Article History Received: 29 Oct. 2025 Revised: 16 Oct. 2025 Accepted: 21 Dec. 2025

Entrepreneurial Orientation as a Driver of Business Performance: *Comparative Evidence from High-Tech and Traditional Start-Ups in Nepal*

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Abstract

This study compares the levels of entrepreneurial orientation (EO) between high-tech and traditional start-ups in Nepal, with particular attention to sectoral differences in innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness. Using a cross-sectional survey design complemented by a brief qualitative component, data were collected from 215 founders of high-tech and traditional start-ups through purposive sampling. An open-ended question captured founders' perspectives on performance drivers, strategic decision-making, and sector-specific challenges. Quantitative data were analysed using statistical software, complemented by thematic analysis of qualitative responses to enhance the interpretation of sectoral differences. The findings indicate that high-tech start-ups exhibit significantly higher EO levels and stronger EO-performance relationships, with innovativeness, pro-activeness, and risk-taking emerging as the most influential predictors compared to traditional start-ups. Qualitative insights corroborate these results, showing that high-tech founders emphasise innovation, proactive opportunity recognition, and calculated risk-taking, whereas traditional entrepreneurs adopt more incremental and reactive strategies. The study highlights the need for sector-specific policies and capability-building initiatives to strengthen EO and enhance start-up performance in Nepal.

Keywords: business performance, entrepreneurial orientation, high-tech, traditional start-ups

Cite as: Shiwakoti, S., Timsina, B., & Subba, B. L. (2025). Entrepreneurial orientation as a driver of business performance: Comparative evidence from high-tech and traditional start-ups in Nepal. *Journal of Business and Social Sciences Research, 10*(2) 145-166. http://doi.org/

INTRODUCTION AND STUDY OBJECTIVES

EO has become one of the most influential strategic constructs in explaining why some firms outperform others in increasingly volatile and technology-driven environments (Hruby, 2025). Rooted in the seminal works of Miller (1983) and Covin and Slevin (1989), EO describes a firm's strategic

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posture through its propensity to innovate, proactively pursue opportunities, and engage in risk-taking. Studies consistently affirm that EO positively contributes to firm performance by enabling rapid opportunity identification, experimentation, and strategic agility (Kreiser & Davis, 2010). Research consistently shows that EO enhances business performance (BP) defined in this study as a firm's ability to achieve financial outcomes, market share growth, operational efficiency, and long-term sustainability, by enabling rapid opportunity recognition, experimentation, and strategic agility (Sahi et al., 2019). In an era marked by digital transformation, artificial intelligence diffusion, and heightened global competition, EO has become even more essential for firms seeking sustainable competitive advantage and survival (Najem et al., 2024).

The conceptual evolution of EO further highlights its strategic significance. Early studies conceptualised EO as a unidimensional construct, while contemporary scholars advocate a multidimensional view that incorporates five dimensions: innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness (Covin & Wales, 2019; Lumpkin & Dess, 1996). This expanded framework reflects the complexity of modern entrepreneurial ecosystems, where decentralised decision-making, competitive intensity, and rapid technological cycles shape firm behaviour and performance. Recent research indicates that these dimensions may influence performance differently across industries and contexts, challenging the assumption of EO as uniformly beneficial (Cui et al., 2018; McKenny et al., 2018). Contingency Theory and the Resource-Based View (RBV) explain this relationship: EO contributes to BP only when a firm's strategic posture aligns with environmental conditions and resource endowments (Escobar & Vredenburg, 2011; Pertusa-Ortega et al., 2010). In high-tech sectors, where uncertainty is high and innovation cycles are rapid, EO dimensions such as innovativeness and pro-activeness strongly enhance performance. In contrast, traditional sectors with slower technological change and resource constraints may experience attenuated EO effects, as strategic initiatives must align with available resources, market norms, and institutional support.

A growing stream of literature also highlights the contextual nature of the EO-performance relationship. Developed economies, such as the United States, the United Kingdom, and countries in Western Europe, benefit from strong institutional infrastructures, robust innovation systems, and predictable regulatory environments that enhance EO effectiveness (Wales et al., 2021). Conversely, developing and emerging economies often display institutional voids, resource constraints, informal market dominance, and weaker innovation ecosystems, which can alter the strength and direction of EO effects (Cao et al., 2021). This variation highlights the premise of contingency theory and the resource-based view (RBV), which suggests that firm performance outcomes depend on contextual fit between strategic posture and environmental conditions (Pertusa-Ortega et al., 2010).

The difference between high-tech and traditional (low-tech) sectors adds another important layer to this contextual debate. High-tech firms operate under conditions of high uncertainty, rapid knowledge obsolescence, and intense global competition,

making EO particularly relevant in shaping performance outcomes (Liu & Wang, 2022). Empirical evidence shows that EO has stronger performance effects in high-tech settings than in traditional sectors (Rauch et al., 2009). Yet recent studies hint that individual EO dimensions may operate differently depending on technological intensity (Lumpkin & Pidduck, 2021). For example, innovativeness may drive performance strongly in resource-scarce environments, while pro-activeness and risk-taking may require institutional support that is often absent in developing contexts. Despite these insights, comparative empirical evidence across high-tech and traditional firms in emerging economies remains limited.

