conducted on the 3rd and 10th of December 2019, updated in February 2022 and August 2023 to update the review, resulting in 16,344 documents retrieved by the search engines.

After applying the inclusion and exclusion criteria (see Table 3 and Fig. 2), 361 relevant primary studies were left for further evaluation. As recommended by Kitchenham and Charters (2007), the conducted search was saved in the researcher’s profile on the databases and retained for a potential reanalysis later on. Then, each study is examined for relevance to the selection criteria in its title and, if not discarded, in its abstract to refine the search results. The conclusion was also considered when the title and abstract provided insufficient information, as Brereton et al. (2007) suggested. Articles were included if they addressed a particular area related to the research questions.

Additionally, the studies must at least meet one of the quality criteria defined, according to Kitchenham and Charters (2007). We set three quality criteria that ensure that the study answers at least one of the research questions. The implemented quality questions are:

- Q1: Does the study determine the key or critical aspects for founders at the early stage of the start-ups?
- Q2: Does the study create awareness among practitioners of the critical decisions of founders in the founding process?
- Q3: Does the study propose a specific method or framework to support founders in finding the right decisions at the early stage?

To avoid the problem of inexact inclusion or exclusion applied to the articles, they were examined by two researchers who discussed and explained their decision to reach an agreement whenever a difference arose. The same two researchers also performed the selection of the articles. Articles were selected only if both reviewers agreed. The paper was discussed in detail whenever a discrepancy arose until all disagreements were



**Fig. 2** SLR procedure: adapted from Petersen et al. (2008)

resolved. Out of the 514 articles, 33 were ranked as relevant by the reviewers. Subsequently, for these 33 articles, a manual in-depth review of the full text was performed. After the in-depth review, six of the 33 articles were excluded due to very little relevance to the research question. This step led to 27 remaining primary articles for data extraction. That way, the chances of inaccurate categorisation were minimised. The process of having at least two separate reviewers is endorsed by several authors (Frehe & Teuteberg, 2017; Jahan et al., 2016; Kitchenham & Charters, 2007). In 73.5% of the cases, the researchers consistently evaluated the selection. That indicates that in 136 out of the 514 primary studies, a dialogue between the researchers was needed to determine the inclusion or exclusion of the particular article, obtaining satisfactory interrater reliability (Cohen's Kappa) of greater than 65% (Cohen, 1960; Döring & Bortz, 2016).

A quality and risk-of-bias assessment was conducted to the 57 selected studies based on the process recommended by Higgins and Green (2011) and Furuya-Kanamori et al. (2021). Representative sampling, accounting for 61.4% of the articles, underscores the importance of selecting a diverse and unbiased sample that accurately mirrors the larger population under investigation. Selection of participants, with 48.2% of the studies, emphasises the significance of a careful and thoughtful recruitment process, ensuring that the chosen individuals are relevant to the study's objectives. All the articles selected for this study are peer-reviewed and the selected books are well-known in the entrepreneurship ecosystem and from well-renowned editorials. This score (99.1%) is indicative of the credibility and scrutiny the research has undergone within the scientific community, providing a seal of approval for its methodologies and findings. Complete outcome data addressed, standing at 77.2%, emphasise the importance of handling and analysing all collected data in order to formulate a comprehensive and accurate conclusion. Finally, the factor of complete reporting, with an 86.8%, highlights the importance of transparent and thorough documentation, ensuring that all aspects of the study are openly communicated, contributing to the overall integrity and replicability of the research. Out of the 57 selected articles, 51 were assessed as "high quality/low risk of bias" and six were assessed with an score that represents a "medium quality/medium risk of bias". Based on a 1-point scale (Furuya-Kanamori et al., 2021), the quality rank index is 0.7456. Considering the strict nature of the assessment, and the fact that some evaluation items led to a lower score due to the nature of the study (e.g., for theoretical studies without a study sample), the result is more than satisfactory. See Appendix B for more details on the assessment.

The high requirement of the restriction that the articles be published only in A+ and A ranking could lead to a flawed result since it is highly probable that not all relevant research is published in high-ranked journals. In order to overcome this limitation, a forward and backward search was performed without this restriction (Frehe & Teuteberg, 2017).

The forward and backward searches were conducted months after the initial search query, ended in January 2021, and updated in April 2022 and August 2023. They resulted in an additional 1993 articles to assess their relevance through the criteria defined. The selection process was carried out analogously to the selection process for primary studies. Twenty-eight articles, 20 from the backward search and 10 from the



forward search were added to the study set. The general search process led to 57 studies, termed the definitive set. The data extracted for the analysis are:

- Author, title, year, journal
- Research area
- Type of study
- Research contribution
- Mentioned decision domains
- Critical decision domains mentioned in the study.

## Results

Creating decision domains or categories was essential as a starting point for the study. A detailed discussion was conducted among the researchers regarding each category, and ambiguities were ironed out until an agreement was reached. By using an inductive and deductive categorisation process, initial categories were derived based on theoretical content. During the data analysis, new categories could be discovered or regrouped. Parsons and Wand (2008, p. 839) say that “classification holds that classes do not exist independently but are constructed as useful abstractions of the similarities of the classified phenomena.” For this purpose, an analysis was conducted among the authors using the recommendations of Al-Debei and Avison (2010, p. 364):

1. Included topics are “thematically similar to each other, that is, they communicate the same or very similar semantics and ideas.”
2. The topics “have contextual relationships that complement each other; thus, they become more useful if clustered.”
3. The categories “as a whole articulate a unique compositional aspect” of the decisions of entrepreneurs at the early stage.

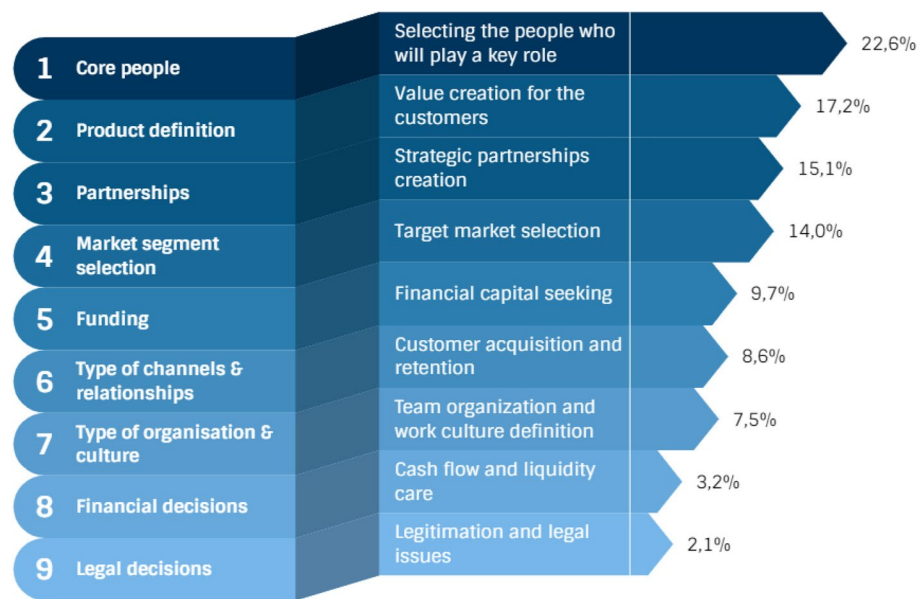
As an initial point of the categorisation analysis and to reach the criteria mentioned by Al-Debei and Avison (2010), the following business modelling frameworks were used: Business Model Canvas (Osterwalder & Pigneur, 2013), the Business Model Cube (Lindgren & Rasmussen, 2013), and the Systemic Business Modeling approach (Lau & Terzidis, 2019). Afterwards, an analysis was carried out to make the categories consistent with the MECE (mutually exclusive and collectively exhaustive) principle (Lee & Chen, 2018).

The nine categories representing the critical decision domains are Core people, Financial decisions, Funding, Legal decisions, Market segment selection, Partnership, Product definition, Type of channels and relationships, and Type of organisation and culture.

### Critical decision domains

In this section, we present the derived decision domains, their definition, as well as the subsumed papers, and their described effects on these domains on the start-up process in the early stage. Figure 3 illustrates the derived categories as well as their ranking based on the frequency in the literature sample. A short description and the corresponding frequency are also included. While creating an order of relevance or





**Fig. 3** Relative frequency of critical decisions based on the systematic literature review

**Table 4** Calculation of the relative frequency of the decision domains

Critical decision domain	Calculation	Critical decision domain	Calculation
1. Core people	$21/93 = 0.2258$	6. Type of channels and relationships	$8/93 = 0.0860$
2. Product definition	$16/93 = 0.1720$	7. Type of organisation and culture	$7/93 = 0.0753$
3. Partnerships	$14/93 = 0.1505$	8. Financial decisions	$3/93 = 0.0323$
4. Market segment selection	$13/93 = 0.1398$	9. Legal decisions	$2/93 = 0.0215$
5. Funding	$9/93 = 0.0968$		

ranking of the decision domains, we recognise that all these domains are so-called critical for the founders at an early stage of the start-up the ranking does not necessarily imply a specific order of importance for founders. It is relevant to note that this search was made considering critical decisions for early-stage founders as search terms. The percentages in Fig. 3 are calculated by dividing the absolute frequency for each domain (e.g., 21 for Core People) by the absolute frequency of all domains (93).

