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AI Empowerment and Decision Intelligence: A Business Analytics Approach to Gen Z-Led SMEs.

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Abstract

The purpose of this study is to examine factors affecting decision making performance in the field of AI and technology adoption among Gen Z-led small and medium enterprises (SMEs). A cross-sectional, quantitative study aligned with the positivist paradigm and hypothetical-deductive reasoning. A sample of 286 respondents were selected using a stratified random sampling method. It was collected through structured questionnaires on study variables and analysed using Python Matplotlib and SPSS v25 through hierarchical multiple regression. The results show that all five hypotheses are significantly and positively associated with decision-making performance, and the largest standardized coefficient is for entrepreneurial flexibility. These results emphasise the need for both technological readiness and entrepreneurial characteristics to improve decision making in Gen Z SMEs. The present study adds to the emerging body of knowledge on digital entrepreneurship by combining insights from the behavioural and technological perspective. The study stands out because of its emphasis on the Gen Z entrepreneurs operating in an SME sector characterized by high digital penetration and innovation and is based on how the adoption of AI influences strategic decision-making. We incorporated California-specific responsible AI considerations like CCPA compliance along with transparency and explainability.

Keywords: *Gen Z Entrepreneurs, AI Integration, Decision-Making Performance, SMEs, Entrepreneurial Behaviour, USA.*

1. Introduction

The rapid technological progress of the past years, which has led to the incorporation of advanced tools like artificial intelligence (AI) into day-to-day business practices, has reshaped how entrepreneurs think about decision making, operations management, and value creation for customers (Leoni et al., 2024; Kanellopoulou et al., 2025; Sharma et al., 2026). In the course of industries going through digital transformation in the 4th industrial revolution, to stay agile SMEs are looking to reduce uncertainty and using AI tools to improve the quality of strategic decision making (Sosunova et al, 2024). The defining characteristic of entrepreneurship at the grassroots level is also one of technological disruption from the

previous times confined to the large organizations. Among these new-age leaders, Generation Z (Gen Z), the group born between 1997 and 2012; constitute a group of digital natives with an entrepreneurial spirit, changing the business landscape with their technological mindsets and fluency (Rusthollkarhu et al., 2022; Bonsón et al., 2023; Chugh & Jain, 2024; Zerine et al., 2025).

Gen Z entrepreneurs who have been raised in an environment specifically characterized by smartphones, cloud computing, and algorithmically driven digital platforms, would instinctively look for ways to incorporate new emerging technologies into their business models (Bonsón et al., 2023). Little wonder then, their increased familiarity with digital tools and social media ecosystems allow them to be candid with the adoption of AI-enabled analytics, automation systems and intelligent decision-support mechanisms (Anuradha &Sailaxmi, 2024). Although there is a basic instinct that socio-technological factors can impact entrepreneurial behaviours positively (Thompson et al., 2023), prior research investigating the linkage between AI usage and entrepreneurial behaviour among SMEs run by Gen Zs is scarce, particularly in terms of evidence-based studies (Kulkarni et al., 2024; Polas et al., 2025).

This study addresses the incumbent question of understanding how the integration of AI technologies, when interlinked with generative human and organizational factors, impacts decision-making performance within Gen Z- led SMEs. While existing research has focused on AI implementation in large firms and traditional SMEs, few studies have explored this phenomenon from the context of youth-led ventures, in which agility, adaptability, and motivation serve as crucial behavioural characteristics (Mariani et al., 2023; Kulkarni et al., 2024). Moreover, many scholars discursively separate constructs such as entrepreneurial commitment (Liang et al., 2021), motivation (Stepp et al., 2022), flexibility (Wang et al., 2021) and leadership support (Mogollon et al., 2022) while they jointly shape decision-making effectiveness (Polas et al., 2022; Gupta & Jaiswal, 2025).

While relevant globally, the study is particularly timely in California given its rapid digitalization, powerful innovation ecosystems, and entrepreneurial initiatives promoted by the government that are resulting in a proliferation of Gen Z-initiated SMEs (Mariani & Borghi, 2024). California is one of the largest technology hubs in the world, which provides plentiful opportunities, but also competition, resource limitation, and market volatility that forces young entrepreneurs to make rational, data-driven decisions (Polas et al., 2022; Kapoor, 2024). However, despite these opportunities and challenges, there is little research that explores how AI technologies are shaped by or feed into the behaviour and organisation of Gen Z entrepreneurs operating in this high-density digital innovation environment.

California is a great place to focus on for different reasons, one of them being the perspective it gives you to look at Gen Z SMEs that are adopting AI. Gen Z are an ideal cohort for the study of AI-enabled decision-making (Mondal et al., 2023; Merhi & Harfouche, 2024). In addition, California benefits from an advanced digital infrastructure and the presence of a strong culture of innovation thought to represent an important context for how the meeting of technological and human factors within the entrepreneurial ecosystem take place (Kapoor, 2024).

The purpose of this research focuses on the combined impact of technological and human factors on decision-making performance of Gen Z-led SMEs in California. In particular, it evaluates how the integration of AI, entrepreneurial intensity, the support of leadership, and entrepreneurial agility and motivation affect the decision-making process and its quality. This study is framed by the following research questions:

RQ1: *To what extent does AI integration affect decision-making performance in Gen Z-led SMEs?*
RQ2: *How do entrepreneurial commitment and motivation contribute to decision-making effectiveness?*
RQ3: *What is the role of leadership support and entrepreneurial flexibility in enhancing decision-making performance?*
RQ4: *How do these factors interact to influence decision-making?*

This study is expected to provide theoretical and practical contributions. Theoretically, it enriches the digital entrepreneurship literature by merging AI adoption with key behavioural and organizational constructs, filling the missing gaps in literature related to Technology-driven decision-making for Gen Z entrepreneurs (Kulkarni et al., 2025). In practice, the results provide guidance for policymakers, incubators, educators, and advisers in developing interventions to help young entrepreneurs better

prepare to make decisions, give voice to the benefits of responsible AI use to support creativity, and embed responsible AI into their systems (Mondal et al., 2023; Yang et al., 2024).