This gap is particularly pronounced in Nepal, a developing economy that is undergoing a gradual yet notable entrepreneurial transformation. Over the past decade, Nepal has witnessed a surge in technology start-ups, driven by increasing digital literacy, the expansion of IT education, and the rise of global outsourcing opportunities (Bhul, 2025). Reports indicate that more than 20,000 IT graduates enter the labour market annually, with Kathmandu emerging as a nascent South Asian tech hub (Joshi, 2018). At the same time, Nepal's traditional sectors, such as retail, agriculture, manufacturing, and handicrafts, continue to dominate employment and contribute significantly to GDP, creating a dualistic entrepreneurial landscape characterised by both innovation-led and necessity-driven ventures (Mishra, 2024). Structural challenges, including regulatory unpredictability, limited access to finance, weak R&D infrastructure, and fragmented supply chains, further complicate entrepreneurial activity, making Nepal an ideal context to examine how EO functions under contrasting sectoral conditions.

Despite the growing relevance of entrepreneurship in Nepal, scholarly research on EO has remained fragmented, descriptive, and overwhelmingly focused on general SME behaviours rather than sector-specific comparisons. Most existing studies aggregate EO dimensions and fail to examine their differential performance effects (Lomberg et al., 2017; Soares & Perin, 2020). More critically, no study to date has rigorously investigated whether EO influences performance differently across high-tech and traditional start-ups in Nepal using a multidimensional approach. This omission is significant because EO may not function uniformly across sectors, and strategic orientations that drive performance in high-tech ventures may not yield similar outcomes in traditional sectors. From the above synthesis, the following critical gaps emerge: there is less empirical evidence examining whether EO influences BP differently in high-tech versus traditional start-ups. Likewise, the prior studies have treated EO as a unidimensional construct, overlooking the distinct effects of innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness.

To address this empirical gap, the present study pursues three key objectives: first, to assess and compare the overall levels of entrepreneurial orientation (EO) between high-tech and traditional start-ups in Nepal; second, to examine sectoral differences across the five core dimensions of EO-namely innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness; and third, to

investigate the distinct influence of each EO dimension on business performance, while also determining whether these effects differ significantly between the two start-up sectors.

Thus, this study advances EO theory by demonstrating the performance effects of individual EO dimensions across high-tech and traditional start-up contexts in an emerging economy. It also delivers actionable contributions for policymakers, incubators, investors, and start-up founders by examining EO through multiple dimensions, driving performance in high-tech versus traditional ventures.

LITERATURE REVIEW

This section presents a review of both the conceptual and empirical literature relevant to the study.

Defining Entrepreneurial Orientation: Dimensions and Evolution

EO captures the practices, strategic posture, and decision-making styles that distinguish entrepreneurial firms from their counterparts (Green et al., 2008; Lyon et al., 2000). Traditionally, EO has been conceptualised through three core dimensions (Huang et al., 2023):

- **Innovativeness**: a firm's propensity to engage in novel ideas, products, or processes;
- **Pro-activeness:** the tendency to anticipate future market opportunities and act ahead of competitors; and
- **Risk-taking**: the willingness to commit significant resources to ventures with uncertain outcomes.

Over time, scholars have proposed a five-dimensional EO framework, adding (Zhang et al., 2014).

Competitive Aggressiveness: the intensity of efforts to outperform rivals in the marketplace; and

Autonomy: the independent initiative and discretion exercised by individuals or teams in pursuing entrepreneurial activities

Recent evidence indicates that this multidimensional EO construct exhibits stronger and more consistent relationships with firm performance than the traditional three-dimensional model (Lin & Chung, 2023). The addition of competitive aggressiveness and autonomy is particularly relevant in contemporary business environments, characterised by hyper-competition, technological disruption, and algorithm-driven decision-making, where decentralised decision-making and proactive rivalry strategies can drive superior outcomes (Dzreke & Dzreke, 2025).

Entrepreneurial Orientation and Performance in High-Tech vs Traditional Firms Studies by Reshi et al. (2025) and Chowdhury and Audretsch (2021) show that the effects of EO differ in different industrial settings. EO characteristics like innovativeness, pro-activeness, and risk-taking are substantially linked to better performance results in high-tech industries, which are marked by fast innovation, technological unpredictability, and worldwide rivalry. Businesses in these situations gain from using EO to identify opportunities, try out cutting-edge solutions, and react fast to changes in the market (Cammarano et al., 2024). On the other hand, EO might have less pronounced consequences in more conventional industries

like manufacturing, retail, and agriculture (Newbery et al., 2023). The performance payoff of risk-taking and innovation may be limited in certain businesses due to stable market circumstances, slower technical advancement, and a lack of institutional support. Therefore, even if EO is generally advantageous, its scope and functional impact vary depending on the sectoral environment, underscoring the necessity to assess EO-performance correlations independently across traditional and high-tech enterprises.

Measuring Business Performance: A Multidimensional Perspective

The effective measurement of business performance is fundamental for organisational management and strategic decision-making. Traditionally, financial measures such as sales growth, return on assets (ROA), return on investment (ROI), and profitability have been the mainstay (Alhawamdeh & Alsmairat, 2019; Imane & Driss, 2017). However, a broader understanding of firm success has emerged, particularly in the context of the digital economy and evolving stakeholder expectations. Non-financial measures are increasingly recognised as essential, encompassing customer satisfaction, brand equity, innovation velocity, Environmental, Social, and Governance (ESG) performance ratings, digital revenue ratios, user engagement, and network effects (Shah, 2024). The impact of EO is also increasingly evaluated in terms of its contribution to sustainability outcomes and ESG compliance.