All the calculations are presented in Table 4. It could be argued that dividing through the absolute frequency of all domains instead of the total number of papers bears the risk that articles with a high number of researched dimensions have a much higher weight in the results. However, in the present study, this risk is limited by the fact that the absolute number of domains for each paper only ranges from one to four.

The following subsections present the different categories of this study in detail, including the findings from the extracted data.

**Core people (21 studies)**

Selecting and hiring the people who will play a vital role in the development of a start-up (core management team) or people who are critical to the activities carried out by the start-up falls under this domain. This domain of decisions was positioned in one of the

highest levels of the ranking in our literature review, with 21 different articles that mention it as a critical decision for start-up founders in the early stages. The decision domain of core people has been an area of interest for scholarly start-up research since the 1990s. Cooper and Gimeno-Gascon (1992), in his longitudinal study about the new venture performance by demonstrating the predictive power of early-stage conditions with 1053 new ventures in over a three-year period, stressed the influence of human capital on both survival and growth (the number of partners contributes to the growth and industry-specific know-how contributes to both), while Sapienza and Grimm (1997), in his multi-dimensional analysis in the short line railroad industry shows what combining founder traits, start-up processes, and structural strategies leads to most accurate performance predictions, found a positive correlation between founders' general education and their start-ups' performance, while Burton et al. (2002) point out how critical social capital and experience for entrepreneurs. Wong et al. (2005) found that personal traits and preferences regarding entrepreneurship can be a better predictor of success than the business idea itself. Furthermore, an incubator can also use these measures to identify potential entrepreneurs with strong entrepreneurial traits and provide them with the necessary resources to succeed. In this study, the author seeks to link idea factors to the potential success or failure of new ventures, especially innovative one so as to advance understanding of entrepreneurship. More precisely, it looks into how entrepreneurial behaviour among engineering students relates with success traits and potential as a future founder. Yet it recognises that forecasting real achievement is not possible; instead this study's findings are preliminary calling for primary data collection if further research is needed.

Dencker et al. (2009) have concluded that the team members' pre-entry knowledge and pre-entry management experience indirectly increase the company's survival. Similarly, in a longitudinal study, Löfsten (2016) has found that the entrepreneurial business behaviour of the founders impacts the company's survival. More recent studies have considered this issue a success factor for new ventures (Song et al., 2008). As stated by Ng et al. (2014), the founders constitute the core and coordinator of resources within early-stage ventures, suggesting that the human capital factor is the driving force for the new ventures to reach the scalable growth stage. The research of Dencker (2009) on small, non-technologically intensive firms underscores the need for knowledge and learning to ensure firm survival, though it limits its analysis in relation to the little firms and jobless Germans who started businesses as a result. Löfsten (2016) argues that business networks, entrepreneurial behaviour, and competition are essential for survival of NTBFs based on 131 small high-tech firms. Song et al. (2008)'s meta-analysis included key success factors for NTVs in the US from 31 studies. Lastly, Ng et al. (2014) demonstrate through an analysis of multiple case studies that the intellectual capital plays a significant role in early-stage ventures whereby network resources facilitated by dynamic resource allocation by founders enhance entrepreneurial performance in ventures driven by new knowledge and technological innovation.

In another aspect of this decision domain, recent studies have found that finding skilled co-founders plays a critical role in increasing commercialisation rates and revenues for early-stage businesses (Astebro & Serrano, 2015). Furthermore, it has been reported by Miloud et al. (2012) that the new venture's valuation is significantly and

positively impacted when it seeks venture capital financing in its early stages of development by the quality of its founder and top management team. The study by Astebro and Serrano (2015) examines the effects of alliances on business performance and finds that these partnerships have a significant positive impact on commercialisation efforts and financial outcomes, with account for endogeneity and heterogeneity. In addition, Miloud et al.'s (2012) work thoroughly examines 184 funding rounds in 102 start-ups highlighting how venture capital valuations are influenced by such strategic drivers as sector attractiveness and managerial competence.

Researchers have observed that the pre-entry experience of the founders boosts the ability to integrate knowledge and learn faster about the environment, leading to a higher possibility of product adaptation and, therefore, a higher performance (Furr, 2019; Suarez & Utterback, 1995; Utterback & Suarez, 1993). In Blank and Dorf's (2012) team handbook, they emphasise the importance of favourable characteristics and positive team cultures, such as people who do not fear failure, who are open to learning and discovering, and who are comfortable with uncertainty, chaos, and change. As part of describing what makes for a successful team, Reymen et al. (2015) emphasise that team members should be capable of shifting between decision-making logics (causation vs effectuation) as a critical entrepreneurial capability, and Camuffo et al., (2020, p. 18) shown that "entrepreneurial decision-making can benefit from the use of a scientific approach". According to a more recent study conducted by Gafni et al. (2019), start-up entrepreneurs' descriptions were determined as the most critical variable when seeking funding. Furthermore, Nheta et al. (2022) investigated the entrepreneurial gap between the entrepreneurs' expectations and business reality, finding entrepreneur management, familism and personal management as the themes that explain the entrepreneurship gap. Reymen et al. (2015) use a mixed-methods approach to track how technology-based start-ups make decisions as they evolve, thus providing an evolving view of adaptation of strategies over time. Camuffo et al. (2020) execute a randomised control trial to understand which is better between scientific and intuitive approaches for Italian start-ups; they show that systematic testing of hypothesis yield more adaptive performances. Nheta et al. (2022) investigates on factors that lead to the "entrepreneurial gap" among South African owned businesses through qualitative interviews that focus on areas such as management and personal skills affecting early level success.

#### ***Product definition (16 studies)***

The concept involves decisions related to the creation of value for customers and stakeholders, which encompasses all activities in the new product development process, such as the ideation process, the development of a value proposition, the introduction of a minimum viable product, the life-cycle assessment, and technical aspects of the product. During our literature review, 16 different articles categorise this domain of decisions as one of the most crucial for start-ups at the early stages. The relevance of product development has long been a critical issue. A very early statement is given, for example, by Robinson and Pearce (1986). They point out that strategic problems associated with developing product lines are significantly more critical to a CEO (chief executive officer) in entrepreneurial manufacturing firms. Duchesneau and Gartner (1990) provide another early insight into this topic, which points out that entrepreneurs

in successful companies have a broad and clear business idea that provides motivation (or will) to the organisation. Along the same line, McCann (1991) determined that in his study on growth patterns in young ventures, the highest-performing ones pursue an internal innovation process through R&D for product breakthroughs. Interviews and literature studies are used by Robinson and Pearce (1986) to examine strategic activities of CEOs in manufacturing companies, with the aim of identifying key decision-making factors affecting growth stages. Duchesneau and Gartner (1990) adopt a mixed method approach to analyse fresh juice distributors using quantitative and qualitative data that have helped them in making a distinction between successful firms based on entrepreneurial background and management strategies. McCann (1991) surveys widely on strategic choices in technology-based firms such as assessing the impact of different growth and financial strategies where internal innovation along with strategic alliances are stressed.

Even though product definition involves focusing on the value proposition, an adequate value proposition cannot be achieved without focusing on the customer, at least in a customer-driven approach. In this regard, already in 1997, the study of the founder characteristics and start-up process by Sapienza and Grimm (1997) concluded that the “customer focus is positively related to performance.” While the above study is limited to a specific industry, this conclusion has been validated over time by publications such as Osterwalder and Pigneur (2013) that put the value proposition as the centre of the framework to develop business models in entrepreneurship. This decision domain has also been the subject of study due to its importance in the entrepreneurship literature. In the study by Dencker et al. (2009), the approach of innovating in product lines is presented as a key relevant learning method in business. This category is also one of the five critical decisions Van Cann et al. (2013) mentioned in their book “Software Business Start-up Memories: Key Decisions in Success Stories.” Van Cann et al. (2013) analyses 144 initial choices of 16 successful software start-ups. They concentrate on organisation forming, product development, market creation and going global. Key findings highlight the consistent importance of company shaping and market establishment, with product development and international expansion crucial at specific stages.

Furthermore, Marion et al. (2012) express that understanding product development is critical to avoiding company failure in the new venture context. In his manual for start-up founders, Blank and Dorf (2012) put their focus on the challenge of product development for the customers. They express this idea by centring attention on the relevance of “getting out of the building”; trying, testing and validating what the founders want to offer. Marion et al. (2012) use a case study method to examine New Product Development (NPD) practices in two successful early-stage firms, comparing their non-formal, resource-constrained approaches to the more formalised procedures of bigger companies. It demonstrates how these smaller organisations achieve NPD achievement through giving emphasis to adaptability and agility in responding to market requirements as opposed to the rigid guidelines of larger business entities.

