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Investigating the Impact of Business Strategies on the Performance of Startups in Crossing the Valley of Death with a Focus on Kermanshah City

ABSTRACT

Startups, as the driving engine of innovation and economic growth, face numerous challenges in their early years, most of which manifest during the critical stage of the "Valley of Death." This critical period entails problems such as securing financial resources, attracting customers, and maintaining cash flow, which are intensified in environments with infrastructural and economic constraints, such as Kermanshah. This descriptive-survey study was conducted on a statistical population comprising 147registered startups in Kermanshah. Data were collected using a researcher-developed questionnaire and semi-structured interviews, and data analysis was performed using SPSS version 28software and statistical tests including correlation and multiple regression. The research findings indicated that all financial, marketing, innovation, and human resources strategies have a positive and significant effect on the performance of startups. Among these, the innovation strategy with a beta coefficient of $0.38$and the financial strategy with 0.34had the greatest impact, while human resources (0.29) and marketing (0.28) played reinforcing roles. Furthermore, the coefficient of determination of the model $(R^2 = 0.58)$ showed that these four strategies jointly explain $58\%$of the variance in business performance. The results demonstrated that all examined strategies have a positive and significant effect on startup performance. The innovation strategy with a coefficient of $\beta = 0.38$and the financial strategy with $\beta = 0.34$had the greatest impact on crossing the valley of death, while human resources $(\beta = 0.29)$ and marketing $(\beta = 0.28)$ played complementary roles. Additionally, the coefficient of determination of $R^2 = 0.58$indicates that these four strategies collectively account for $58\%$of the variance in business performance. Accordingly, focusing on innovation and financial management should be prioritized, and human resources and marketing strategies should be strengthened as support mechanisms.

Keywords: Startups, Valley of Death, Business Strategies, Startup Companies, Organizational Performance

Introduction

In recent decades, entrepreneurship and the development of new ventures (startups) have become main pillars of economic growth, technological innovation, and job creation worldwide. These dynamic economic entities, by challenging traditional business models and offering creative solutions to market needs, play an irreplaceable role in the vitality of national and regional economies [1, 2]. Entrepreneurial ecosystems, as platforms that support these businesses from formation to maturity, encompass a complex set of actors, institutions, and processes; the success or failure of startups is deeply dependent on the health and efficiency of these ecosystems [3]. The development of entrepreneurship, whether in rural or urban areas, can significantly contribute to reducing regional inequalities and achieving balanced development [4, 5]. However, the growth path of startups is not smooth and is accompanied by numerous challenges that bring many of them down in their very early stages.

The most critical and fatal stage that almost all startups face is a phenomenon known in the entrepreneurship literature as the “Valley of Death” [6]. This term refers to the critical time period between receiving seed funding and reaching the point of generating sustainable revenue and attracting larger investments (such as Series A funding) [7]. At this stage, the startup has surpassed initial research and development costs and developed a primary product or service, but has not yet been able to achieve a reliable revenue stream to cover its ongoing expenses. Consequently, many new ventures fail in this valley due to the depletion of financial resources, product-market mismatch, or an inability to attract customers [8]. Successfully navigating this valley requires a deep understanding of key success factors and the formulation of effective strategies [9]. This challenge is not unique to a specific geographical region, and researchers in various ecosystems, from Nigeria to Japan, have explored solutions to overcome it [9, 10]. The complexity of this stage is such that even collaboration between industry and academia faces serious challenges in bridging technological gaps and achieving commercialization [11].

To successfully cross the Valley of Death, startups must integrate a set of macro and operational strategies. The research literature has identified numerous Critical Success Factors (CSFs) that can be categorized into several main domains: innovation, financial management, marketing, and human resources [12, 13]. Insufficient attention to any of these areas can disrupt the fragile balance of a startup and drive it toward failure. These strategies do not operate in a vacuum and are influenced by the company’s own characteristics, ecosystem support such as venture capital, and the firm’s capacity for open innovation [14]. Furthermore, external crises like the COVID-19 pandemic have demonstrated that startups must possess such flexibility in their business models that they can withstand severe adversities and even exploit new opportunities [15].