Global Insights on Entrepreneurial Orientation and Business Performance

EO has been widely recognised as a critical driver of firm performance, reflecting a firm's strategic posture towards innovativeness, pro-activeness, and risk-taking (Green et al., 2008; Lyon et al., 2000). Meta-analytic evidence demonstrates that EO positively impacts growth, innovation, customer satisfaction, and competitive advantage. A 2025 global meta-analysis encompassing 28 studies and 10,084 firms across North America, Europe, and Asia reported a consistently positive EO-performance link, with effect sizes slightly increasing over the last two decades due to heightened digital competition and global market integration (Pathinettampadiyan & Thavaraj, 2025). The impact is strongest when performance is assessed using multi-dimensional or revenue-based indicators.

EO has been conceptualised both uni-dimensionally, aggregating innovativeness, pro-activeness, and risk-taking into a single measure, and multidimensionally, examining the distinct contribution of each dimension (Green et al., 2008; Lyon et al., 2000). Unidimensional studies, such as Rauch et al. (2009), show significant positive associations with firm performance globally, whereas multidimensional research indicates that each EO dimension may influence outcomes differently depending on contextual factors. For instance, Rigtering et al. (2017) observed that in the United States and Germany, innovativeness had a stronger performance effect than risk-taking, whereas in China and India, risk-taking exhibited stronger influence, reflecting varying institutional support, entrepreneurial culture, and market dynamism.

Recent research increasingly adopts a configurational perspective, recognising that entrepreneurial activities are resource-intensive and context-dependent (Gali et al., 2024). Resource-constrained

firms, particularly SMEs in emerging economies, cannot pursue high levels of innovativeness, pro-activeness, and risk-taking simultaneously, and must strategically configure these activities to optimise performance (Hossain et al., 2022). This approach also accounts for the EO-as-experimentation perspective, where EO can generate both high and low performance outcomes due to the inherent uncertainties of innovation, risk-taking, and proactive opportunity-seeking (Liu & Xie, 2025).

The EO-performance relationship is highly contingent on industrial and regional contexts (Kollmann & Stöckmann, 2014). In high-tech and digital sectors across the United States, South Korea, and Israel, EO–performance correlations are higher, reflecting the benefits of dynamic capabilities that allow firms to sense and seize opportunities rapidly (Pathinettampadiyan & Thavaraj, 2025). By contrast, in traditional manufacturing and retail sectors, correlations are lower, likely due to slower technological adoption, regulatory rigidity, and market maturity. Cross-country studies also highlight the moderating role of national culture: high uncertainty-avoidance societies, such as Japan, exhibit weaker performance gains from risk-taking, whereas low uncertainty-avoidance contexts, such as the U.S. or Israel, amplify EO's benefits (Imane & Driss, 2017).

Furthermore, EO dimensions interact in shaping firm outcomes. Innovativeness often requires complementary pro-activeness and risk-taking, as timely market entry and the uncertainty inherent in innovation jointly determine performance (Kreiser & Davis, 2010). For example, in Scandinavian countries, firms leveraging high innovativeness with measured risk-taking and moderate pro-activeness achieved superior outcomes, while excessive risk-taking without strategic pro-activeness in India and Brazil occasionally resulted in performance volatility (Hossain et al., 2022).

Entrepreneurial Landscape and Performance in Nepal

Nepal's entrepreneurial landscape is characterised by a significant informal sector, encompassing over 70% of the economically active population, which faces numerous challenges, including exploitation and lack of basic rights (Shrestha, 2024). Despite these challenges, Nepal is experiencing a burgeoning start-up ecosystem, with over 1,500 registered start-ups in 2023, a significant increase from 300 in 2015 (Digo, 2025). This growth is bolstered by a robust talent pool of IT graduates and rapid digital transformation. Prominent high-tech start-ups include Programiz, eSewa, Khalti, Vairav Technology, Naxa, and Upaya: CityCargo. Concurrently, traditional sectors offer inherent stability and potential for enhanced profitability through strategic digitalisation and process automation.

Research in Nepal indicates that EO and its various dimensions are significant factors in increasing the profitability of women-owned enterprises, with innovativeness being particularly crucial (Bhandari et al., 2022; Kathayat et al., 2023). However, women entrepreneurs face a multitude of challenges across personal, social, financial, and governmental spheres, including patriarchal norms, limited property ownership, and bureaucratic hurdles (Bhandari & Amponstira, 2020).

Nepal's informal sector, while dominant, is plagued by a lack of formal contracts,

uncertain wages, and high tax rates that discourage formalisation (Adhikari & Raut, 2024). Social enterprises in Nepal, driven by social motives, face challenges related to understanding, institutional support, and funding (Pathak et al., 2018).

Conceptual Framework

The majority of studies approach EO as a unidimensional term and do not differentiate between high-tech and traditional industries, despite mounting evidence on the relationship between EO and performance, especially in emerging economies like Nepal. Although there are still a few empirical studies that directly compare these effects, sector-specific variations in technological intensity, market dynamics, and institutional support imply that EO aspects may function differently across settings. Additionally, there aren't many studies in Nepal that look at how each of the EO dimensions, innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness, affects business success in these disparate industries.

EO represents a firm's strategic posture, reflecting its propensity to engage in innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness (Green et al., 2008; Lyon et al., 2000). While EO has been widely recognised as a key driver of firm performance, emerging research emphasises that its effectiveness is contingent on environmental dynamism and organisational context (Cui et al., 2018). Accordingly, this study draws upon Contingency Theory, the Resource-Based View (RBV), and Dynamic Capabilities Theory to explain how each EO dimension influences start-up performance, particularly across high-tech and traditional sectors in Nepal.