In light of the fact that this category is also a function of the scope of the opportunity, researchers such as Tornikoski and Renko (2014) have found evidence that suggests the characteristics of the initial opportunity impact the start-up process. In addition, exploiting potential opportunities can be achieved by searching for and finding venture

ideas (De Carolis & Saporito, 2006) and increasing entrepreneurs' chances of acting on future opportunities (Wood et al., 2017, as cited in Shepherd et al., 2019). In their study, Tornikoski and Renko (2014) use a longitudinal design to trace American entrepreneurs as they pursue their dreams, thus showing how initial opportunities influence the pace of formation of new firms. It is known that this technique is backed up by empirical data over time thereby providing an understanding into factors influencing timely establishment of organisations. Shepherd et al.'s (2019) work systematically reviews entrepreneurship research for better mapping of diverse dependent variables into a meta-framework. Therefore, this approach encompasses start-up process, engagement process performance factors and external contexts that together enable effective interpretations and future studies in this multifaceted entrepreneurship phenomenon.

Supporting the idea of McCann (1991), the empirical work of Innocenti and Zampi (2019) shows that internal investment in research and development is one of the most critical factors in supporting the growth of innovative start-ups at an early stage of development. Development of the idea or opportunity was one of the most frequently studied areas in Davidsson and Gruenhagen (2020)'s new venture creation analysis. In addition, Chen et al. (2021) made a significant contribution by determining the importance of new product performance as a competitive advantage for new ventures. The most recent study found that the business model, in which the product definition is a central part, "explains the significant variance in ROA (return on assets) and market share, indicating that it is comparable to industry effects in importance" (Isaksson et al., 2021). An Italian context is used by Innocenti and Zampi (2019) through econometric analysis which demonstrates that among others, internal R&D investments are key drivers towards the growth of innovative start-ups while considering external factors such as technological specialisation. Over 30 years have been reviewed by Davidsson and Gruenhagen (2020) who find holes where no one has looked before proposing questions for further study that could spark new discoveries within this area in the future. Chen et al. (2021)'s work on mobile app design iteration under product portfolio diversity shows how doing things can help produce more goods especially when dealing with dynamic markets like those found with mobile apps; they also talk about strategy-by-doing approach significantly enhancing new product performance in dynamic market conditions of a mobile application ecosystem. NTBFs' early sales growth depends on initial business models across countries and types of firms according to Isaksson et al. (2021), who argue that without appropriate business model at the outset it becomes difficult for these companies to succeed.

#### ***Partnerships (14 studies)***

All decisions that affect the formation of strategic alliances and the creation of value networks that the start-up needs in order to execute its activities can be categorised as partnerships. Those activities cannot or would prefer not to be performed by the start-up (Blank & Dorf, 2012). According to this study, these types of decisions are critical during the venture creation process, thus ranking third in the order of relevance, with 14 studies highlighting the importance of these types of decisions. In 1991, scholars recognised entrepreneurs as "embedded in a social context, channelled and facilitated, or constrained and inhibited, by their positions in social networks" (Aldrich & Zimmer, 1986;

Granovetter, 1985 as cited in Dubini & Aldrich, 1991). Networking as a central element of the entrepreneurial process was the focus of this study, which analysed the different types of functions associated with networking and how entrepreneurs can take advantage of them. In another study, in which the growth patterns, technologies, and financial strategies of 100 young companies were analysed, the relevance of joint ventures and alliances was highlighted, significantly to gaining access to distribution channels and new markets (McCann, 1991). In their study on strategic networks and entrepreneurial ventures, Stuart and Sorenson (2007) discussed the relevance of networking in the entrepreneurial process, conducted a detailed review of the literature on the subject, and proposed a research agenda. Some challenges include the necessity to improve the “understanding of how networks form” and how group membership and competitive exclusion processes shape access to network-based resources. Moreover, among the various factors contributing to the value of a new venture, it has been demonstrated by Miloud et al. (2012) that its external relationships play a very significant role in determining the valuation of a new venture when it seeks venture capital financing during its early stages of development. To suggest networking strategies for entrepreneurs, Dubini and Aldrich examine personal and extended networks within and between firms using a theoretical framework. They combine network concepts with entrepreneurship theory in their methodology to show how resource mobilisation and opportunity pursuit are facilitated by networking. Although they do not provide an empirical sample, their method offers insights into why it is strategically important for business effectiveness. Stuart and Sorenson (2007) conduct a literature review of social networks in nascent ventures with emphasis on innovation, opportunity identification, resource mobilisation and value harvesting. They take a critical look at existing studies which often treat network structures as exogenous arguing that there should be more attention paid to the strategic formation of entrepreneurial connections. Their methodology critically analyses the research but also proposes five key areas for investigation into networks’ origins and impacts on entrepreneurship.

Over the years, the importance of partnerships has been defined as a key aspect of the survival of new ventures (Gartner et al., 1999; Löfsten, 2016), a vital element for start-up success (Blank & Dorf, 2012), a critical element in a business model of start-ups (Osterwalder & Pigneur, 2013), a factor for the survival of external shocks (Raz & Gloor, 2007), and positively related to progress in the process of creating new ventures (De Carolis et al., 2009). The results of a study conducted by Dashti and Schwartz (2018) on the impact of international networking and partnerships on the development of new ventures in early stages revealed that local networking played a crucial role in the development of new ventures at the early stage. Furthermore, in a study on the new venture creation process, from a list of nine subprocesses, networking and social capital was the second most frequently studied subprocess in the last 30 years (Davidsson & Gruenhagen, 2020). Even though Shepherd et al. (2021) acknowledge that an increasing amount of research is being conducted on organisational networks and how they might benefit organisations, they express that “we are only starting to gain an understanding of how networks are formed” (Shepherd et al., 2021, p. 21). Gartner et al. (1999) have designed a structured method that uses an extensive business screening survey to verify their venture success predictions. They combine expert opinions with real life data to give an



all-round evaluation of the factors that ensure triumph. Raz and Gloor (2007) employ a longitudinal study in determining the importance of managers' network structures for Israeli software start-up survival, and how these networks affect their ability to withstand economic disturbances. The unique feature about this approach is that it involved collecting primary information followed by subsequent examination which took eight years. Shepherd et al. (2021) review a system of creating new businesses, which has not been done for 16 years according to literature knowledge. Their system involves putting together 10 subtopics generated through induction into three stages representing different entrepreneurial processes; this therefore provides an elaborate guide map for further studies.

#### ***Market segment selection (13 studies)***

According to this study, the decision domain Market Segment Selection has the fourth place of relevance. Selection of the type of market to serve, analysis of the competition, and decisions related to the definition of the market are covered by this category. As early as 1986, Roure and Maidique connected the market selection decisions as a factor for the success of new ventures. Additionally, the definition of market scope has been extensively studied and defined by several researchers as a fundamental decision (Wesson & De Figueiredo, 2001) and, frequently, a success factor (Duchesneau & Gartner, 1990; Song et al., 2008). This decision domain has also been recognised as a survival aspect for new companies. The study on new venture survival by Gartner et al. (1999) mentions that ventures with a focus on analysing new entrants and operating in high-growth sectors are more likely to survive. The study of Roure and Maidique (1986) involved the analysis of 36 technology-based start-ups that have high potential. They conducted a three-level examination covering management, strategy as well as competitive environment. They employed 11 measurable attributes to forecast performance while their discoveries identified key success factors like managerial team completeness and product technological superiority. Such an all-inclusive approach gives 'how-to' tips for venture capitalists and entrepreneurs in enhancing decision-making process. On the other hand, Wesson and De Figueiredo (2001) undertook an empirical research into the impact of market focus on performance among specialist firms within the U.S micro-brewery industry. It is through such a detailed scrutiny of one particular sector that we are able to carry out refined analyses concerning strategies for market focus. This research has two main strengths which are its ability to validate industry assumptions and provide practical advice for new ventures; thereby showing that in resource-scarce settings, narrow markets tend to perform better.

Moreover, Romanelli (1989) found that market conditions at the time of founding and early organisational strategies jointly affect the survival likelihoods of young firms. Stock et al., (2018, p. 114) showed that "only a competitive priority of serving customers was associated with new venture survival", which implies that if serving customer needs is considered to be an important aspect of competition, a new venture is more likely to be successful. Furthermore, the high relevance of choosing what market segment to enter at the beginning of the venture creation process has been cited in studies on successful startups and the impact of initial founding conditions and decisions on the performance of new ventures (Bamford et al., 2000; Leary & DeVaughn, 2009). In particular, Miloud



et al. (2012) found that the industry attractiveness of a new venture positively affects its valuation by venture capitalists in its early stages of development when it seeks venture capital financing. Lastly, it cannot be unmentioned that the block "market segments" is an essential part of the business modelling proposed by Osterwalder and Pigneur (2013) and a central element in the customer-centred approach of Blank and Dorf (2012). As Al-Debei and Avison (2010) state, the value proposition and the market segment are intrinsically connected, being a fundamental dimension to be considered in the structure of the business models.