The study is limited to Gen Z-led small & medium enterprises in California and the selection of the variables of technology and behaviour with respect to their relevance towards decision-making. What it does not address are the implications of macroeconomic conditions, the sector-specific characteristics, or differences with previous generations of entrepreneurs (Su & Wang, 2025). Although the study applied a cross-sectional quantitative design and hierarchical regression analysis, its approach offers unique empirical insights but fails to consider the contextual or longitudinal dynamics of the phenomena investigated (Osmonbekov et al., 2024; Vomberg et al., 2025).

The rest of this paper is organized as follows. In Section 2, we outline our literature review that covers relevant literature on AI integration, Gen Z entrepreneurship, and decision-making theory and derive our hypotheses. The method including the sampling, the data collection, and the analytical procedures are presented in section 3. Section 4 reports the findings. Section 5 presents the results, and the concluding remarks appear in Section 6, addressing contributions, implications, limitations, and future research directions. This research is timely and relevant as it extends the investigation of technology and human elements affecting decision-making to decision-making by the next generation of entrepreneurs, composed of unique characteristics, residing within California's high-tech, innovation-driven SME landscape.

2. Literature Review and Hypothesis Development

2.1. Theoretical Foundations

This study is built on two established theoretical perspectives: Firstly, the Technology-Organization-Environment (TOE) framework and; secondly, the Theory of Planned Behavior (TPB). Tornatzky and Fleischer's (1990) TOE framework asserts that technological innovations are adopted in firms based upon technological, organizational and environmental characteristics (Gupta & Jaiswal, 2025). In the specific context of highly digital and innovation-centric Gen Z-led SMEs, as in California, these elements may also clarify how and why AI integration becomes possible and substantial. While technological readiness, access to artificial intelligence tools, digital infrastructure, and organizational conditions, entrepreneurial commitment, entrepreneurial flexibility, may aid data-driven decision-making. Environmental factors including mentorship networks, accelerator ecosystems, and leadership support structures further influence how young entrepreneurs conceptualize and enact AI-enabled decision processes.

Whereas the TOE perspective provides the context to explain and anticipate a decision to adopt technology usage, the theory of planned behaviour (TPB) (Ajzen, 1991) supplement the TOE by focusing on the importance of individual behavioural determinants in influencing entrepreneurial decisions. Intentional behaviour, as described by TPB, is motivated by attitudes, perceived behavioural control and subjective norms, all key influencers on Gen Z entrepreneurs, who display high levels of digital confidence, sensitivity to peer networks, and an acceptance of technology-based experimentation (Merhi & Harfouche, 2024). Indeed, such behavioural traits are quite pronounced in the kind of entrepreneurial ecosystem California provides through tech-rich economy and exposure to digital tools to facilitate innovation-orientated communities which makes positive attitudes toward AI adoption.

Overall, the merging of TOE and TPB offers an in-depth insight into the structural and behavioural aspects affecting decision-making performance in SMEs, particularly those led by Gen Z. These frameworks together rationalize the addition of AI integration, entrepreneurial commitment focused, flexibility, motivation and leadership support as important constructs in this research (Rustholkarhu et al., 2022). They also lend weight to examining entrepreneurs within Gen Z, as they are concentrated users of different digital platforms and their behaviours are shaped by personal aspirations, social pressures, and ease of technology adoption (Afrin et al., 2020; Leoni et al., 2024).

2.2. AI Integration and Decision-Making Performance

AI integration is defined as the level of embedding artificial intelligence technologies, e.g., predictive analytics, natural language processing, machine learning and automation within the business process for decision-making (Al-Surmi et al., 2022; Zahaf & Gargouri, 2025) Such technologies help firms to parse through large databases to identify patterns, provide real-time insights and alternative effects, increasing the speed of decision-making while improving the quality of decision-making through higher accuracy and consistency (Bag et al., 2021; Han et al., 2024). Gen Z-led SMEs are especially inclined to making AI a part of their operations because they are digital natives and have a naturally high level of readiness to experiment with technologies (Han et al., 2024; Polas & Jahanshahi, 2025). In California, the birthplace of the most digitized entrepreneurial environment in the world, AI is able to allow budding entrepreneurs to decouple strategy from intuition, with scienced-based decision making enabled by data, not simply gut feel. Faced with restricted access to conventional market intelligence, AI serves as an affordable decision-support tool that stimulates awareness and transparency (Vincent, 2021; Zahaf & Gargouri, 2025).

Outside of aiding with interpretation of data, AI does the heavy lifting of automating mundane tasks and minimizing manual efforts, freeing up mental bandwidth for entrepreneurs to devote to higher-order strategic reasoning. AI tools assist customer segmentation, sales forecasting, risk assessment, all relevant capabilities for SMEs last competing in fast-moving Californian markets (Zahaf & Gargouri, 2025) It is worthwhile to note that prior research suggest positive relationship between AI adoption and organizational agility, responsiveness, and competitiveness (Shrestha et al.2019; Bag et al.2021; Han et al.2024). While many SME sectors are adopting AI, the extent of this adoption differs based on parameters such as cost and complexity, and the level of readiness to benefit from digital skills; but as digital natives, Gen Z entrepreneurs are likely much more suited to adopt and utilise this technology into their businesses. Thus, higher AI integration will be positively related to decision-making performance of Gen Z-led SMEs (Spatola, 2024).