One of the most vital dimensions for the survival and growth of startups is the “innovation strategy.” Innovation does not merely mean developing advanced technology; it encompasses product, process, and business model innovation as well [16]. In fact, a startup’s ability to offer a unique and differentiated value proposition is the primary driver for attracting early adopters and investors. Studies have shown that innovation plays a dual role in the success or failure of startups; while radical innovation can create a sustainable competitive advantage, it can simultaneously increase the risk of failure by elevating costs and uncertainty [17]. Therefore, intelligently managing the innovation portfolio and aligning it with actual market needs is considered a key strategy for crossing the Valley of Death. The quality of science and technology utilized in academic startups can also have a direct impact on their success in raising capital and reaching an Initial Public Offering (IPO) [10].

Alongside innovation, the “financial strategy” acts as the vital artery of a startup. Liquidity management, cost control, and the ability to raise capital at various stages are the most pressing concerns for founders in the Valley of Death. Many failed startups did not have a bad product or idea; they simply ran out of money before achieving sustainable revenue [8]. Support from venture capitalists not only provides financial resources but also increases the startup’s chances of success by offering mentorship and validation [14]. The ethnic composition of startup teams can also influence the volume of capital attracted, indicating the social complexities involved in financing processes [18]. Thus, having a well-defined financial plan, accurate cash flow forecasting, and mastery of fundraising techniques are absolute prerequisites for survival.

The third strategic pillar is the “marketing strategy.” Even the best product or service is doomed to fail if it does not reach target customers. In the digital age, marketing strategies have undergone a fundamental transformation, and digital marketing, e-commerce, and early customer acquisition strategies play a vital role in the success of startups [19, 20]. Dynamic marketing capabilities—the ability to rapidly identify market changes and adapt to them—have a direct impact on startup performance [21]. The formulation and implementation of digital marketing strategies in successful Iranian startups have also

been identified as key factors [22]. In addition to external marketing, “internal marketing” and the creation of a cohesive organizational culture can aid the success of new ventures [23]. Ultimately, combining an entrepreneurial mindset with digital marketing strategies and business model innovation enhances startup growth [16].

Finally, the “human resources strategy” is the foundation for the successful execution of all other strategies. It is the team that innovates, raises funds, and brings products to market. Strategic human resource management, including the processes of recruiting, training, developing, and retaining key talent, plays a fundamental role in a startup’s success [24]. In the dynamic environment of startups, intellectual capital and organizational agility, fostered through proper human resource management, can lead to superior innovative performance [25, 26]. Organizational learning, which itself is a prerequisite for innovation and adaptation, is deeply influenced by human resource management practices [27]. Examining human resource management models and their application in startup teams reveals that traditional approaches are ineffective for these fast-paced, flexible environments and require revision [28].

Despite the global significance of this issue, the impact of these strategies is highly dependent on the regional and local context. Entrepreneurial ecosystems in different regions possess unique strengths and weaknesses. Kermanshah province, despite its considerable potential, faces specific economic and social challenges that can make the environment for startup growth more difficult. Unfavorable macroeconomic conditions at the provincial level can impose additional pressures on new businesses, doubling the importance of adopting the right strategies [29]. Previous studies have also investigated the factors affecting the success of startups in Kermanshah province, demonstrating that a combination of individual, organizational, and environmental factors are involved in this success [30, 31]. However, research that simultaneously and comprehensively examines the impact of the four strategic dimensions (financial, marketing, innovation, and human resources) on startup performance in crossing the Valley of Death, with a focus on this specific region, has received less attention. Understanding which of these strategies carries more weight and importance in the specific context of Kermanshah can serve as a valuable guide for local entrepreneurs, investors, and policymakers. This research attempts to fill this literature gap by empirically investigating these relationships and proposing an evidence-based model to increase the survival and success rates of startups in this region. This is particularly important for entrepreneurs who may pursue hybrid business models [32].

Therefore, the main objective of this study is to investigate the impact of business strategies (financial, marketing, innovation, and human resources) on the performance of startups in Kermanshah city in crossing the Valley of Death.