According to Romanelli (1989), who worked in the mini-computer industry, 1957–1981 was a period of time in which he conducted his observations on the survival rates among start-up companies. He observed 180 such firms during this period. The author found out that some strategies helped businesses to stay alive longer than others did. Bamford et al. (2000) examine the long-term impact of initial founding decisions on new banks, tracking them from inception. According to a design used in this study over time it became evident that decisions made early at any business especially financial institutions will significantly affect its growth potential for up to six years but not profitability beyond that time frame. Leary and DeVaughn (2009) took interest in Florida start-up banks between 1996 and 2005 where they focused on entrepreneurial teams' characteristics within these institutions. They employed logistic regression techniques using 141 bank charter applications as sample size for their analysis. Business Model (BM) concept within Information Systems (IS) is further explained by Al-Debei and Avison (2010). The two authors used content analysis method combined with deductive reasoning to achieve their objective which was clarifying this area of study.

#### ***Funding decisions (9 studies)***

Funding decisions emerged as the next critical decision domain (5th place) for early-stage start-ups. This category includes all decisions about raising financial capital to initiate or develop the start-up's activities. Several studies have explored the relevance of early-stage investors, such as business angels and venture capitalists, in the critical phase of start-up funding (Sapienza et al., 1996; Fenn et al., 1998; Baeyens & Manigart, 2003; Cassar, 2004; Audretsch & Keilbach, 2005; Audretsch & Thurik, 2004 as cited in Schwienbacher, 2007). In the oldest article in this SLR, the authors analysed the most relevant issues facing start-ups in their early stages. It was found that obtaining external funding was one of the most dominant problems (Terpstra & Olson, 1993). During the same decade, studies linked start-up capital availability directly and indirectly (Cooper et al., 1994; Sapienza & Grimm, 1997) to performance. According to Schwienbacher (2007), a vigorous method is used to compare conservative and innovative financing strategies for entrepreneurs who lack capital; this generates predictions about securities design as well as venture capitalist relationships. In their study, Terpstra and Olson (1993) adopted an unrestricted approach in collecting information from the CEOs of 121 Inc 500 companies which led them to develop a classification system for organisational problems wider than any previous one that had been achieved through close-ended methods. Cooper et al. (1994) conducted longitudinal research on 1053 new businesses

where they looked at initial human and financial capital investment as indicators for success, but put more emphasis on being realistic with regard to what can work in practice.

Additionally, studies mentioned that “having business with ‘fundable’ resource requirements” is characteristic of surviving new ventures (Gartner et al., 1999). During this period, it was also found that the start-ups with lower capitalisation levels had significantly higher failure rates (Bruderl et al., 1992, as cited in Bamford et al., 2000). Furthermore, the ability of the founders to attract start-up capital seems to set the direction of the new venture and its ability to grow (Cooper & Gimeno-Gascon, 1992; Cooper et al., 1994 as cited in Bamford et al., 2000). Researchers have also studied how early-stage financing decisions may affect how entrepreneurial firms will “ultimately grow” (Schwienbacher, 2013, p. 528) and how funding decisions affect (reduce) the failure of start-ups (Delmar & Shane, 2004). Some have outright designated it as a key decision for start-ups (Varaiya, 2017). To track the survival of 223 Swedish firms within 30 months, Delmar and Shane (2004) use a longitudinal design that centres around legitimating activities as well as its comprehensive data collection and control over numerous factors. Michel Kripalani’s Oceanhouse Media is the subject of Varaiya’s (2017) case study which provides deep insights into structural, organisational and financial decisions from various angles that capture both strategic and personal dimensions of entrepreneurship. In their theoretical analysis on early stage financing decisions between specialist and generalist investors, Schwienbacher (2013) underscores the trade-offs under asymmetric information while giving practical suggestions for selecting investors optimally as well as using financial instruments rightly.

#### ***Type of channels and relationships (8 studies)***

This category was the next decision domain found to be critical in this study. The decision domain includes decisions related to how customers are reached, including the channels defined for this purpose and the relationships established for interaction. An early study stated that entrepreneurs whose corporate identity structures align with their corporate culture, i.e. business concepts, values, and philosophy, are more likely to succeed (Rode & Vallaster, 2005). However, the early-stage impact of these decisions has not been extensively studied. In fact, it was not until 2011 that a study provided empirical evidence of the performance implications of distribution channel decisions (Brettel et al., 2011). Prior to this, some studies considered these decisions as part of the dominant problems in start-ups (Terpstra & Olson, 1993), a domain that is of “utmost importance for the success of new ventures” (Gruber, 2004, p. 164), and a factor of success for new technology ventures (Song et al., 2008). Although few papers have focused on this topic, a more recent study highlights the fact that new venture managers should recognise how important it is to organise their firms’ marketing activities if they want to be successful (Fürst et al., 2023). Rode and Vallaster (2005) seek to discover how brands are built in start-ups through qualitative methods which focus on the entrepreneur. In order to study distribution channel choices of 330 new ventures, Brettel et al. (2011) take a macro perspective with transaction cost economics and suggest that strategic factors should be aligned to improve performance. Gruber (2004) brings together different pieces of entrepreneurial marketing research into one paper through extensive literature review so as to provide an integrated framework for future studies. Mixed-method

design is adopted by Fürst et al., (2023) who deploy interviews, surveys and archival data collection techniques so as to investigate organisation of marketing activities within new businesses while also illustrating effect on profitability arising out of dispersal and structuring marketing activities in these firms.

Despite the little-studied nature of this domain, Blank and Dorf (2012) and Osterwalder and Pigneur (2013) consider it an essential part of the business model and assign great importance to it as the building blocks that connect the value proposition to the customers. Furthermore, findings indicate that the choice of distribution channel based on asset specificity has the greatest positive impact on performance, highlighting the crucial role played by this factor in the success of new technology ventures. (Brettel et al., 2011). Finally, studies also mention it among the key decisions in successful start-ups (van Cann et al., 2013).

#### ***Type of organisation and culture (7 studies)***

The Type of Organisation and Culture was also found to be part of the decision domains relevant at the early stage. Determining the dynamics, structure, and organisation of the start-up team falls under this decision domain. As mentioned in Alvarez and Barney (2005, p. 2), two of the most relevant decisions are: first, define who in the company has “the right to make what kinds of decisions” (Grossman & Hart, 1986; Hart & Moore, 1988) and second, determine the rights of various parties to the remaining cash flows generated by the exploitation of an opportunity (Coff, 1999). It also involves roles and responsibility definitions. Additionally, similar to the previous domain, this domain was frequently cited as a dominant problem for start-ups (Terpstra & Olson, 1993), which was oriented explicitly towards general management issues. In a subsequent study, building competencies in new ventures was given critical importance, especially because it helps to build resilience to market conditions (Mullins, 1996). Alvarez and Barney (2005) analyse entrepreneurs’ firm organisation strategies for addressing resource coordination problems and profit appropriation in conditions of market uncertainty by comparing three organisational approaches. To determine the effect of competency and prior performance on growth decisions, Mullins (1996) investigates 103 independent hardware stores. Its finding shows that chances of growth are higher when there is either great skill coupled with bad track record or poor competence but good previous achievement indicating the need to build adaptability through competence as well as implying that establishment programmes may foster survival and development among new enterprises.

Taking an interest in the subject later, De Fraja (1996) examined the form of organisation of new ventures, comparing entrepreneurial firms (run by the founder) and managerial firms (run by a manager). Talaulicar et al. (2005) found a significant influence of management team characteristics, processes, discussion style, and trust on start-ups’ strategic decision-making. Alvarez and Barney (2005, p. 15) discussed, in their study on the organisation of firms under the condition of uncertainty, how the types of entrepreneurial firms are “essential to the process of changing uncertainty into risk and thus essential to the process of discovering the most efficient way to manage a particular set of economic exchanges.” Moreover, the type of leadership in new ventures has been related to a significant predictor of performance (Ensley et al., 2006). Finally, in their recent study, Contigiani

and Young-Hyman (2022) found that “more structured ventures have greater commercial success” (Lee, 2021, as cited in Contigiani & Young-Hyman, 2022, p. 28). De Fraja (1996) uses theory to examine the decision-making of project owners and how economic conditions determine whether they become independent entrepreneurs or managers. Talaulicar et al. (2005) study top management team (TMT) characteristics’ effect on strategic decisions made by technology-based start-ups; they collected survey responses from 71 German firms and conducted an in-depth nonresponse bias analysis for robustness checks. Ensley et al. (2006)’s research is on new venture performance and its relationship with vertical as well as shared leadership; they employed two large samples—66 teams from Inc Magazine’s fastest-growing startups and another 154 teams from Dun & Bradstreet database—and used hierarchical regression analysis to show that shared leadership adds value beyond what can be achieved through vertical leadership alone. Contigiani and Young-Hyman (2022) investigate how market learning strategies align with organisational structures in early-stage ventures; their data come from a university-based venture competition along with an online experiment, thus drawing on both naturalistic and controlled data sources for validation purposes.