H1: AI Integration has a positive and significant effect on Decision-Making Performance in Gen Z-led SMEs.

2.3. Entrepreneurial Commitment and Decision-Making Performance

Entrepreneurial commitment is the degree of psychological commitment, determination, and continuity an entrepreneur shows to his or her venture (Ruiz-Jiménez et al., 2021; Weerasekara & Bhanugopan, 2023Author,2023; Tsiu et al., 2025). It gives an indication of an entrepreneur seeking to put up with struggles, focus on long game, and be participative in the flight process. This kind of commitment is key to establishing entrepreneurial behaviour, especially in dynamic, competitive business environments (De Winnaar & Scholtz, 2020; Torlak et al., 2022). In decision contexts, greater commitment translates to a sharper strategic focus, more sustained goal pursuit, and greater resilience under pressure. Additionally, they might deliberate on the information they gather, meticulously evaluate the alternatives, and implement their decisions with more lucidity and confidence (Karami & Hossain, 2023). Such individuals often show greater cognitive engagement and strategic discipline, both of which lead to better decision quality and freer from impulsive choice. Resource planning and long-term orientation that are underpinned by commitment (Ruiz-Jiménez et al., 2021), further solidify resource commitment and long-term orientation, and thus, sustainable performance.

As high-digital penetration, innovation-driven SMEs, entrepreneurs from Gen Z face competition, limited resources, and early-stage uncertainty head-on with commitment at a crucial level. Young entrepreneurs have limited access to funds, and the market is also volatile but the high emotional and goal-oriented commitment keeps the young entrepreneurs focused to keep making rational decisions concerning the associated risks (De Winnaar & Scholtz, 2020; Joshi et al., 2022). This task-oriented nature allows them to be resource efficient and retain durability in the context of business threats (Tsiu et al., 2025). Moreover, dedicated commitment to the goal encourages regular evaluation of business goals, acceptance of failure, and continued venture innovation; a recipe for support-oriented decision-making success. Consequently, an entrepreneurial commitment serves as both a motivational and

cognitive resource that correlates positively with decision-making performance at Gen Z-led SMEs (Guzmán et al., 2020; Ruiz-Jiménez et al., 2021).

H2: Entrepreneurial Commitment has a positive and significant effect on Decision-Making Performance in Gen Z-led SMEs.

2.4. Leadership Support and Decision-Making Performance

Leadership support represents access to advice, inspiration, and mentorship from formal or informal leaders, such as co-founders, mentors, team leaders, or institutional advisors (Kundi & Shahid, 2023; Goyal et al., 2024). It includes offering emotional support, strategic direction, feedback, and resource that assist entrepreneurs with being the most informed and confident in their decisions (Nisar et al., 2021; Porter et al. Decisions regarding any aspects of business behaviour are often shaped by leadership support or behaviours, which is important for younger entrepreneurs who may not have extensive experience and who regularly experience uncertainty whilst working in competitive environments (Kundi & Shahid, 2023), and in the case of Gen Z-led SMEs this even more so (e.g. Kundi, Ahmad, & Shahid, 2023). Supportive leaders can provide key insights and problem-solving resources that alleviate cognitive load and perseveration on choice alternatives. It also builds confidence, fosters learning and experimentation. Specifically for Gen Z entrepreneurs, which typically prefer collaboration, mentoring and collective leadership, this type of support helps eliminate uncertainty and execute timely, rational decisions (Liu & Yin, 2023; Porter et al., 2024).

Leadership support has been emphasized as an important factor in entrepreneurship and organization in previous research (Liao & Zhang, 2020; Yang et al., 2023; Chatterjee et al., 2024). Shamim et al. (2020) point out that shared leadership in new ventures increases the quality of strategic decision processes. Leadership thereby promotes entrepreneurial adaptability to make market-aligned decisions whilst market conditions change dynamically (Chatterjee et al., 2024). In addition, effective leadership is positively related with trust, purposeful risk-taking, and innovation; elements that lend themselves to better decision-maker performances (Yang et al., 2023). In a state like California, where our economy is massively driven by competition and innovation, informal leadership networks, mentorship communities, and entrepreneurial support systems are vital. These networks are beneficial for Gen Z entrepreneurs needing tactical advice and strategic guidance. Good leadership facilitates their capacity to control complexity, responsibly assess alternatives and act on resolutions that foster sustainable business growth (Liao & Zhang, 2020; Chatterjee et al., 2024).

H3: Leadership Support has a positive and significant effect on Decision-Making Performance in Gen Z-led SMEs.

2.5. Entrepreneurial Flexibility and Decision-Making Performance

Entrepreneurial flexibility is defined as an entrepreneur capacity to swift in changing conditions, adjust strategies and create new innovate possibilities emerging the challenges and opportunities (Wang et al., 2020; Sikder et al., 2021; Weerasekara & Bhanugopan, 2023). With cognitive flexibility, behavioural openness, and strategic flexibility, such adaptive capabilities are especially salient in volatile, uncertain, complex, and ambiguous (VUCA) contexts (Wang et al., 2023). Flexible entrepreneurs can better manage uncertainty due to changes in business strategies, resources, and emerging technologies such as AI (Adomako & Ahsan, 2022). In decision-making contexts, this dynamism can facilitate responsiveness, creative problem-solving, and the ability to detect opportunities that others do not perceive (Edwin Cheng et al., 2022). It is this responsiveness, be it plan A or plan B, that defines strategic flexibility in entrepreneurs, a trait that lets them change their decision paths on the fly but do it with a focus on long-term business and professional goals. More flexible individuals are also more resilient and make quick, informed decisions stressfully (Chatterjee et al., 2022).