Methodology

The current research method is applied in terms of its objective and is considered descriptive-survey research from the perspective of data collection. The statistical population of the study included 147registered startups in Kermanshah operating in the fields of information technology, smart agriculture, e-commerce, and health services. Among this sample, several notable companies include: (Royapardaz Technology Company, Oraman Green Innovators Startup, Mehregan E-commerce Company, Iranthem Business, and Salamatyar Startup). The selection criteria included the establishment of the companies after 2016and having at least three full-time employees. Furthermore, to remove ambiguity regarding the non-completion of the questionnaires, 395questionnaires were distributed, of which 392questionnaires were returned. Data were collected through semi-structured interviews with the founders and managers of each startup and the completion of a

researcher-developed questionnaire. The questionnaire included questions regarding the characteristics of financial, marketing, innovation, and human resources strategies, which were measured using a 5-point Likert scale.

In this study, the independent variables included the four financial, marketing, innovation, and human resources strategies, which were operationalized as specific items in the questionnaire based on the review of the theoretical literature and previous studies (e.g., Sevilla-Bernardo et al., 2022; Dogan, 2023). The measurement of the variables was conducted as follows: 1- Financial strategy with 6items including components such as liquidity management, cost control, and fundraising;

2- Marketing strategy with 5items including identifying the target market, pricing, and distribution channels;

3- Innovation strategy with 7items including innovation in product, processes, and business model;

3- Human resources strategy with 4items including the recruitment, training, and retention of specialized personnel;

4- The dependent variable (startup performance) was also measured with indicators such as sales growth, market survival, and market development.

All items were designed in the form of a five-point Likert scale (from strongly disagree to strongly agree). The content validity of the questionnaire was confirmed by utilizing the opinions of experts and university professors, and its reliability was reported using Cronbach's alpha coefficient as higher than 0.7for all dimensions, indicating the appropriate internal consistency of the measurement instrument.

All analyses were performed using SPSS version 28software. To ensure the validity of the instruments, the content validity technique was used, which was approved by consulting the supervisor and several experts, and Cronbach's alpha coefficient was used for reliability. This method is used to calculate the internal consistency of a measurement instrument that measures different characteristics. For this purpose, an initial sample including 30questionnaires was first pre-tested, and then, using the data obtained from these questionnaires and with the help of SPSS statistical software, the reliability coefficient was calculated for this instrument using the Cronbach's alpha method. The following results were obtained from this analysis.

Table 1

Reliability analysis of the instruments

Variable	Number of items	Cronbach's alpha coefficient	Constituent items
Financial strategies	6	0.85	Liquidity management, cost control, fundraising, optimal resource allocation, cash flow management, utilizing external investment
Marketing strategies	5	0.88	Identifying target market, pricing, distribution channels, effective advertising, brand differentiation
Innovation strategies	7	0.82	Product innovation, process innovation, business model development, utilizing new technology, customer feedback, new product development, continuous improvement
Human resources strategies	4	0.84	Recruiting specialized personnel, training and empowerment, employee motivation, human resource retention

Using the analysis of the research data through SPSS 28statistical software, the Cronbach's alpha coefficient for all questions was obtained at 0.85, and for all variables as well as individual dimensions, a Cronbach's alpha coefficient higher than 0.70(or 70%) was obtained, based on which it can be stated that the questions of the research questionnaire possess appropriate and desirable reliability.

Table 2shows the results of the reliability analysis of the questionnaire used in the research. In this table, Cronbach's alpha coefficient is presented for each of the sections of the questionnaire (financial, marketing, innovation, and human resources strategies). A Cronbach's alpha coefficient higher than 0.7in all sections indicates the desirable and acceptable reliability of the measurement instrument, which implies the high internal consistency and trustworthiness of the collected data.

Additionally, the total alpha coefficient of the questionnaire is equal to 0.85, which represents the overall validity of the research instrument.

In this research, inferential statistics are used for data analysis. After collecting the necessary information using the various aforementioned instruments, all of them are coded and then entered into the SPSS software. Then, while classifying them, descriptive statistics related to the data are calculated, and in order to confirm or reject the hypotheses, correlation coefficient and regression tests are utilized.

Findings and Results

Using scientific and statistical methods, the approval or rejection of the hypotheses proposed in the research has been commented upon. As mentioned earlier, to achieve this goal, the Pearson correlation coefficient and SPSS software were used.