#### ***Financial decisions and legal decisions***

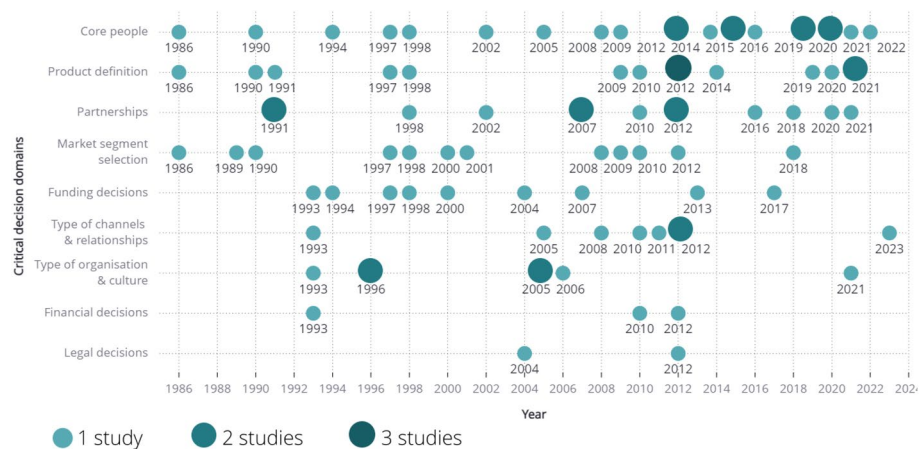
The two last domains found to be essential to consider at the early stage of start-ups were the Financial Decisions (3 studies) and Legal Decisions (2 studies). The first one includes decisions on maintaining a healthy cash flow in the start-up and having financial liquidity. In this scope, Terpstra and Olson (1993) pointed out that internal financial management was one of the dominant start-up problems. A strong emphasis was also given to value finance (Al-Debei & Avison, 2010) in business models (Osterwalder & Pigneur, 2013) and business development (Blank & Dorf, 2012), where revenue streams and cost structure are two essential elements of being considered. On the other hand, the Legal Decisions domain includes the decisions related to legal issues, such as formalisation, contracts, the start-up’s legal structure, patents, and intellectual property. This domain was addressed by Delmar and Shane (2004), who concluded that the activities that generate legitimacy reduce the hazard of venture disbanding. Finally, Blank and Dorf (2012) consider intellectual property to be a key resource for start-ups. Finally, it is relevant to highlight the work of Osterwalder (2004) which is mainly based on his doctoral study. In that work, he employs design science to develop an ontology that articulates a firm’s business logic, covering product, customer interface, infrastructure, and finance, validated through case studies, expert panels, and managerial reviews (Osterwalder, 2004).

#### **Critical decision domains over the years**

An overview of the critical decision domains over time is presented in Fig. 4. It showcases the amount of research attention each of the nine identified critical decision domains has received over the past 36 years (Table 5).

#### **Discussion**

From our perspective, the results indicate that it is crucial for business founders in the early stage to focus on what we call the internal human and business core of a start-up. The internal human core is the co-founders that work together in the start-up (represented through Core People). The internal business core is the object the entrepreneurs



**Fig. 4** Decision domains and their publications through the years

are working on, a product or service (represented through product definition). Based on the SLR, the human core could be extended from the internal founding team to the external partnerships (represented through Partnerships, number 3 in the SLR). Moreover, the business core could be extended from the internal product definition to the external perspective of key customers, as we see the product definition inextricably linked to the customers (represented through market segmentation). The management (“who”), the entire strategy (“how”), and the values (“why”) that will guide the business are implemented by the people who work in the company; however, it is not integrated into most of the traditional business modelling methods. This finding also aligns with research focusing on the positive effects of a values-based mission and vision driven by the core people in start-ups (Heblich et al., 2021, 2023) and corporations (Mackey & Sisodia, 2014).

It is relevant to mention the limitation of using frequency as a proxy for importance. Frequency can only show how often something is repeated and this might give a clue to understanding what is being discussed over and over again but it does not always reflect its real meaning or value. High occurrence rate doesn’t always mean high relevance since there may be infrequent occurrences of highly significant events. Therefore, rely solely on frequency could lead to a limited comprehension of the real priorities and key factors identified in this study.

The Core People domain highlights the significance of individuals in the success of a new venture. For instance, Cooper et al., (1994) conducted a longitudinal study to demonstrate that early stage conditions can forecast future performance. Sapienza and Grimm (1997) used multi-dimensional analysis which takes into account founder attributes, start-up processes as well as strategies adopted by them so as to have holistic understanding about what leads to success. Meta-analyses on aggregated data across various studies were done by Song et al. (2008) to determine common findings for reliability improvement through identification of critical success factors. Additionally, Ng et al. (2014)’s case studies showed how intellectual capital is important along with dynamic resource allocation in fostering growth.

**Table 5** Selected articles, their contributions, and derived critical decisions

Reference	Search	Title	Type of study	Critical decision domains
Alvarez and Barney (2005)	BS	How do entrepreneurs organize firms under conditions of uncertainty?	Theoretical study	→ Type of organisation and culture
Astebro and Serrano (2015)	PS	Business Partners: Complementary Assets, Financing, and Invention Commercialization	Empirical study	→ Core people
Bamford et al. (2000)	PS	An examination of the impact of initial founding conditions and decisions upon the performance of new bank start-ups	Longitudinal study	→ Market segment selection → Funding
Blank and Dorf (2012)	BS	The startup owner's manual: The step-by-step guide for building a great company	Book	→ Product definition → Core people → Partnerships → Market segment selection Funding → Type of channels and relationships → Legal decisions → Financial decisions
Brettel et al. (2011)	PS	Distribution channel choice of new entrepreneurial ventures	Empirical study	→ Type of channels and relationships
Brush et al. (2002)	BS	From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base	Case studies	→ Partnerships
Burton et al. (2002)	BS	Coming from good stock: Career histories and new venture formation	Longitudinal study	→ Core people
Camuffo et al. (2020)	PS	A Scientific Approach to Entrepreneurial Decision Making: Evidence from a Randomized Control Trial	Experimental study	→ Core people
Chen et al. (2021)	PS	Experience base, strategy-by-doing and new product performance	Empirical study	→ Product definition
Contigiani and Young-Hyman (2022)	PS	Experimentation, planning, and structure in early-stage ventures: Evidence from pitch decks	Questionnaire	→ Type of organisation and culture
Cooper et al., (1994)	BS	Initial human and financial capital as predictors of new venture performance	Longitudinal study	→ Funding → Core people
Dashti and Schwartz (2018)	PS	Should start-ups embrace a strategic approach toward integrating foreign stakeholders into their network?	Mixed methods	→ Partnerships

**Table 5** (continued)

Reference	Search	Title	Type of study	Critical decision domains
Davidsson and Gruenhagen (2020)	FS	Fulfilling the Process Promise: A Review and Agenda for New Venture Creation Process Research	Review	→ Partnerships → Product definition
De Fraja (1996)	PS	Entrepreneur or manager: Who runs the firm?	Theoretical study	→ Type of organisation and culture
Delmar and Shane (2004)	BS	Legitimizing first: Organizing activities and the survival of new ventures	Longitudinal study	→ Legal decisions → Funding
Dencker et al. (2009)	FS	Pre-Entry Knowledge, Learning, and the Survival of New Firms	Questionnaire	→ Product definition → Core people
Dubini and Aldrich (1991)	BS	Personal and extended networks are central to the entrepreneurial process	Theoretical study	→ Partnerships
Duchesneau and Gartner (1990)	BS	A profile of new venture success and failure in an emerging industry	Interviews	→ Product definition → Market segment selection → Core people
Ensley et al. (2006)	BS	The importance of vertical and shared leadership within new venture top management teams: Implications for the performance of startups	Questionnaire	→ Type of organisation and culture
Fürst et al. (2023)	PS	The role of marketing in new ventures: How marketing activities should be organized in firms' infancy	Mixed methods	→ Type of channels and relationships
Furr (2019)	BS	Product adaptation during new industry emergence: The role of start-up team pre-entry experience	Longitudinal study	→ Core people
Gafni et al. (2019)	PS	Are the life and death of an early-stage venture indeed in the power of the tongue? Lessons from online crowdfunding pitches	Qualitative content analysis	→ Core people
Gartner et al. (1999)	BS	Predicting new venture survival: An analysis of "anatomy of a start-up" cases from Inc. Magazine	Mixed methods	→ Product definition → Core people → Partnerships → Market segment selection → Funding
Glaveckaitė (2020)	FS	The development process of the right team in early-stage start-ups	Ground theory	→ Core people
Grossman et al. (2012)	PS	Resource Search, Interpersonal Similarity, and Network Tie Valuation in Nascent Entrepreneurs' Emerging Networks	Mixed method	→ Partnerships