The need for entrepreneurial flexibility is even more pronounced in California which is where Gen Z entrepreneurs are operating and building businesses in an ever-evolving SME ecosystem. Organizations are forced to embrace a continuous ability to adapt given the rapid shifts in customer expectations, the ever-expanding technological transitions, and the fluctuations in their supply chain (Alqahtani & Uslay,

2020; Edwin Cheng et al., 2022). Digital natives in the truest sense, Gen Z entrepreneurs are instinctually outgoing around learning and trial, allowing them to test ever-changing rendering technologies, iterate on various design and development processes, and pivot as per real-time feedback. The development of this behavioural agility enhances their decision-making capabilities and enables strategic alignment and business resilience (Jaradat et al. 2024). In an economy such as that of California, where the focus is on competition and innovation, flexibility remains the cornerstone for retaining significance and addressing changing market needs. Moving the pivoting Entrepreneur one step ahead of the curve from a Marketing Operational or Technological perspective. Consequently, flexibility in entrepreneurship acts as an enabler for quicker, more responsive, and better-informed decision-making, particularly in the context of SMEs driven by Generation Z (Nayal et al., 2022).

H4: Entrepreneurial Flexibility has a positive and significant effect on Decision-Making Performance in Gen Z-led SMEs.

2.6. Entrepreneurial Motivation and Decision-Making Performance

Entrepreneurial motivation is the combination of intrinsic and extrinsic impulses to start and run an enterprise (Murnieks et al 2020; Abrokwah-Larbi & Awuku-Larbi 2024). Intrinsic motivation can involve personal fulfilment, autonomy, creativeness, purpose, extrinsic motivation tied up with financial rewards, social recognition and career advancement (Troise & Tani, 2021; Asad et al., 2024). These drivers of motivation also play a significant role in the shaping of entrepreneurial behaviour in terms of how an entrepreneur perceives problems, discovers opportunities and makes decisions (Ahsan et al., 2021). Highly motivated entrepreneurs exhibit proactiveness, determination, and resilience in decision-making (Burton et al. 2020; Abrokwah-Larbi & Awuku-Larbi 2024). They are more likely to find the pertinent information, analyse alternatives smartly, and make decisions quickly and with confidence. Given that motivation enables navigating vagueness, chasing innovation, and aligning choices with long-term strategic objectives, motivation is closely associated with entrepreneurial performance and orientation (Leicht-Deobald et al., 2022; Asad et al., 2024).

Motivation among Gen Z entrepreneurs in the USA, in turn, typically emerges from the aspiration for autonomy, digital inclusiveness, and a desire to have a positive social impact. Characterised by unprecedented access to technology and exposure to global narratives of entrepreneurship this generation is purpose and profit led (Corrêa et al., 2022; Asad et al., 2024). That drives the experimentation with AI tools, the exploration of new business models, and a willingness to take risks when it comes to making choices. The impact of entrepreneurial motivation on young entrepreneurs' initiative behaviour in their response to market dynamism and technological change in highly competitive and innovation-oriented SME environment in California (Latifah et al., 2021) Go-Getters Among Gen Z Are More Likely to Write Goals, Stay on Track and Leverage Technology to Improve Decision-Making Quality Under Pressure. As such, motivation neither only serves as an energiser for entrepreneurial behaviour but also has a positive relation with a more adaptive and effective decision-making performance (Xing et al., 2022; Asad et al., 2024).

H5: Entrepreneurial Motivation has a positive and significant effect on Decision-Making Performance in Gen Z-led SMEs.

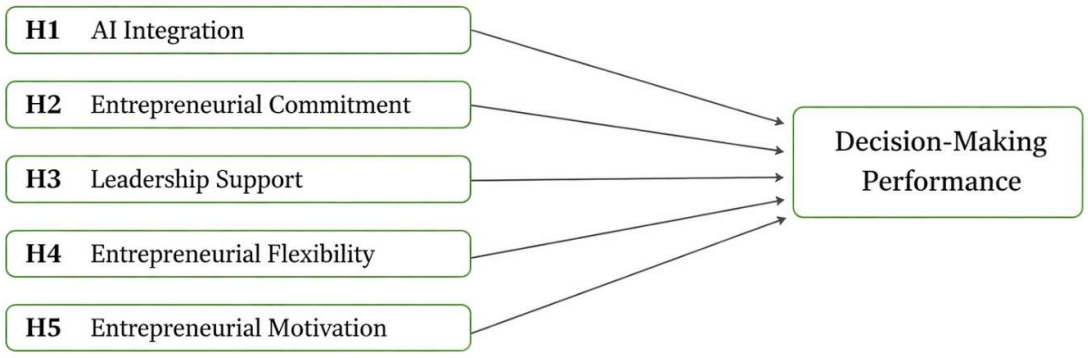


Figure 1: The Framework of the study

3. Methodology of the Study

3.1. Research Design

The study used a quantitative, cross-sectional and explanatory research design to investigate the relationships of AI integration and entrepreneurial behavioural theory on decision-making performance of Gen Z-led small and medium enterprises (SMEs) in California, USA. The quantitative method was a good fit for the hypothesis testing and revealing statistical relationships in the target population. The study was guided by the hypothetico-deductive approach of a positivist paradigm, thus allowing theory-driven hypotheses to be empirically tested by means of structured analyses of the data.