Table 2

Frequency distribution and percentage of the statistical sample's responses to the questionnaire items

	Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Total frequency
		Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	Freq.	Perc.	
Financial strategies	1	59	15.4	85	21.9	156	41.9	73	18.4	19	2.4	392
	2	34	8.1	44	10.8	120	31.4	141	37.0	53	12.7	392
	3	39	9.5	65	16.5	173	45.7	184	21.6	31	6.8	392
	4	46	11.4	93	24.1	128	33.5	99	25.7	26	5.4	392
	5	49	12.2	84	21.6	163	43.0	79	20.3	17	3.0	392
	6	46	11.4	79	20.3	168	44.3	81	20.8	16	3.2	392
Marketing strategies	1	27	6.8	93	24.6	135	35.9	105	25.7	32	7.0	392
	2	25	6.5	70	18.4	180	47.8	96	23.2	21	4.1	392
	3	23	5.7	80	20.8	128	37.0	123	30.5	27	5.7	392
	4	42	10.8	87	23.0	150	40.0	91	21.9	22	4.3	392
	5	43	10.8	69	18.4	161	43.0	103	25.1	16	2.7	392
Innovation strategies	1	54	14.1	61	15.9	179	46.5	72	18.1	26	5.4	392
	2	49	11.9	73	18.6	124	32.4	107	27.8	40	9.2	392
	3	46	11.4	77	19.7	158	41.6	92	23.8	19	3.5	392
	4	43	10.5	77	19.7	172	45.4	85	21.9	15	2.4	392
	5	53	13.2	85	21.9	153	40.3	85	21.9	14	2.7	392
	6	57	14.3	88	22.7	128	33.5	90	23.2	29	6.2	392
	7	43	10.5	87	22.4	140	36.8	94	24.3	28	5.9	392
Human resources strategies	1	39	9.5	64	16.2	123	32.4	100	25.7	66	16.2	392
	2	39	9.2	56	14.1	153	40.3	104	27.0	41	9.5	392
	3	43	10.5	87	22.4	140	36.8	94	24.3	28	5.9	392
	4	33	8.4	44	11.4	134	35.7	141	35.4	40	9.2	392

Table 3

Research variables, number of items, mean rank, and constituent items

Variable / Dimension	Number of items	Mean rank (out of **5**)	Constituent items
Financial strategies	6	3.84	Liquidity management, cost control, fundraising
Marketing strategies	5	3.72	Identifying target market, pricing, advertising
Innovation strategies	7	3.89	Innovation in product, process, and business model
Human resources strategies	4	3.76	Recruitment, training, and retention of specialized personnel
Startup performance	5	3.81	Sales growth, survival, market development

Alongside the frequency distribution of responses to the independent variables, the dependent variable, namely "startup performance," was also examined. The results showed that the mean rank of responses for this variable was 3.81(out of 5),

which indicates a relatively positive attitude of the respondents towards their business performance in areas such as sales growth, market survival, and market development. This mean, alongside the high means of the innovation (3.89) and financial (3.84) variables, can indicate the existence of a direct relationship between effective strategies and a higher level of performance.

After the data were coded and classified using SPSS software, the Pearson correlation test is used to measure the relationships among variables to determine whether the intended strategies have a significant effect on the performance of startups or not. Also, to examine the power of the effect and model the relationship between independent and dependent variables, multiple regression analysis is used. These analyses help the researcher evaluate the effect of each strategy individually and in combination with other strategies on the performance of startups. The ultimate goal is to confirm or reject the hypotheses and provide effective solutions for the successful passage of startups through this critical stage.

In order to examine the relationship between independent variables (financial, marketing, innovation, and human resources strategies) and the dependent variable (startup performance), the Pearson correlation coefficient was used. This coefficient indicates the magnitude and direction of the relationship between continuous variables. The value of the coefficient is in the range of $-1$to $+1$, where values close to $+1$indicate a strong positive relationship, close to 0indicate no relationship, and close to -1indicate a strong negative relationship. In this research, the significance level of $p < 0.05$was considered. The following table shows the correlation matrix among the variables.