**Table 5** (continued)

Reference	Search	Title	Type of study	Critical decision domains
Innocenti and Zampi (2019)	PS	What does a start-up need to grow? An empirical approach for Italian innovative start-ups	Empirical study	→ Product definition
Isaksson et al. (2021)	FS	The influence of initial business models on early business performance: a study of 589 new high-tech firms	Questionnaire	→ Product definition
Leary and DeVaughn (2009)	FS	Entrepreneurial team characteristics that influence the successful launch of a new venture	Empirical study	→ Market segment selection
Löfsten (2016)	FS	New technology-based firms and their survival: The importance of business networks, and entrepreneurial business behaviour and competition	Longitudinal study	→ Partnerships → Core people
Marion et al. (2012)	PS	New product development practices and early-stage firms: Two in-depth case studies	Case study	→ Product definition
McCann (1991)	PS	Patterns of growth, competitive technology, and financial strategies in young ventures	Longitudinal questionnaire	→ Partnerships → Product definition
Miloud et al. (2012)	PS	Startup valuation by venture capitalists: an empirical study. Venture Capital	Empirical study	→ Market segment selection → Core people → Partnerships
Mullins (1996)	PS	Early growth decisions of entrepreneurs: The influence of competency and prior performance under changing market conditions	Experimental study	→ Type of organisation and culture
Ng et al. (2014)	PS	Entrepreneurial performance of early-stage ventures: dynamic resource management for development and growth	Multiple case study	→ Core people
Nheta et al. (2022)	PS	Micro-perspective lens on entrepreneurs in the early stage of business: Expectations vis-à-vis realities	Interviews	→ Core people
Osterwalder and Pigneur (2013)	BS	Business model generation: A handbook for visionaries, game changers, and challengers	Book	→ Product definition → Partnerships → Type of channels and relationships → Market segment selection → Financial decisions
Raz and Gloor (2007)	BS	Size really matters: New insights for start-ups' survival	Longitudinal study	→ Partnerships

**Table 5** (continued)

Reference	Search	Title	Type of study	Critical decision domains
Reymen et al. (2015)	FS	Understanding dynamics of strategic decision making in venture creation: A process study of effectuation and causation	Multiple case study	→ Core people
Robinson and Pearce (1986)	PS	Product life-cycle considerations and the nature of strategic activities in entrepreneurial firms	Questionnaire	→ Product definition
Rode and Vallaster (2005)	BS	Corporate Branding for Start-ups: The Crucial Role of Entrepreneurs	Interviews	→ Type of channels and relationships
Romanelli (1989)	BS	Environments and strategies of organization start-up effects on early survival	Questionnaire	→ Market segment selection
Roure and Maidique (1986)	BS	Linking prefunding factors and high-technology venture success: An exploratory study	Exploratory study	→ Market segment selection → Core people
Sapienza and Grimm (1997)	BS	Founder characteristics, start-up process, and strategy/structure variables as predictors of shortline railroad performance	Questionnaire	→ Core people → Funding → Market segment selection → Product definition
Schwienbacher (2007)	PS	A theoretical analysis of optimal financing strategies for different types of capital-constrained entrepreneurs	Theoretical study	→ Funding
Schwienbacher (2013)	PS	The entrepreneur's investor choice: The impact on later-stage firm development	Theoretical study	→ Funding
Shepherd et al. (2019)	FS	What Are We Explaining? A Review and Agenda on Initiating, Engaging, Performing and Contextualizing Entrepreneurship	Review	→ Product definition
Shepherd et al. (2021)	PS	Creating New Ventures: A Review and Research Agenda	Review	→ partnerships → core people
Song et al., (2008)	BS	Success factors in new ventures: A meta-analysis	Meta-analysis	→ Type of channels and relationships → Core people → Market segment selection
Stock et al., (2018)	PS	Early Stage Venture Strategy and the Survival of Nascent Entrepreneurial Firms: A Sand Cone Model Approach	Questionnaire	→ Market segment selection
Stuart and Sorenson (2007)	BS	Strategic networks and entrepreneurial ventures	Literature review	→ Partnerships

**Table 5** (continued)

Reference	Search	Title	Type of study	Critical decision domains
Talaucar et al. (2005)	PS	Strategic decision making in start-ups: The effect of top management team organization and processes on speed and comprehensiveness	Empirical study	→ Type of organisation and culture
Terpstra and Olson (1993)	BS	Entrepreneurial start-up and growth: A classification of problems	Questionnaire	→ Type of channels and relationships → Funding → Financial decisions → Type of organisation and culture
Tornikoski and Renko (2014)	FS	Timely Creation of new Organizations: The Imprinting Effects of Entrepreneurs' Initial Founding Decisions	Questionnaire	→ Product definition
van Cann et al. (2013)	FS	Software business start-up memories: Key decisions in success stories	Interviews	→ Product definition → Type of channels and relationships
Varaiya (2017)	PS	Michel Kripalani and Oceanhouse Media: Journey of a Serial Entrepreneur	Case study	→ Funding
Wesson and De Figueiredo (2001)	PS	The importance of focus to market entrants: A study of microbrewery performance	Case study	→ Market segment selection
Wong et al. (2005)	PS	Individual entrepreneurial characteristics and entrepreneurial success potential	Questionnaire	→ Core people

\*PS primary search, BS backward search, FS forward search

The product definition domain focuses on strategic decisions about product development that will help new businesses succeed. To identify the key factors of decision-making in manufacturing, Robinson and Pearce (1986) conducted interviews and looked into relevant literature. On the other hand, quantitative and qualitative data were combined by Duchesneau and Gartner (1990) to differentiate successful fresh juice distributors from unsuccessful ones. McCann (1991) carried out extensive surveys among technology-based firms which made him realise how important internal innovation as well as strategic alliances are. In their study of initial strategic choices in successful software start-ups, Van Cann et al. (2013) concentrated more on organisation forming, product development, market creation and global expansion were taken into account. Marion et al. (2012) used case studies to compare NPD practices in early-stage firms with larger companies, demonstrating adaptability and agility. Tornikoski and Renko (2014) did this by tracking American entrepreneurs over a long period so that they can see how first opportunities affect new firm formation. Shepherd et al. (2019) undertook review systematically entrepreneurship research therefore differentiating dependent variables within meta-framework which will act

as basis for future comprehensive studies. Innocenti and Zampi (2019) applied econometric analysis in order to demonstrate significance internal R&D investments among Italian start-ups while Chen et al. (2021) emphasised on strategy-by-doing during mobile app design iteration for improved performance.

While this study is grounded in the available scientific knowledge base, we argue that the results are applicable to real-world scenarios, as over seventy percent (77.2%) of the studies in this SLR are declared as empirical studies (including longitudinal studies, case studies, experiments, or questionnaires or interviews as their main method). Petticrew and Roberts (2006, p. 268) debunk the myth that systematic reviews lack real-world relevance. We agree and argue that this study's recommendations go beyond theory, drawing on a strong foundation in real-world practices, ensuring their applicability to practical scenarios. Each of the decision domains provide a discussion of the strength of the methodologies and samples used by the studies in which this analysis was conducted.

Based on these implications, we encourage aspiring and practising entrepreneurs as well as educators in the field of entrepreneurship to focus on the question of who/why (core people and partnerships), what (product definition), and for whom (market segmentation), before elaborating the different how's (Funding, Type of Organisation and Culture, Type of channels and relationships, Financial decisions, and Legal decisions).

### **Managerial implications**

1. *Crucial foundations*: Every start-up journey hinges on foundational decisions. As evidenced by Tornikoski and Renko (2014), the decisions made in the nascent stages have far-reaching consequences. Start-ups must emphasise the necessity of informed and strategic decision-making from day one.
2. *Prioritising decisions*: Through extensive research, we have discerned critical decision areas for entrepreneurs:
  - Core people: The team they assemble will be the backbone of their venture. Their skills, dedication, and alignment with the company's mission will determine the pace and direction of growth.
  - Product definition: It is not just about creating a product or service but defining its value proposition. This domain is a pivotal decision that can shape the venture's trajectory.
  - Partnerships: Building strategic collaborations can unlock resources, markets, and knowledge. It is not just about who the founders know, but also about who will become allies.
  - Market segment selection: Recognising and targeting the right market segment can make the difference between a product that resonates and one that does not.
3. *Re-assessing business modelling*: Traditional business modelling often overlooks the importance of core team members. However, as shown, the "who" is as vital as the "how" or "what". Incorporating the human element and values-driven missions into business strategies can foster a robust foundation for growth.

4. *Integrative approach to decision-making*: Beyond the highlighted domains, entrepreneurs should not overlook areas such as funding strategies, organisational culture, financial planning, and legal frameworks. While they might seem secondary compared to product or market decisions, they are integral to the overall stability and sustainability of the start-up.
5. *Continuous learning*: The landscape of entrepreneurship is ever-evolving. Stay updated with current research and methodologies. The learnings from this systematic literature review (SLR) should serve as a starting point, but always be open to integrating new insights into your entrepreneurial journey.