3.2. Sampling and Data Collection

Data was collected through a structured self-administered questionnaire, both through online and face-to-face distribution, between January and March 2025. A pilot test was done, excluding the responses from the final analysis, with 30 Gen Z SME owners to make sure the understanding of the questions was clear and that the tool had reliability. The target population was Gen Z entrepreneurs, aged 18-29 years, who owned SMEs in California (Polas, 2024). In order to facilitate representation across industries and business categories, stratified random sampling technique was employed. We conducted a total of 300 responses, of which 286 were valid after detecting and screening incomplete responses. The sampling frame consisted of entrepreneurs in SME directories and entrepreneurs currently active within local start-up ecosystems. The response rate was 95.33%.

Harman's single-factor test was performed to test common method bias (CMB) according to Podsakoff et al. (2003). The CMB was not a big issue because the first factor explained less than 50% of the variance and all measurement items were inputted into an exploratory factor analysis using unrotated principal component analysis (Polas, 2025). Following Armstrong and Overton (1977), an independent samples t-test was conducted to compare early and late respondents on several key study and demographic variables to assess the potential for non-response bias. There were no significant differences in between the groups ($p > 0.05$) (Polas, 2025), which indicated that non-response bias was unlikely to affect the data.

3.3. Research Instruments

Our instrument contained six main constructs: ai integration, entrepreneurial commitment, leadership support, entrepreneurial flexibility, entrepreneurial motivation, and decision-making performance for the use of the structural questionnaire. The scales were adapted from the validated scales used in previous literature of entrepreneurship or management with slight modifications to fit the context of this study; All constructs were measured using multiple items. To measure AI integration construct, four items adapted from Mikalef et al. (2019). We used four items from Hollenbeck et al. (1989) to measure entrepreneurial commitment construct. In the first set of items labelled Leadership Support construct, which were adapted from Podsakoff et al. (1990). Four items reflected entrepreneurial flexibility construct, adapted from Zhou et al. (2005). To measure entrepreneurial motivation construct, four items were adapted from Robichaud et al. (2021). We measured decision-making performance by using four items adapted from Dean and Sharfman (1996). A 5-point Likert scale was used for all items (1 = Strongly Disagree; 5 = Strongly Agree).

3.4. Data Analysis Techniques

Data analysis was conducted in IBM SPSS Statistics 25. Descriptive statistics were first used to characterise the sample, after which hierarchical multiple regression was applied to examine the association between AI integration, entrepreneurial commitment, leadership support, entrepreneurial flexibility, and entrepreneurial motivation, and decision-making performance, while accounting for demographic controls. This technique was appropriate for assessing statistical relationships and the relative contribution of the predictors within a non-causal research design. Following the methodological cautions noted by Armstrong and Overton (1977), Podsakoff et al. (2003), and Polas (2025), diagnostic checks were

performed for linearity, normality, homoscedasticity, and multicollinearity, with no serious violations detected. Hypotheses were evaluated using standardized beta coefficients, t-values, and p-values. For visual presentation only, the correlation matrix was also displayed as a heat map in Python using Matplotlib, while all substantive statistical analyses were performed in SPSS.

4. Findings and Discussion

4.1. Descriptives and Correlations

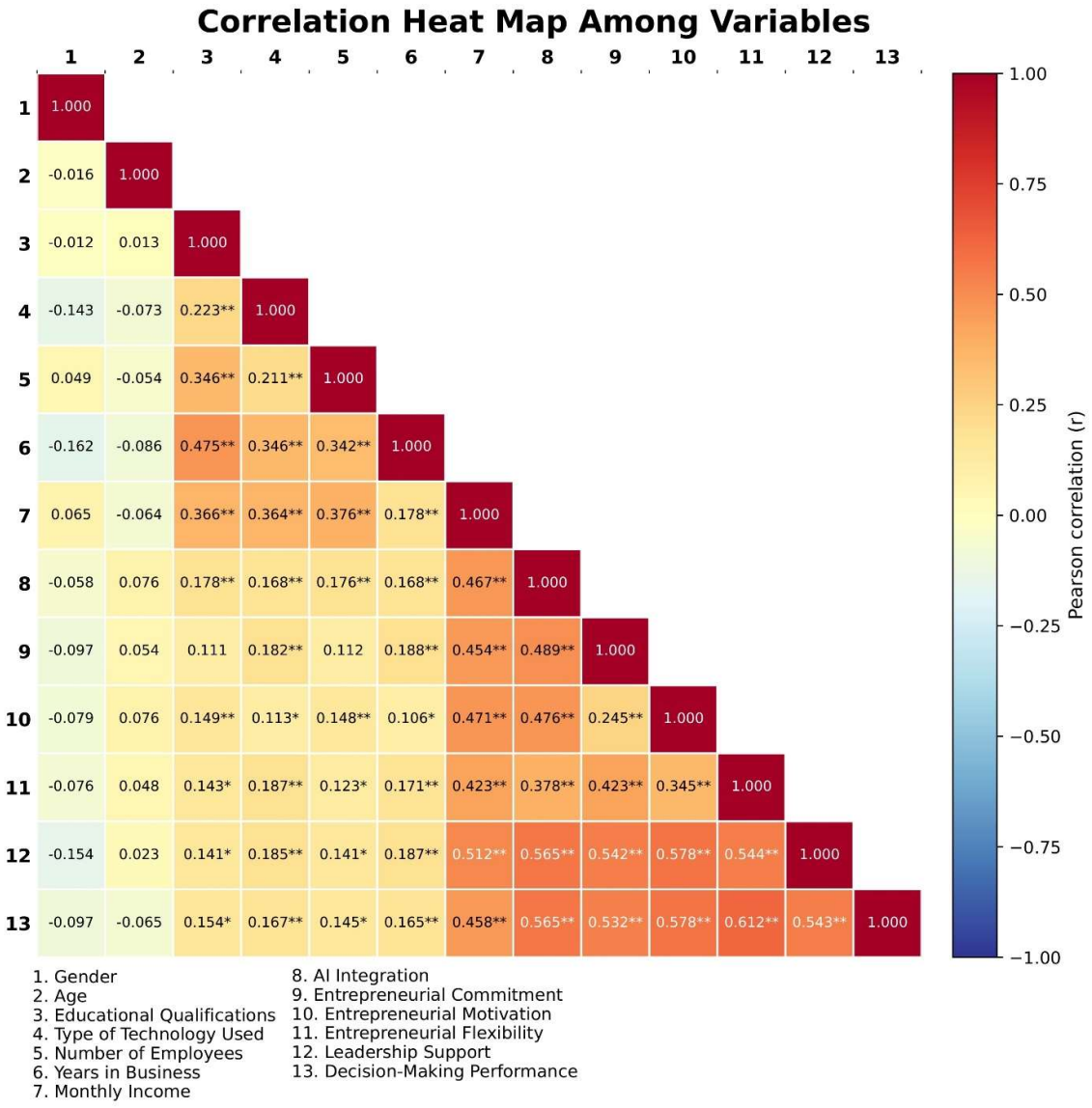
Table 1: Respondent's Demographic Profile