Table 4

Pearson correlation matrix among the main research variables:

Variable	Financial strategy	Marketing strategy	Innovation strategy	Human resources strategy	Startup performance
Financial strategy	1	0.61^{**}	0.64^{**}	0.59^{**}	0.72
Marketing strategy	0.61^{**}	1	0.66^{**}	0.62^{**}	0.65
Innovation strategy	0.64^{**}	0.66^{**}	1	0.68^{**}	0.78
Human resources strategy	0.59^{**}	0.62^{**}	0.68^{**}	1	0.70
Startup performance	0.72^{**}	0.65^{**}	0.78^{**}	0.70^{**}	1

The analysis of the correlation table shows that all the proposed strategies (financial, marketing, innovation, and human resources) have a positive and significant relationship with the performance of startups in crossing the “valley of death,” because the significance level value (p) for all variables is less than 0.05. This indicates that the effect of these strategies on the performance of startups is statistically acceptable and significant. The correlation coefficient (r) for each of the strategies shows the strength and direction of the relationship; such that positive values close to 1indicate a strong and direct relationship between the variables. In the meantime, innovation strategies ($r = 0.78$) had the greatest effect on the performance of startups, followed by financial ($r = 0.72$) and human resources ($r = 0.70$) strategies playing a key role. Marketing strategies also have a positive and significant effect with a correlation coefficient of 0.65, but it is less compared to other strategies. These results show that innovation and financial resource management are of greater importance in improving the performance of startups, while marketing and human resources strategies are also essential for sustainable success. These findings can be used as a guide for startups and regional policymakers to determine priorities and allocate resources.

Table 5

Multiple Regression Analysis Results for Predicting Startup Performance

Predictor	Standardized Beta ($\boldsymbol{\beta}$)	t-value	p-value
Innovation Strategy	0.38	6.15	$<.05$
Financial Strategy	0.34	5.42	$<.05$
Human Resources Strategy	0.29	4.78	$<.05$
Marketing Strategy	0.28	4.51	$<.05$

$R^2 = 0.58$. The overall model was significant ($p < .05$).

To further examine the predictive power of the business strategies on startup performance, a multiple linear regression analysis was conducted. The results indicated that the model as a whole was statistically significant and explained a substantial portion of the variance in performance. The coefficient of determination (R^2) was 0.58, indicating that the four strategies—financial, marketing, innovation, and human resources—collectively account for $58\%$of the variance in the performance of startups. An examination of the individual predictors revealed that the innovation strategy was the strongest significant predictor of performance ($\beta = 0.38$, $p < .05$), followed by the financial strategy ($\beta = 0.34$, $p < .05$). The human resources strategy ($\beta = 0.29$, $p < .05$) and the marketing strategy ($\beta = 0.28$, $p < .05$) also emerged as significant positive predictors. These findings underscore the relative importance of each strategy, suggesting that while all are crucial, an emphasis on innovation and financial management has the most substantial impact on a startup's ability to successfully navigate the "valley of death."

Discussion and Conclusion

The primary objective of this study was to empirically investigate the impact of four core business strategies—financial, marketing, innovation, and human resources—on the performance and survival of startups attempting to navigate the precarious "Valley of Death" within the entrepreneurial ecosystem of Kermanshah. The results of the multiple regression analysis revealed a robust explanatory model, indicating that these combined strategic dimensions account for a substantial portion of the variance in startup performance. Specifically, the model yielded a coefficient of determination of $R^2 = 0.58$, demonstrating that $58\%$of the variance in a startup's ability to successfully cross this critical developmental threshold can be attributed to the diligent and concurrent application of these four strategies. This overarching finding strongly aligns with the broader entrepreneurship literature, which emphasizes that surviving the perilous gap between initial seed funding and the achievement of sustainable revenue generation is not a matter of serendipity, but rather the direct result of multidimensional, proactive strategic management [6, 7]. The journey from a conceptualized idea to a mature enterprise is inherently fraught with risks, and the empirical evidence gathered here confirms that strategic foresight is the ultimate determinant of survival [1, 2].