Building a successful start-up requires a blend of strategic planning, a customer-centric approach, and a dedicated team. Entrepreneurs can set a firm foundation by focusing on core people, defining the product effectively, forging meaningful partnerships, and making informed decisions on market segmentation. As the journey progresses, ensure continuous learning and flexibility in adapting to new challenges and opportunities.

### **Future Research**

Future research in the context of the domains of decisions should explore the different sub-decisions or subareas embedded in the domains. Each type of sub-decision could also have a different level of importance for the domain and the effectiveness of the decisions. That level of analysis could be another level of practical relevance for entrepreneurs. For the Core People domain, future research could explore how the complexity and diversity of human capital, such as experience, adaptability, and skills, impact the decision-making process and the sustainability of early-stage start-ups. Furthermore, exploring how founders' decision-making logics (causation versus effectuation) change over time and the impact of these logics influence the success or failure of ventures.

Regarding the Product Definition domain, future studies could explore the role of digital tools, such as AI and machine learning, in improving product development processes, in both, customer-driven and technology-push approaches, for early-stage start-ups. Studies across different sectors and regions could provide insights into how R&D investment cooperates with market dynamics to promote the success of start-ups. Partnerships' future research should investigate the dynamics and development of strategic alliances in start-ups, particularly how these partnerships evolve during the early stages. Another area for exploration is the impact of ecosystems in enabling cross-industry networks, supporting the growth of new ventures.

Future studies on market segment decisions could explore the relevance of the emerging digital market segments, specifically those driven by AI, particularly in the technology-driven sectors. Studies on the different market entry strategies, such as market pull versus technology pull or niche versus broader market approaches, affect the scalability of start-ups and could also provide valuable insights. Finally, regarding funding decisions, future research could investigate the influence of new funding sources, such as crowdfunding and decentralized finance (DeFi), on the process of development of new ventures, specifically in comparison to traditional start-up capital and investment. Longitudinal studies could analyze how the timing and type of funding impact start-up success and sustainability across industries.

## Conclusions

This study provides a clear integration of the findings from the literature about the critical decisions for start-ups in the early stages of the past decades. Tornikoski and Renko (2014) emphasise that “initial founding decisions have significant consequences for the subsequent development of new ventures.” However, the existing literature fails to provide a cohesive understanding of the critical decisions founders need to make in the initial stages of a startup (e.g., Aspelund et al., 2005; Bamford et al., 2000). These scholars encourage research on this topic to support aspiring and practising entrepreneurs in their early decision-making stages. While relevant information exists across various studies, it remains scattered and lacks synthesis. Recognising the fragmented nature of existing research, this SLR bridges the gap by synthesising knowledge on the critical initial decisions entrepreneurs must make.

The first results of the SLR were the creation of categories representing the decision areas of the entrepreneurs. These categories were developed deductively by analysing models used in new venture creation and inductively by analysing the data collected in the search (see Sect. “Results”). The relative frequencies in Fig. 3 indicate that Product Definition and Core People are the most critical decisions for early-stage start-ups, closely followed by Partnerships and Market segment selection. These four critical decision domains account for more than 70 per cent of all early-stage critical decisions. Funding and Type of Organisation and Culture are also critical decision domains but are of less importance. According to the SLR, Type of channels and relationships, Financial decisions, and Legal decisions are the least relevant of all researched key decisions. It is to be noted that the scholarly interest in decision domains varies significantly over time, as typified in Fig. 4. The most critical decision domains are also the domains of decisions that have gotten more attention from researchers lately.

The most frequent decision domains in the SLR were Core People and Product Definition. This result brings the relevance of the development of the business and human cores to the forefront. It first resonates with what is currently used in the generation of business models (Osterwalder & Pigneur, 2013), in which the value proposition is represented as the heart of the model. The literature emphasises Product Definition as being a critical decision for early-stage start-ups because it is attributed to positive effects like organisational will (Duchesneau & Gartner, 1990), high-performance factor (McCann, 1991; Sapienza & Grimm, 1997), and avoidance of company failure (Marion et al., 2012). In the same line, Core People selection was found to be as important as the business core; the development of the human core becomes a crucial part of the decisions for early-stage entrepreneurs. The literature considers this domain as a survival (Cooper et al., 1994; Dencker et al., 2009; Löfsten, 2016) and success factor (Song et al., 2008) for start-ups. There is a significant difference between this result and mainstream business models, which emphasise the importance of key people to a company. (except, in part, in the implicit inclusion in the key resource block of the Business Model Canvas).

The third category relevant to the business creation stage was Partnerships decisions. Some of the attributes of this decision domain as a central element for the entrepreneurial process (Aldrich & Zimmer, 1986; Granovetter, 1985 as cited in Dubini & Aldrich, 1991), a critical aspect for the survival of new ventures (Löfsten, 2016), a factor to survive external shocks (Raz & Gloor, 2007) and positively related to progress in the process of creating

new ventures (De Carolis et al., 2009). This finding matches the relevance given by the business modelling practices (Osterwalder & Pigneur, 2013), which identifies it as a key partner block in their model. Partners will support the functions or activities that people in the organisation cannot fulfil. Therefore, it makes sense that the decisions made in these domains are critical at an early stage. Also, partnerships are considered a central element in the valued-based model for corporations presented by Mackey and Sisodia (2014).

The Market segment selection also emerged to be among the highlights category of this study. This decision domain was featured as a success factor (Duchesneau & Gartner, 1990; Roure & Maidique, 1986; Song et al., 2008) and a survival aspect for new ventures (Gartner et al., 1999; Romanelli, 1989). Market segmentation is a domain also emphasised by Osterwalder and Pigneur (2013), in which the customer segments block is assigned to represent the market to be served. According to the principles of business modelling and user-centred design (e.g., design thinking), the ideation and value creation processes must be customer-centred (Lewrick et al., 2018), so there is a consonance with the results of this study.

The other five domains defined as critical for early-stage start-up founders through this literature search were Funding, Type of channels and relationships, Type of organisation and culture, Financial decisions, and Legal decisions. It is not that these decision areas are not relevant; however, we believe they are less studied because they are more concerned with the "how" of achieving the vision. Despite the literature emphasising the importance of these decisions as well, little has been done to integrate them into tools that assist entrepreneurs in making decisions.

#### **Limitations of the study**

As well as highlighting the interesting results of our SLR, we would like to highlight the limitations of our study. The SLR was executed following vom Brocke et al. (2009), Tahir et al. (2016), and Kitchenham et al. (2009) schemas. Therefore, the search was planned using automatic and manual searches in journals and databases. Therefore, some crucial studies may be excluded because of the omission of possibly relevant journals or articles. Regarding the selection of journals ranked A and A+ for the initial search, it can be argued that many studies from other journals are excluded. The effects of this limitation are countered through the relaxation of these criteria in the forward and backward searches. Studies in the future may address this limitation without relying on journal rankings for selection, utilising more automated methods to select relevant studies. Moreover, each of the articles included in this study was subjected to a quality and risk of bias assessment, which concluded that most of the studies (51 out of 57) are of high quality/low risk of bias. This assessment contributes to the validity of the results of this study as a whole.

A second limitation is the subjective criteria used to evaluate the titles and summaries for the first screening. This process could again exclude relevant articles. However, this limitation was mitigated through multiple researchers participating in the selection process. Future studies could address the limitation by reducing the synonyms in the keywords query or a different set of exclusion and inclusion criteria.

Another limitation is the lack of validation or evaluation of the results through a separate empirical study. However, as mentioned in the discussion, most of the studies used



to conduct this study were themselves empirical studies. This variety of methodologies across the source studies nonetheless generates greater complexity and difficulty in generalising conclusions (Petticrew & Roberts, 2006, p. 216). Therefore, we argue that based on this study, recommendations for real-world practitioners can be derived. However, to strengthen these conclusions and ensure their real-world applicability, future empirical studies are recommended.

Lastly, the study does not provide specific methods or tools for entrepreneurs to directly apply the findings. Despite this, the implications of this study should serve as a roadmap that guides practitioners' decisions. Future studies could present methods to help aspiring and practising entrepreneurs make decisions related to these questions.