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
Gender			***Number of Employees***		
Male	205	71.68	1 (Only myself)	71	24.83
Female	81	28.32	2 – 5 employees	85	29.72
Age			6 – 10 employees	84	29.37
18 – 20 years	12	4.20	11 – 20 employees	25	8.74
21 – 23 years	105	37.10	More than 20 employees	21	7.34
24 – 26 years	107	37.41	***Years in Business***		
27 – 29 years	55	19.23	Less than 1 year	234	
Prefer not to say	7	2.45	1 – 2 years	146	
Educational Qualifications			3 – 4 years	78	
Secondary School Certificate or Below	45	15.73	5 – 6 years	25	
Diploma/Higher Secondary Certificate or equivalent	95	33.22	More than 6 years	13	
Bachelor's Degree	104	36.36	***Monthly Income (US Dollar)***		
Master's Degree	38	13.29	< $2,000	57	19.93
Others	4	1.40	$2,001–$5,000	89	31.12
Type of Technology Used			$5,001–$10,000	77	26.92
Artificial Intelligence (e.g., chatbots, predictive analytics)	56	19.58	$10,001–$20,000	54	18.88
Social Media Marketing Tools	97	33.92	> $20,000	9	3.15
E-commerce Platforms (e.g. Shopify)	66	23.08			
Customer Relationship Management (CRM) Software	36	12.59			
Google My Business	23	8.04			
Others	8	2.80			
Total-286					

Table 1 presents the respondent demographic profile. The study included a sample of 286 Gen Z SME owners. As for gender, 59.4 percent of respondents are males, and 40.6 percent are female entrepreneurs who reflect the increase of females engaging in entrepreneurial activities in California. By age, the majority of respondents are aged between 21-23 years (35.6%) and 24-26 years (39.2%) functions, in line with the Gen Z median age for the primary market of respondents. Other relatively small proportions were 18-20 years (6.3%) and 27-29 years (15.4%), indicating that most respondents were early to mid-career in their entrepreneurial endeavour. In terms of education, the biggest share of respondents had a Bachelor (44.8%), followed by associate degrees (22.4%). Less numbers claimed that they had a Master (14.0%) or high school (13.3%) degree.

Add respect to monthly business revenue, 33.9% of respondents revealed earnings of $2,001–$5,000, with the second-most earning $5,001–$10,000 (28.7%). A little less than 18 percent said revenues were

less than $2000 dollars; just under 15 percent earned between $10,001–$20,000 and only 4.9 percent had revenues above $20,000. Regarding the use of technology, social media marketing tools lead (40.2%), followed by e-commerce platforms, such as Shopify and Amazon (27.3%) and AI-based tools, such as chatbots and analytics applications (18.2%). Other technologies were also used less: CRM software (10.1%) or other digital tools (4.2%). In total this sample represents a tech-savvy, educated and entrepreneurship-seeking segment of Gen Z businesses in California's innovation-led SME demographic. Figure 2 presents the visual correlation heat map of the study variables.



Note. Values are Pearson correlations. Lower triangle shown. Diagonal entries = 1.000. * p < .05. ** p < .01 (2-tailed).