Contingency Theory posits that the impact of strategic orientations such as EO depends on the alignment between firm capabilities and external environmental conditions (Shirokova et al., 2016). High-tech start-ups operate in rapidly changing and uncertain markets characterised by technological disruption and intense competition, whereas traditional start-ups generally face more stable and predictable environments. Thus, the strategic relevance of EO dimensions is expected to differ across these contexts. RBV further suggests that EO dimensions constitute valuable intangible resources, which, when effectively leveraged, enhance competitive advantage (Barney, 1991). Complementing this, Dynamic Capabilities Theory highlights that firms must continuously sense, seize, and transform opportunities to sustain performance in dynamic environments (Teece, 2007), a process facilitated by EO.

Innovativeness, defined as a firm's propensity to develop novel products, services, or processes, enables differentiation and responsiveness to changing market demands. Empirical studies have demonstrated that innovative start-ups achieve superior performance in knowledge-intensive and high-technology sectors (Caloghirou et al., 2014; Khalimova, 2023). High-tech firms, equipped with advanced capabilities and access to technological resources, can translate innovativeness into higher performance outcomes than traditional firms constrained by resource and skill limitations. Therefore:

H_1: Innovativeness is positively associated with business performance, with a stronger effect in high-tech start-ups than traditional start-ups.

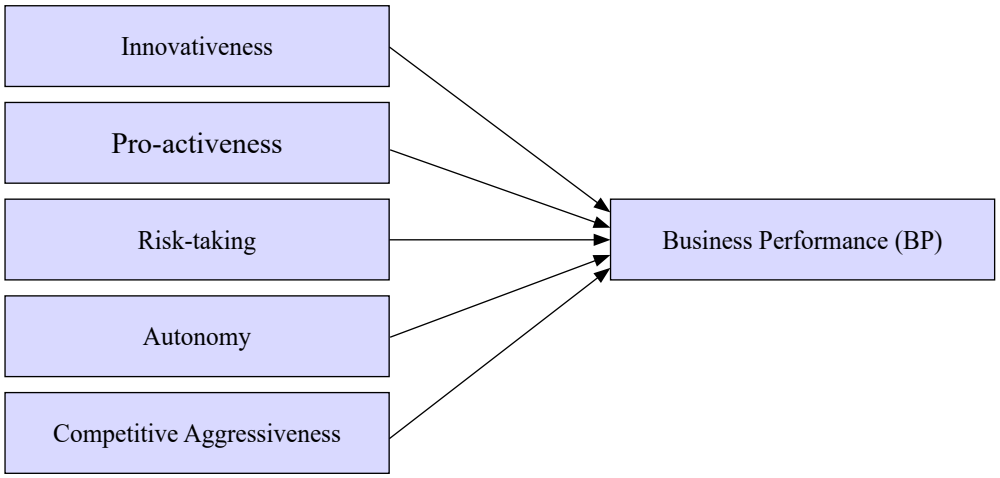

Figure 1. *Conceptual Framework*

Pro-activeness reflects the tendency to anticipate market opportunities and launch initiatives ahead of competitors. In dynamic sectors, proactive firms gain first-mover advantages, enhancing market share and profitability (Flor & Mortizen, 2020; Lumpkin & Dess, 2001). The high uncertainty of high-tech markets amplifies the value of proactive strategies, whereas traditional start-ups often adopt reactive approaches due to stable demand conditions. Accordingly:

H_2: Pro-activeness is positively associated with business performance, with a stronger effect in high-tech start-ups than in traditional start-ups.

Risk-taking denotes the willingness to commit resources to ventures with uncertain outcomes. While risk-taking can lead to superior returns by enabling firms to exploit new opportunities, it also entails potential failure (Tsai & Fang, 2023). High-tech start-ups are better positioned to manage risks due to access to specialised resources, technological expertise, and external networks, whereas traditional start-ups are more vulnerable to adverse outcomes (Mazzoni & Innocenti, 2024). Thus:

H_3: Risk-taking is positively associated with business performance, with a stronger effect in high-tech start-ups than in traditional start-ups.

Autonomy, or the extent of independent decision-making granted to individuals or teams, enhances creativity, innovation, and responsiveness (Wales et al., 2023). High-tech start-ups, often operating in decentralised structures, leverage autonomy to accelerate experimentation and implementation, whereas traditional start-ups with hierarchical control experience slower decision cycles (Lafleur, 2023). Consequently:

H_4: Autonomy is positively associated with business performance, with a stronger effect in high-tech start-ups than in traditional start-ups.

Competitive aggressiveness captures the intensity with which firms challenge competitors to achieve market leadership (Kakeesh et al., 2024). In high-tech industries

characterised by rapid innovation cycles, aggressive market strategies are crucial for sustaining competitive advantage (Wales et al., 2023; Rauch et al., 2009). Traditional firms, operating in stable markets, often prioritise operational continuity over aggressive competitive moves. Hence:

H_5: Competitive aggressiveness is positively associated with business performance, with a stronger effect in high-tech start-ups than in traditional start-ups.