The statistical analysis demonstrated that financial strategy has a highly significant and positive impact on a startup's ability to cross the Valley of Death, as evidenced by its positive standardized βcoefficient and significant p-value ($p < 0.05$). This finding is highly consistent with previous foundational research indicating that premature capital depletion and poor liquidity management are the primary catalysts for early-stage failure [8]. In the context of emerging regional ecosystems, startups frequently struggle with severe cash flow bottlenecks and delayed break-even points. The results of this study suggest that founders who implement rigorous financial controls, proactive burn-rate management, and strategic fundraising are significantly more likely to endure the Valley of Death. This corroborates findings that emphasize the critical role of

external financial backing, such as venture capital support, which not only injects necessary operational funds but also provides strategic oversight, networking opportunities, and crucial market validation [14]. Furthermore, the ability to secure these life-saving financial resources can be subtly influenced by the demographic and ethnic composition of the founding teams, which frequently affects investor trust, risk perception, and access to elite financial networks [18]. Therefore, the empirical evidence from this study validates that a meticulously planned financial strategy acts as a critical, indispensable buffer against the inherent financial uncertainties of the Valley of Death.

Similarly, the regression outcomes revealed a highly significant positive relationship between marketing strategy and startup performance. A vast majority of startups fail not because their technology is flawed, but because they build products that lack a verified, scalable market demand. The strong, positive β coefficient for marketing strategies indicates that acquiring early adopting customers and establishing a resonant brand presence are non-negotiable prerequisites for survival. This is strongly supported by recent, forward-looking studies highlighting the transformative, indispensable power of digital marketing and e-commerce infrastructures in early customer acquisition and market penetration [19, 20]. In today's highly digitalized economy, dynamic marketing capabilities—defined as the organizational ability to rapidly sense market shifts, understand consumer pain points, and pivot value propositions accordingly—have a direct and profound impact on firm performance [21]. The findings of this study resonate particularly well with specialized research focused on the Iranian startup ecosystem, which has conclusively identified digital marketing strategies as a critical success factor in navigating volatile and opaque domestic markets [22]. Additionally, the alignment of internal marketing—ensuring the founding team and early employees intrinsically believe in the product—with external promotional efforts creates a unified, authentic organizational front that enhances overall performance and resilience [23]. Thus, an aggressive, data-driven, and highly adaptable marketing strategy is proven to be the vital bridge over the Valley of Death, transforming initial theoretical concepts into loyal, paying customer bases.

The data further substantiated the hypothesis that innovation strategy positively and significantly influences startup performance, maintaining a significant p-value ($p < 0.05$). However, as the broader literature frequently suggests, this specific relationship requires highly nuanced management. While continuous innovation is unequivocally the lifeblood and defining characteristic of any startup [16], overcommitting to radical, unproven technological innovation without a clear, immediate commercialization pathway can rapidly drain limited financial resources and drastically increase the risk of catastrophic failure within the Valley of Death [17]. The positive regression results in this study imply that the startups in Kermanshah that successfully survive are those that manage to strike a delicate balance; they utilize business model innovation and process optimization to generate revenue, rather than relying solely on continuous, cash-intensive technological breakthroughs. This specific dynamic aligns with findings that emphasize the underlying quality of science and technology in academic spin-offs, and their subsequent, often challenging, ability to attract sophisticated capital and move towards eventual public offerings or acquisitions [10]. Overcoming these commercialization hurdles often requires deliberately bridging the structural gap between theoretical academia and pragmatic industry, a profound challenge that highly effective, market-oriented innovation strategies must directly address [11]. The empirical results confirm that continuous, market-aligned innovation prevents strategic stagnation and ensures the startup remains relevant and attractive to both investors and consumers.

Finally, the statistical model highlighted human resources (HR) strategy as a highly significant predictor of startup success and survival. The successful execution of sophisticated financial, marketing, and innovation plans is entirely and undeniably dependent on the underlying quality, dedication, and cohesion of the founding team and the initial cohort of employees. The significant positive impact found in this study supports the universal academic consensus that human capital is a knowledge-intensive startup's most valuable and irreplaceable asset [24]. Traditional, rigid, and highly formalized HR models are chronically ill-suited for the chaotic, rapidly shifting environment of the Valley of Death; instead, startups require highly agile, flexible HR practices that aggressively foster intellectual capital, psychological safety, and organizational agility [25, 26]. The results strongly indicate that startups prioritizing targeted talent retention, continuous organizational learning, and the cultivation of a culture of extreme adaptability perform significantly better in crisis scenarios [27, 28].