Figure 2. Correlation heatmap among variables

Pearson correlation coefficients among study variables with demographic characteristics, technology-related indicators, and entrepreneurial behavioural constructs are given in Figure 2. The correlations give an early indication on the relationships between but not objective cause and correlations without rigorous regression, perhaps with causal inference would permit a dispassionate assessment of scalability. There are no significant relationships with core variables, indicating that gender and age do not meaningfully relate to AI integration with entrepreneurial motivation, commitment, flexibility, or decision-making performance of SMEs led by Gen Z in California. Educational qualifications, on the other hand were significantly positively associated with type of technology ($r = .223$, $p < .01$), number of employees (r

= .346, p < .01), years in business (r = .475, p < .01), monthly income (r = .366, p < .01), AI integration (r = .178, p < .01), entrepreneurial motivation (r = .149, p < .01), entrepreneurial flexibility (r = .143, p < .05), and decision-making performance (r = .154, p < .05), suggesting that higher education aligns with greater technological engagement and behavioural capability.

Entrepreneurial flexibility shows a significant and positive correlations with entrepreneurial commitment (r = .423, p < .01), entrepreneurial motivation (r = .345, p < .01), and decision-making performance (r = .612, p < .01), emphasizing its relevance in dynamic business environments. Entrepreneurial motivation is significantly correlated with AI integration (r = .565, p < .01), entrepreneurial commitment (r = .542, p < .01), entrepreneurial flexibility (r = .578, p < .01), and decision-making performance (r = .543, p < .01), underscoring its role in shaping adaptive and technology-oriented behaviour. Finally, decision-making performance is significantly associated with all core constructs, including AI integration (r = .458, p < .01), entrepreneurial commitment (r = .532, p < .01), entrepreneurial motivation (r = .578, p < .01), and entrepreneurial flexibility (r = .612, p < .01), indicating that behavioural and technological factors are closely linked with significant decision-making outcomes in Gen Z-led SMEs.

4.2. Hypothesis Testing

Table 2: Regression Analysis (Direct Effects)

Variables	t-value	Decision-Making Performance	VIF
Gender	0.314	0.023	1.654
Age	0.412	0.023	1.054
Educational Qualifications	0.521	0.043	1.034
Type of Technology Used	0.644	0.018	1.142
Number of Employees	0.521	0.014	1.151
Monthly Income	0.321	0.087	1.453
Years in Business	0.231	0.075	1.563
AI Integration	2.412	0.245**	3.342
Entrepreneurial Commitment	2.128	0.214**	4.432
Leadership Support	3.321	0.337**	4.432
Entrepreneurial Flexibility	4.431	0.521***	2.435
Entrepreneurial Motivation	4.456	0.327***	1.567
R. square		0.756	
Adj. R-square		0.678	
F		54.567***	

Note: *p<0.05, ***p<0.01, ***p<0.001;
Source: Developed by Researcher on SPSS V25

Table 2 associations for the study variables were assessed using hierarchical regression analysis conducted using SPSS IBM V25. Seven demographic control variables (gender, age, educational qualifications, type of technology used, number of employees, monthly income, and years in business) were included in the analysis to control for their potential influence on decision-making performance. The first hypothesis results indicate a significant and positive relationship between AI and decision-making performance (β = 0.245**, t = 2.412, p < 0.05, see Table 2), which also confirm H1. It suggests that higher adoption of AI tools such as data analytics, forecasting and customer-insight systems are linked with better decision-making performance of Gen Z entrepreneurs. Integrating AI seems to help these founders digest quantities of information relevant to their domain and potentially make better strategic decisions.

The second hypothesis states that the entrepreneurial commitment has a positive and significant relationship with decision-making performance (β = 0.214**, t = 2.128, p < 0.05, see Table 2), supporting H2. In other words, the more Gen Z entrepreneurs have stayed engaged with their company

long term, dutifully incorporating it into their lives, the better they are at making decisions. Commitment is a more consistent attention towards business objectives and the thoughtful consideration of decision choices.

Hypothesis 3 is also supported; however, the effect of leadership support is positive and significant on decision-making performance ($\beta = 0.337^{**}$, $t = 3.321$, $p < 0.05$, see Table 2). This result indicates that having access to mentorship, strategic direction, and collaborative leadership structures is correlated with improved decision-making quality. Good leaders minimize uncertainty, allow people to feel more secure about the future, and provide useful guidance when it is necessary to weigh different options.

Between the predictors, entrepreneurial flexibility shows the highest connection, which positively and significantly correlates to decision-making performance ($\beta = 0.521^{*}$, $t = 4.431$, $p < 0.001$, see Table 2), supporting H4. Which means, the capacity to embrace fast market shifts, face new technologies, and alter strategies at the right moment equates to enhanced decision-making quality for California based Gen Z entrepreneurs driven by the characteristics of the dynamic SME setting.

Entrepreneurial motivation therefore has a positive and statistically significant relationship with decision-making performance ($\beta = 0.327^{*}$, $t = 4.456$, $p < 0.011$, see Table 2), thus providing support for H5. Both forms of motivation, also termed intrinsic (e.g., curiosity, purpose, and development) and extrinsic (financial and recognition), are associated with increased proactive approaches and strategic assessment in decision-making. Motivated entrepreneurs tend to embrace appropriate technologies, evaluate options thoroughly, and act decorously but decisively.

4.3. Discussion

The findings suggest that decision-making performance in California-based Gen Z SMEs is shaped less by the mere presence of digital tools and more by the entrepreneurial capacities through which those tools are interpreted and used. Although AI integration has a positive and significant effect on decision-making performance, its coefficient is notably smaller than those of entrepreneurial flexibility, leadership support, and entrepreneurial motivation; this indicates that AI is an enabling mechanism rather than an autonomous driver of superior decisions. That reading is consistent with studies showing that AI, analytics, and knowledge systems improve organisational judgement when they are embedded in broader capability structures rather than treated as stand-alone technologies (Bag et al., 2021; Al-Surmi et al., 2022; Mikalef et al., 2019; Leoni et al., 2024). It also aligns with more recent SME evidence that AI enhances performance when adoption is matched by organisational readiness and managerial capacity (Abrokwah-Larbi & Awuku-Larbi, 2024; Merhi & Harfouche, 2024). The regression results therefore support a more disciplined interpretation: AI matters, but human agency still matters more.