RESEARCH METHODS

This study adopted a cross-sectional survey design to examine whether EO influences business performance differently across high-tech and traditional start-ups in Nepal. Given the study's focus on founders' strategic and behavioural orientations, the cross-sectional approach allowed for capturing perceptions at a specific point in time while providing insights into sectoral differences in EO configurations. Complementing the quantitative analysis, an open-ended qualitative component was included to explore founders' perspectives on entrepreneurial practices and their impact on BP, thereby enriching the rigor and depth of the findings. The target population comprised founders and co-founders of high-tech and traditional start-ups operating both within and outside the Kathmandu Valley. A purposive sampling technique was employed to ensure that the respondents were founders or co-founders of active start-ups in either high-tech or traditional sectors. This method was chosen because the study specifically investigates founder-level strategic behaviours and their effect on performance, which requires targeting individuals with first-hand decision-making experience. Purposive sampling also ensured representation across both sectors (108 high-tech and 107 traditional start-ups), thereby supporting comparative analysis of EO-performance relationships. Data were collected over two months (July-August 2025) via an online questionnaire distributed through Google Forms, reflecting the logistical and temporal constraints of reaching geographically dispersed start-ups.

Before full-scale administration, a pilot study with 30 respondents was conducted to validate the clarity, reliability, and contextual relevance of the survey instruments. Ethical considerations, including voluntary participation, confidentiality, and informed consent, were strictly observed throughout the data collection process. All constructs were measured using five-point Likert scales (1 = strongly disagree; 5 = strongly agree).

Entrepreneurial Orientation (EO): Innovativeness, risk-taking, and pro-activeness were each measured using a three-item scale adopted from Covin and Wales (2019, 2012), capturing firm-level entrepreneurial behaviours.

Competitive Aggressiveness (CA): Measured with a five-item scale adapted from Lumpkin and Dess (1996) and Dafel (2012), reflecting the intensity of efforts to outperform rivals in operational practices.

Autonomy (JOA): A nine-item scale divided into three dimensions: work methods, scheduling, and decision criteria, was used, based on Breaugh (1985), to assess the degree of independence granted to employees in executing tasks. JOA included 9 items.

Business Performance (BP): Operationalized using three indicators, profitability, market share, and growth, following Darroch (2005), to capture multi-dimensional performance outcomes.

Quantitative data were analysed, employing both descriptive statistics and inferential statistics, to assess relationships between EO dimensions and business performance across high-tech and traditional start-ups. The qualitative component involved analysing responses to open-ended questions, which were included to explore founders' narratives on entrepreneurial practices, strategic decision-making, and contextual challenges. Specifically, after completing the structured Likert-scale items, respondents were asked an open-ended question designed to capture their perspectives on factors influencing start-up performance, strategic decision-making, and sector-specific challenges. This design ensures that the qualitative insights are directly linked to the quantitative measures of EO and business performance, allowing for triangulation of findings at the individual founder level and enhancing the validity of the results. In addition, it was not a mandatory question for all the respondents. A thematic analysis was employed to identify recurring patterns and sector-specific differences, enhancing interpretive richness and providing human-centred insights that complemented the quantitative findings.

DATA ANALYSIS AND DISCUSSION

This section analyses the data and discusses the key findings.

Socio-Demographic Profile of Respondents

The sample consists of 215 start-ups across Nepal, with a mean age of 4.1 years of establishment, indicating a relatively young entrepreneurial population. Male start-up founders significantly dominated the sample (64%), whereas the sample was evenly distributed, with 51% located in Kathmandu Valley (Kathmandu, Bhaktapur, and Lalitpur) and 49% representing outside the Valley. Likewise, most of the start-ups used in the study were formally registered (62%).

Comparative Descriptive Analysis on Entrepreneurial Orientation across High-Tech and Traditional Start-ups

The finding demonstrated that high-tech start-ups exhibited a considerably stronger profile than traditional start-ups. All five dimensions of EO, i.e., innovativeness, risk-taking, pro-activeness, autonomy, and competitiveness, received higher scores in high-tech ventures, reflecting a more

Table 1
Demographic Profile of the Respondents

Demographic Profile	Category	Frequency	Percentage
Start-up Age (years)	Mean: 4.1 Years; SD: 2.6		
Founder Gender	Male	138	64
	Female	77	36
Location	Kathmandu Valley	110	51
	Outside the Kathmandu Valley	105	49
Formalisation Status	Formally Registered	133	62
	Partially / Informally Operating	82	38

Note. From the authors' survey (2025)

Table 2
Comparative Descriptive Analysis

EO Dimension	High-Tech (Mean)	Traditional (Mean)	Difference
Innovativeness	4.32	3.11	Large
Risk-taking	4.01	3.28	Moderate
Pro-activeness	4.45	3.67	Moderate
Autonomy	3.92	3.19	Small
Competitive Aggressiveness	4.12	2.85	Large

Note. From the authors' survey (2025)

Table 3
Sectoral Differences in Entrepreneurial Orientation

EO Dimension	t-value	p-value	Effect Size (Cohen's d)	Interpretation
Innovativeness	7.86	<0.001	1.11	Large, meaningful difference
Risk-taking	4.13	<0.001	0.58	Moderate difference
Pro-activeness	5.47	<0.001	0.77	Strong difference
Autonomy	3.01	0.003	0.42	Small but relevant difference
Competitive Aggressiveness	8.45	<0.001	1.17	Very strong difference

Note. From the authors' survey (2025)

dynamic, opportunity-driven, and growth-oriented entrepreneurial culture. The pattern revealed that high-tech start-ups are more innovative, proactive, and competitively aggressive, and they tend to take calculated risks and encourage autonomy in decision-making. In contrast, traditional start-ups demonstrated moderate to low levels of EO, indicating more cautious approaches and less emphasis on competitive strategies or innovation.