### Appendix A: Journals used in the different searches of this study

Journal's name	Primary search	Backward search	Forward search
Academy of Management Journal (AMJ)	X		
Administrative Science Quarterly (ASQ)	X	X	
African Journal of Science, Technology, Innovation and Development	X		
American Economic Review	X		
Corporate Reputation Review	X		
Entrepreneurship and Sustainability Issues			X
Entrepreneurship: Theory and Practice (ET&P)	X	X	X
IEEE Engineering Management Review	X	X	
Innovation: Organization and Management	X		
International Entrepreneurship and Management Journal	X		
International Journal of Entrepreneurial Behaviour and Research	X		
International Journal of Innovation and Technology Management	X		
International Journal of Innovation Management			X
Journal of Business Venturing (JBV)	X	X	
Journal of Economics & Management Strategy	X		
Journal of Industrial Economics	X		
Journal of Management (JOM)	X		X
Journal of Management Studies (JMS)	X		
Journal of Product Innovation Management (JPIM)	X	X	
Journal of the Academy of Marketing Science	X		
Local Economy			X
Management (France)			X
Management Decision			X
Management Research News			X
Management Science	X	X	
Research Policy (RP)	X		
Software Business Start-up Memories: Key Decisions in Success Stories			X
Strategic Entrepreneurship Journal (SEJ)	X	X	
Strategic Management Journal (SMJ)	X		
Venture Capital	X		

**Appendix B: Quality and risk-of-bias assessment**

#	Study	Representative sampling <sup>a</sup>	±1 <sup>b</sup>	Selection <sup>c</sup> of participants	±1	Peer-reviewed study	Complete outcome data addressed	±1	Complete reporting	±1	Safeguard counts	Judgement <sup>d</sup>	Quality rank <sup>e</sup>
1	Alvarez and Barney (2005)	0	0	0	0	2	1	1	1	0	5	Low	0.5
2	Astebro and Ser-rano (2015)	1	0	1	1	2	1	0	1	1	8	High	0.8
3	Bamford et al. (2000)	0	0	0	0	2	1	1	1	1	6	High	0.6
4	Blank and Dorf (2012)	0	0	0	0	1	1	1	1	0	4	Low	0.4
5	Brettel et al. (2011)	1	1	1	1	2	1	0	1	0	8	High	0.8
6	Brush et al. (2002)	0	0	0	0	2	1	0	1	0	4	Low	0.4
7	Burton et al. (2002)	1	1	0	0	2	1	0	1	1	7	High	0.7
8	Camuffo et al. (2020)	1	1	1	1	2	0	0	1	1	8	High	0.8
9	Chen et al. (2021)	1	1	1	0	2	1	0	1	1	8	High	0.8
10	Contigiani and Young-Hyman (2022)	1	1	1	1	2	0	0	1	1	8	High	0.8
11	Cooper et al., (1994)	1	1	0	0	2	0	0	1	1	6	High	0.6
12	Dashti and Schwartz (2018)	1	1	0	0	2	1	1	1	1	8	High	0.8

#	Study	Representative sampling <sup>a</sup>	±1 <sup>b</sup>	Selection <sup>c</sup> of participants	±1	Peer-reviewed study	Complete outcome data addressed	±1	Complete reporting	±1	Safeguard counts	Judgement <sup>d</sup>	Quality rank <sup>e</sup>
13	Davidsson and Gruenhagen (2020)	1	1	1	1	2	1	1	1	1	10	High	1
14	De Fraja (1996)	0	0	0	0	2	1	1	1	1	6	High	0.6
15	Delmar and Shane (2004)	1	1	1	1	2	1	0	1	1	9	High	0.9
16	Dencker et al. (2009)	1	1	0	0	2	1	0	1	1	7	High	0.7
17	Dubini and Aldrich (1991)	0	0	0	0	2	0	0	1	1	4	Low	0.4
18	Duchesneau and Gartner (1990)	0	0	0	0	2	1	1	1	1	6	High	0.6
19	Ensley et al. (2006)	1	1	0	0	2	1	1	1	1	8	High	0.8
20	Fürst et al. (2023)	1	1	1	1	2	1	0	1	1	9	High	0.9
21	Furr (2019)	0	0	0	0	2	1	1	1	1	6	High	0.6
22	Gafni et al. (2019)	1	1	1	1	2	1	0	0	0	7	High	0.7
23	Gartner et al. (1999)	0	0	0	0	2	1	1	1	1	6	High	0.6
24	Giaveckaitė (2020)	1	1	1	0	2	1	1	1	1	9	High	0.9
25	Grossman et al. (2012)	1	1	0	0	2	0	0	1	1	6	High	0.6
26	Innocenti and Zampi (2019)	1	1	1	1	2	1	0	1	1	9	High	0.9
27	Isaksson et al. (2021)	1	1	1	1	2	1	1	1	1	10	High	1

#	Study	Representative sampling <sup>a</sup>	±1 <sup>b</sup>	Selection <sup>c</sup> of participants	±1	Peer-reviewed study	Complete outcome data addressed	±1	Complete reporting	±1	Safeguard counts	Judgement <sup>d</sup>	Quality rank <sup>e</sup>
28	Leary and DeVaughn (2009)	1	1	0	0	2	1	1	1	1	8	High	0.8
29	Löfsten (2016)	0	0	0	0	2	1	1	1	1	6	High	0.6
30	Marion et al. (2012)	0	0	0	0	2	1	1	1	1	6	High	0.6
31	McCann (1991)	1	1	0	0	2	1	1	1	1	8	High	0.8
32	Miloud et al. (2012)	1	1	1	1	2	1	1	1	1	10	High	1
33	Mullins (1996)	1	1	0	0	2	1	1	1	1	8	High	0.8
34	Ng et al. (2014)	0	0	0	0	2	1	1	1	1	6	High	0.6
35	Nheta et al. (2022)	1	1	0	0	2	1	0	1	0	6	High	0.6
36	Osterwalder and Pigneur (2013)	0	0	0	0	2 <sup>f</sup>	1	0	1	0	4	Low	0.4
37	Raz and Gloor (2007)	0	0	0	0	2	1	1	1	1	6	High	0.6
38	Reymen et al. (2015)	1	0	1	1	2	1	1	1	1	9	High	0.9
39	Robinson and Pearce (1986)	1	1	1	1	2	1	1	1	1	10	High	1
40	Rode and Val-laster (2005)	0	0	1	1	2	1	1	0	0	6	High	0.6
41	Romanelli (1989)	1	1	1	1	2	1	1	1	1	10	High	1
42	Roure and Mair-ique (1986)	0	0	1	0	2	0	0	1	1	5	Low	0.5

#	Study	Representative sampling <sup>a</sup>	±1 <sup>b</sup>	Selection <sup>c</sup> of participants	±1	Peer-reviewed study	Complete outcome data addressed	±1	Complete reporting	±1	Safeguard counts	Judgement <sup>d</sup>	Quality rank <sup>e</sup>
43	Sapienza and Grimm (1997)	1	0	1	0	2	1	0	1	1	7	High	0.7
44	Schwiembacher (2007)	0	0	0	0	2	1	1	1	1	6	High	0.6
45	Schwiembacher (2013)	1	1	1	1	2	1	1	1	1	10	High	1
46	Shepherd et al. (2019)	1	1	1	1	2	1	1	1	1	10	High	1
47	Shepherd et al. (2021)	1	1	1	1	2	1	1	1	1	10	High	1
48	Song et al., (2008)	0	0	1	0	2	1	1	1	1	7	High	0.7
49	Stock et al., (2018)	1	1	1	1	2	1	1	1	1	10	High	1
50	Stuart and Sorenson (2007)	1	1	1	1	2	1	1	0	0	8	High	0.8
51	Talaulicar et al. (2005)	1	1	1	1	2	1	1	1	1	10	High	1
52	Terpstra and Olson (1993)	1	1	1	1	2	1	1	0	0	8	High	0.8
53	Tomikoski and Renko (2014)	1	1	1	1	2	1	1	1	1	10	High	1
54	van Cann et al. (2013)	1	1	1	1	2	1	0	1	0	8	High	0.8

#	Study	Representative sampling <sup>a</sup>	± 1 <sup>b</sup>	Selection <sup>c</sup> of participants	± 1	Peer-reviewed study	Complete outcome data addressed	± 1	Complete reporting	± 1	Safeguard counts	Judgement <sup>d</sup>	Quality rank <sup>e</sup>
55	Varaiya (2017)	0	0	0	0	2	1	1	1	1	6	High	0.6
56	Wesson and De Figueiredo (2001)	0	0	1	0	2	1	1	1	1	7	High	0.7
57	Wong et al. (2005)	1	0	1	0	2	1	1	1	1	8	High	0.8

<sup>a</sup> Randomized participation/ robust sampling method

<sup>b</sup> ± corresponds to an adequate explanation of the safeguard in the previous column

<sup>c</sup> Blinding of participants/ selection criteria/ non-selection of participant

<sup>d</sup> Rule: > 5 = high quality/ low risk of bias

<sup>e</sup> The quality rank of each study was determined by dividing the maximum safeguard count across all studies by the safeguard count of each study

<sup>f</sup> Validated through the use of the business model canvas by the entrepreneurship ecosystem

**Abbreviations**

BS	Backward search
CEO	Chief executive office
FS	Forward search
MECE	Mutually exclusive collectively exhaustive
PS	Primary search
ROA	Return on assets
SLR	Systematic literature review

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**Author contributions**

MAGM and OT developed the literature review methodology based on different authors prior to the beginning of the study. MAGM and PL conducted the systematic literature review and analysed the data. The results were interpreted by MAGM, PL, and BH. OT and BH reviewed the manuscript and gave feedback continuously throughout the whole process. All authors read and approved the final manuscript.

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**Availability of data and materials**

The results of the search, analysis and paper analysis are available upon request from any editor.

**Declarations****Competing interests**

Not applicable.

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