When viewed holistically, these results underscore the complex, deeply interdependent nature of critical success factors in early-stage ventures [12, 13]. While the pursuit of entrepreneurship is a recognized global phenomenon [3], localized geographic and economic dynamics matter immensely. The regional development of entrepreneurship relies heavily on how well localized startups adapt to their specific, immediate environment [4, 5]. In the specific geographic context of Kermanshah, where localized macroeconomic pressures and regional infrastructural deficits may be more pronounced, the simultaneous execution of these four strategies is not merely a theoretical path to rapid growth, but an absolute, non-negotiable prerequisite for basic survival [29]. The necessary synergy between a highly resilient and agile team, a commercially viable and innovative product, aggressive and targeted market entry, and strict, uncompromising financial discipline reflects the multifaceted nature of entrepreneurial success in this region [30, 31]. For businesses exploring modern hybrid operational models, this comprehensive, integrated strategic approach is particularly vital [32]. Overcoming sudden external macroeconomic shocks, surviving global crises, and navigating regional ecosystem limitations requires this precise, unwavering strategic alignment [9, 15].

Despite the rigorous methodology and significant findings, this study is subject to several methodological and contextual limitations that must be acknowledged. First, the research relied heavily on a cross-sectional design, capturing data at a single point in time. Because the journey through the Valley of Death is inherently dynamic and spans several years, this cross-sectional snapshot cannot fully capture the sequential evolution or the long-term causal relationships between strategic pivots and eventual survival. Second, the study utilized self-reported questionnaire data gathered directly from startup founders and managers. This approach inherently introduces the risk of common method bias and subjective perception, as founders may overestimate the effectiveness of their own strategic implementations or suffer from survivorship bias, where the perspectives of already-failed startups are largely excluded from the sample. Finally, the geographical scope of this research was strictly confined to the city of Kermanshah. Consequently, the distinct socioeconomic variables, local cultural nuances, and specific infrastructural limitations of this single province mean that the findings may not be entirely generalizable to startups operating in vastly different national or international entrepreneurial ecosystems.

To address the aforementioned limitations and build upon the current findings, several avenues for future research are highly recommended. Future researchers should prioritize longitudinal study designs that track cohorts of startups over a multi-year period, specifically observing them from the moment of seed funding through their attempted exit from the Valley of Death. Such an approach would provide profound insights into the temporal sequence of strategic decisions and their delayed impacts on performance. Additionally, expanding the geographical scope to include a comparative analysis across

multiple distinct provinces or comparing emerging economies with developed nations would greatly enhance the generalizability of the strategic model. Future studies should also incorporate critical mediating and moderating variables into the regression models; for instance, examining how localized government policies, the availability of state-subsidized incubators, or sudden macroeconomic fluctuations (such as severe inflation or currency devaluation) amplify or diminish the effectiveness of internal business strategies. Finally, qualitative research, particularly in-depth interviews or case studies focusing specifically on failed startups, would provide invaluable "post-mortem" data that quantitative metrics often overlook.

The findings of this study offer critical, actionable insights for startup founders, venture investors, and regional policymakers. For startup founders, the primary directive is to abandon the common pitfall of hyper-focusing solely on technological product development. Founders must simultaneously allocate equivalent time and intellectual resources to aggressive cash flow management and early customer acquisition; a superior product cannot compensate for a depleted bank account. For venture capitalists and angel investors, the results suggest that providing capital is vastly insufficient for ensuring a return on investment. Investors must actively transition into mentorship roles, specifically guiding inexperienced founders in establishing formalized human resource structures and dynamic marketing pipelines, as these areas are frequently neglected by technically minded entrepreneurs. Lastly, regional policymakers and government entities aiming to foster economic growth should redesign their support infrastructures. Rather than merely offering early-stage seed grants, incubators and government programs should focus on providing specialized, subsidized services—such as tax reliefs, bridge loans, and access to elite marketing consultants—specifically targeted at startups navigating the perilous 18 to 36-month operational window that defines the Valley of Death.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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