Independent Sample t-Test: Sectoral Differences in Entrepreneurial Orientation

The independent sample t-test revealed a significant difference among the five dimensions of EO between high-tech and traditional start-ups. Innovativeness and competitiveness aggressiveness showed the largest sector differences, whereas pro-activeness and risk taking exhibited moderate responses, followed by autonomy, displaying smaller but meaningful differences between high-tech and traditional start-ups. Thus, findings revealed that high-tech start-ups demonstrate a significant EO, especially in the innovation and market competitiveness dimension.

Correlation, R^2, and VIF of EO Dimensions with Business Performance

The correlation analysis revealed that all five dimensions of EO are positively associated with BP, but their strength differs significantly across the sectors. In high-tech start-ups, all the dimensions correlate significantly with performance, but innovativeness (r =

Table 4
Correlation analysis with VIF of EO Dimensions

EO Dimension	High-Tech (r)	Traditional (r)	VIF	Notes on Significance
Innovativeness	0.64**	0.36*	2.11	Strong, positive correlation
Risk-taking	0.51**	0.28*	1.89	Moderate, positive correlation
Pro-activeness	0.59**	0.42**	2.04	Strong, positive correlation
Autonomy	0.33*	0.27*	1.72	Small but meaningful correlation
Competitive Aggressiveness	0.47**	0.21 (n.s.)	2.25	Strong in high-tech; weak in traditional

*Note (s): *p < .05, **p < .0; ns: non-significant*

Table 5
R-Square Values

Sector	R^2	Adjusted R^2
High-Tech Start-ups	0.62	0.61
Traditional Start-ups	0.37	0.35

Note. From the authors' survey (2025)

0.64) and pro-activeness (r = 0.59) show the strongest association. In contrast, autonomy shows the lowest correlations (r = 0.33).

While in traditional start-ups, the correlation values are generally lower in comparison to high-tech start-ups. Pro-activeness (r = 0.42) and innovativeness (r = 0.36) emerged as the most influential dimensions, whereas competitiveness and aggressiveness (r 0.21) exhibited a weaker and non-significant association with performance.

Collectively, in high-tech start-ups, EO dimensions accounted for 62% of performance variations, whereas in traditional start-ups, they accounted for 37% of performance variance, highlighting that EO has a significant impact on business performance in technology-driven ventures. Likewise, the VIF scores were below the threshold value of 3, indicating no multicollinearity issues among EO dimensions, emphasising that each EO dimension contributes independently.

Hypothesis Testing: Multiple Regression Analysis of EO on Business Performance

A multiple regression analysis with sector variables as a dummy (High-tech = 1, Traditional = 0) was used to examine whether the effect of EO dimensions differs by start-up type or not. The regression model is expressed as:

Among the five dimensions of EO, innovativeness ($\beta = 0.41$, $p < .001$) emerged as the strongest predictor, followed by pro-activeness ($\beta = 0.24$, $p = .009$) and Risk-taking ($\beta = 0.19$, $p = .021$). In contrast, autonomy ($\beta = 0.00$, $p > 0.05$) and competitive aggressiveness ($\beta = 0.00$, $p > 0.05$) did not show independent impact in the combined model, despite having significant sectoral differences in the descriptive test.

Table 6
Multiple Regression Analysis

EO Dimension	Beta Value	Std. Error	p-value	Interpretation	Rank
Innovativeness	0.41	0.07	<0.001	Strongest predictor	1
Pro-activeness	0.24	0.09	0.009	Statistically significant, moderate effect	2
Risk-taking	0.19	0.08	0.021	Moderate predictor	3
Autonomy	0.00	0.06	>0.05	Not significant	4
Competitive Aggressiveness	0.00	0.07	>0.05	Not significant	5
Sector (High-tech = 1, Traditional = 0)	0.33	0.10	0.001	High-tech amplifies EO impact	—

Note. From the authors' survey (2025)

In addition, sector coefficient (β = 0.33, p = .001) demonstrated that high-tech start-ups experience a higher level of impact of EO on performance in comparison to traditional start-ups. Thus, EO dimension significantly supports business performance in high-tech ventures with a clear hierarchy of influence: Innovativeness > Pro-activeness > Risk-taking > Autonomy > Competitive Aggressiveness.

Qualitative Insights: Open-Ended Responses

To complement the quantitative analysis, an open-ended question was included to explore the factors impacting the start-up performance from the perspective of the founder. Out of 205 respondents, 127 founders filled out the open-ended questions. A thematic analysis was employed to identify the recurring patterns in the response.

Theme 1: Innovation & Opportunity-Seeking: High-tech entrepreneurs placed a strong emphasis on market research and product and service innovation, emphasising proactive R&D spending, experimenting with cutting-edge technology, and ongoing market opportunity analysis. As one founder explained, "*We invest heavily in R&D to create unique software solutions.*" In contrast, traditional start-ups reported incremental innovation and a reliance on existing markets: "*We occasionally try new product ideas but mostly follow market trends*." This theme highlights the sectoral divide, with high-tech firms exhibiting greater EO impact than traditional businesses, and supports innovativeness as the strongest quantitative predictor.

Theme 2: Proactive Strategy & Risk Engagement: In order to support growth and competitive advantage, high-tech companies acknowledged being proactive in predicting client demands and taking measured risks: "*We anticipate client needs and launch features before competitors,*" and "*Taking calculated risks in product development is essential for growth.*" In contrast, traditional start-ups relied on reactive and low-risk incremental approaches: "*We avoid high-risk ventures; most decisions are incremental.*" This theme demonstrates how sectoral variations in EO orientation have a direct impact on business performance results and are closely related to pro-activeness and risk-taking.

Table 7
Thematic Analysis of Open-Ended Responses by Sector

Theme	Sub-Theme	Keywords	High-Tech Start-ups (Quotes)	Traditional Start-ups (Quotes)
Innovation & Opportunity-Seeking	Product/Service Innovation	New Product, R&D, Creativity, Innovation	"We invest heavily (…..) in R&D to create unique (….) software solutions."	"We occasionally try new product ideas (….) but mostly follow market trends (….)"
	Market Exploration	Opportunity, Emerging Markets, Research	"We constantly explore emerging markets (….) and technologies."	"We rely on our existing customer base (….) market research is limited (….)"
Proactive Strategy & Risk Engagement	Market Anticipation	Proactive, Planning, Customer Needs	"We anticipate client needs (….) and launch features (….) before competitors."	"We respond to customer requests (….) reactively rather than proactively."
	Calculated Risk-Taking	Decision-making, Strategy, Risk	"Taking calculated risks (….) in product development is essential (….) for growth."	"We avoid high-risk ventures (…..) most decisions are incremental."
Organisational Culture & Autonomy	Decision-Making Freedom	Leadership, Empowerment, Autonomy	"Teams have autonomy in technical decisions (….), which boosts innovation."	"Final decisions are mostly centralised (….) with the founder."
	Team Responsibility	Accountability, Roles, Collaboration	"Employees are empowered (….) to manage small projects (….) independently."	"Roles are rigid (….) and hierarchical; limited autonomy."
Competitive Drive & Market Aggression	Benchmarking	Aggressiveness, Competitor Analysis	"We track competitors closely (….), adjust our offerings accordingly."	"We focus on maintaining steady operations (….) rather than aggressive competition."
	Strategic Marketing	Promotion, Visibility, Marketing,	"Aggressive marketing campaigns (….) differentiate us in the crowded tech sector."	"Marketing is mostly passive (…..); we rely on word-of-mouth."

Theme 3: Organisational Culture & Autonomy: The founder of high-tech start-ups emphasises teamwork and decision-making autonomy, enabling employees to make their independent choices: "*Teams have autonomy in technical decisions, which fosters innovation.*" Traditional start-ups stressed rigid hierarchies and centralised control: "*Final decisions are mostly centralised with the founder.*" The theme suggests that, especially in high-tech environments, autonomy may interact with other EO dimensions or have an indirect impact on performance.

Theme 4: Competitive Drive & Market Aggression: Strategic marketing efforts and diligent competition monitoring were reported by high-tech start-ups, highlighting aggressive methods to sustain market leadership: "*We track competitors closely and adjust our offerings accordingly,*" and "*Aggressive marketing campaigns differentiate us in the crowded tech sector.*" Traditional start-ups prioritised steady operations with minimal competitive aggression: "Marketing is mostly passive; we rely on word-of-mouth." Competitive Aggressiveness's influence may be context-dependent, substantial in day-to-day operations, but not independently predictive when other EO aspects are taken into account.

Discussions

This study examined whether EO influences business performance differently across high-tech and traditional start-ups in Nepal. Drawing upon Contingency Theory, the Resource-Based View (RBV), and Dynamic Capabilities Theory, the study aimed to understand how five EO dimensions, innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness, affect start-up performance and whether these effects differ across sectors. The findings provide both quantitative and qualitative evidence of significant sectoral differences in EO, revealing critical patterns that align with theoretical expectations while highlighting the contextual realities of Nepali start-ups.

High-tech start-ups consistently exhibited stronger EO profiles across all five dimensions compared to traditional start-ups. Innovativeness and competitive aggressiveness showed the largest sectoral differences, followed by pro-activeness, risk-taking, and autonomy. This pattern aligns with prior research suggesting that technology-intensive firms are inherently more dynamic, opportunity-driven, and growth-oriented (Al-Mamary & Alshallaqi, 2022; Lumpkin & Dess, 1996). In the Nepali context, high-tech start-ups operate in rapidly evolving digital markets with higher competitive pressures and greater opportunities for technological differentiation, whereas traditional start-ups remain constrained by resource limitations, conservative market structures, and incremental innovation approaches. Thematic qualitative insights corroborate these findings, indicating that high-tech founders prioritise proactive investment in research and development, exploration of emerging markets, and innovative product development, whereas traditional entrepreneurs predominantly depend on established customer bases and reactive decision-making practices

Innovativeness emerged as the strongest predictor of performance in high-tech start-ups. This aligns with RBV, which posits that firm-specific capabilities, such as innovation, function as strategic resources conferring sustainable competitive advantage (Chen et al., 2025). High-tech ventures leverage

innovative practices to differentiate their offerings, respond rapidly to evolving customer needs, and capture emerging market opportunities (Flor & Mortizen, 2020; Lumpkin & Dess, 2001; Madanchian & Taherdoost, 2025). Traditional start-ups also benefit from innovativeness, but the effect is weaker, reflecting resource scarcity and lower technological intensity in non-tech sectors. Qualitative findings corroborate this, highlighting that high-tech entrepreneurs systematically invest in product and service innovation, whereas traditional founders primarily engage in incremental adjustments to existing offerings.

Pro-activeness was a significant predictor of performance in high-tech start-ups, consistent with Dynamic Capabilities Theory, which emphasises the ability to sense and seize opportunities in volatile markets (Caloghirou et al., 2014). High-tech founders proactively anticipate client needs, launch features ahead of competitors, and monitor emerging trends, thereby sustaining performance and market relevance (Flor & Mortizen, 2020; Lumpkin & Dess, 2001). In traditional start-ups, pro-activeness remains positively associated with performance but less pronounced, reflecting slower decision-making processes and reactive market approaches. These sectoral distinctions highlight the importance of environmental fit in determining EO effectiveness, consistent with Contingency Theory (Donaldson, 2001; Gartner & Liao, 2012).

Risk-taking positively influenced performance in both sectors, with a stronger impact in high-tech start-ups (Tsai & Fang, 2023). High-tech firms engage in calculated risk-taking, including experimental product development and market entry strategies, which enhance competitive positioning (Gartner & Liao, 2012; Mazzoni & Innocenti, 2024). In contrast, traditional start-ups adopt low-risk incremental strategies, reflecting resource constraints and limited market volatility. These findings resonate with Contingency Theory, suggesting that the benefits of risk-taking are contingent on organisational capabilities and environmental demands.

Autonomy and competitive aggressiveness, although significantly higher in high-tech start-ups, did not independently predict performance in the regression analysis (Lafleur, 2023; Wales et al., 2023). Qualitative evidence indicates that autonomy fosters innovation and decision-making flexibility, while competitive aggressiveness enhances market responsiveness when combined with innovativeness and pro-activeness. This suggests an indirect or interactional role for these dimensions, consistent with configurational perspectives on EO (Wales, 2016) and Dynamic Capabilities Theory, which posit that organisational structures and competitive behaviours amplify the effects of other strategic capabilities.

The findings closely reinforce Contingency Theory, RBV, and Dynamic Capabilities Theory, demonstrating that the performance effects of EO are context-dependent, with high-tech start-ups benefiting more strongly from innovativeness, pro-activeness, and calculated risk-taking due to their dynamic environments and capability-based advantages.

Nepalese high-tech start-ups exemplify dynamic, growth-oriented cultures that prioritise innovation, opportunity-seeking, and proactive strategies, while traditional start-ups rely on conservative, incremental approaches. Resource limitations,

infrastructural constraints, and market conservatism shape traditional ventures' EO adoption, explaining sectoral differences.

CONCLUSION AND IMPLICATIONS

The findings of this study indicate that EO exerts a differential impact on business performance across high-tech and traditional start-ups in Nepal. High-tech start-ups demonstrate a stronger EO profile across all five dimensions: innovativeness, pro-activeness, risk-taking, autonomy, and competitive aggressiveness, translating into greater performance gains compared to traditional start-ups. Innovativeness emerged as the most influential driver, followed by pro-activeness and risk-taking, highlighting that the ability to generate new ideas, anticipate market opportunities, and take calculated risks is crucial for high-tech start-up success. Autonomy and competitive aggressiveness, while significant in descriptive comparisons, appear to have indirect effects on performance, suggesting their influence is contingent upon other EO dimensions. Collectively, the results convey that the effectiveness of EO is context-sensitive, reinforcing the relevance of Contingency Theory, RBV, and Dynamic Capabilities Theory. The key takeaway is that entrepreneurial capabilities must be strategically aligned with sector-specific opportunities and resource conditions. For Nepal, this implies that high-tech ventures benefit from proactive, innovation-driven practices, while traditional start-ups may require structural support, capability building, and market exposure to leverage EO effectively. These findings emphasise that sectoral context is a critical determinant of EO's performance impact.

The study reinforces Contingency Theory by demonstrating that the influence of EO on performance is context-dependent, varying significantly across high-tech and traditional start-ups. It also substantiates RBV and Dynamic Capabilities Theory, showing that innovation, pro-activeness, and risk-taking act as firm-specific capabilities that enable competitive advantage and adaptive responses in dynamic environments. The findings extend EO literature by highlighting sectoral insights in emerging economies like Nepal.

Entrepreneurs should prioritise innovativeness, pro-activeness, and risk-taking to enhance performance, particularly in high-tech start-ups. Structured autonomy and competitive aggressiveness can be leveraged in combination with core EO dimensions to optimise outcomes. Traditional start-ups can improve performance by investing in incremental innovation, market sensing, and calculated risk strategies. These insights provide practical guidance for policymakers, investors, and entrepreneurs seeking to foster start-up performance across diverse sectors in Nepal, emphasising the importance of aligning EO practices with sector-specific capabilities and environmental demands.

Policymakers and incubation centres in Nepal should design sector-specific support programs, such as R&D grants, technology access, and training interventions that encourage EO practices. High-tech-focused incentives and capacity-building initiatives can accelerate growth, while traditional start-ups may benefit from advisory services, networking opportunities, and risk-mitigation frameworks. This differentiated approach ensures that entrepreneurial potential is maximised across sectors.

Despite its contributions, this study has limitations. First, the cross-sectional design restricts causal inferences regarding EO and performance relationships. Longitudinal studies could better capture dynamic interactions over time. Future research could include multi-stakeholder perspectives, such as employees and investors, to triangulate findings. Additionally, examining moderating factors such as resource availability, market volatility, or cultural influences could provide a deeper understanding of how EO dimensions translate into performance outcomes. Investigating interaction effects among EO dimensions and exploring the role of digital transformation or internationalisation may further enhance the applicability of EO frameworks across diverse start-up ecosystems.

Funding

The authors declared that they received no funding or financial support in carrying out the research.

Conflict of interest

The authors declared having no conflict of interest in the research work

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