Most strikingly, entrepreneurial flexibility emerges as the strongest predictor of decision-making performance, followed by entrepreneurial motivation and leadership support. This ordering is theoretically persuasive. In volatile SME settings, flexibility allows founders to revise assumptions, absorb market signals, and pivot without becoming trapped by prior commitments; in that sense, it is the practical condition that turns information into action. This finding resonates with work linking flexibility and dynamic capability to stronger performance and adaptation under uncertainty (Adomako & Ahsan, 2022; Chatterjee et al., 2022; Edwin Cheng et al., 2022). Likewise, the positive effects of motivation and commitment are consistent with research showing that entrepreneurial drive, persistence, and goal commitment sharpen strategic attention and sustain action quality over time (Murnieks et al., 2020; Hollenbeck et al., 1989; Ahsan et al., 2021).

The significance of leadership support further reinforces the argument that decision quality is socially structured, not merely individually computed, echoing evidence from leadership and joint decision-making research (Goyal et al., 2024; Kundi & Shahid, 2023; Liu & Yin, 2023). In retrospect, the study extends entrepreneurial decision-making scholarship by showing that for Gen Z founders, better decisions

arise from the interaction of digital augmentation and adaptive entrepreneurial behaviour, not from technological adoption alone (De Winnaar & Scholtz, 2020; Dean & Sharfman, 1996).

4.4. Implications of the Study

This study has theoretical and practical implications regarding the role of technology-enabled decision-making for Gen Z-led SMEs in the California context. Practically, it give useful insights for young entrepreneurs, policy makers, business developers, and start up support institutions. The strong positive link between AI use and decision-making performance suggests Gen Z entrepreneurs may need to be trained in the use of AI-enabled tools, like data analytics, forecasting platforms and customer-insight systems, to enable better decisions (Abrokwah-Larbi & Awuku-Larbi, 2024). The most significant association was chronicling entrepreneurial flexibility, which emphasizes adaptability to outcompete Californian markets within such a volatile state. Entrepreneurship programs, accelerator programs, and capacity-building efforts need to promote capacity for innovation-oriented, and therefore flexible, mindsets. The importance of entrepreneurial motivation and commitment also underscores the significance of personal drive and long-term orientation in the manifest control of competition. The study found leadership support to be significant as well, highlighting the importance of mentorship networks that are accessible and environments that facilitate learning together, whereby young business owners are recognised and guided (Anuradha & Sailaxmi, 2024).

From a theoretical point, this study integrates psychological (motivation, commitment, flexibility), structural (leadership support), and technological (AI integration) factors under one umbrella (Al-Surmi et al., 2022), contributing to an ongoing stream of digital entrepreneurship literature. It broadens the conceptualisation of decision-making performance by showing that it is influenced through behaviour characteristics, organizational salience and support structures in addition to technology use. Finally, the research contributes to the literature on Gen Z entrepreneurship by illustrating the interplay between generational characteristics and digital innovation within a highly advanced technology environment. The empirical validation of the proposed constructs provides an avenue for theoretical development and comparisons between regions, sectors, or generations. Together, these implications give the study a potential value with respect to the knowledge contributions for scholarship and practice in entrepreneurship (Bonsón et al., 2023).

4.5. Limitations and Directions for Future Research

This study has several limitations. First, the cross-sectional design limits the ability to draw causal conclusions between the variables. Longitudinal designs that explore the role of AI in decision-making performance, and its changes as Gen Z-led SMEs mature and their use of AI technologies progressively develops, should be leveraged in future research. Second, the research was conducted only for Gen Z-led SMEs which limits the generalizability of the study to other generational generations, regions of the world or business environments with diverging technological and institutional characteristics. Third, the use of self-reported data creates a risk of common method bias, but diagnostic tests were conducted which reduce such concerns.

In looking at future research directions, it is recommended that future research might consider adopting myriad of approaches viz: mixed method approach, interview, observational, as well as case study-based research in the bid to explore how behavioural and technological factors interact in influencing entrepreneurial decision making. Data comparing various generational cohorts or U.S. states would provide additional insights into entrepreneurial behaviour, AI adoption and decision-making. In another vein, exploring moderating or mediating variables such as digital literacy, innovation orientation or organizational culture may deepen the understanding of the interplay of technology and human factors in AI-enabled SME settings. Such directions would further develop theoretical models and will assist richer strategies around fostering the capacity for decision-making among new entrepreneurs.

5. Conclusion

This study investigates determinants of decision-making of Gen Z-led small and medium enterprises (SMEs) in California, focusing on AI integration and entrepreneurial behavioural traits. The study investigated the relationship of AI use, entrepreneurial persistence, leadership encouragement, flexibility, and inspiration to better decision making in an enterprise technology-oriented ecosystem. The results revealed all five of the hypothesized associations were statistically significant and positively related to decision-making performance. The analogue AI integration showed a significant correlation with higher decision quality due to its ability to accelerate processing of related information and data-driven insights. It positively contributed to more structured and informed decision-making based on entrepreneurial commitment and leadership support as well. Among the predictors, entrepreneur flexibility demonstrated the highest standardized beta coefficient, highlighting the need for adaptability in a fast-paced market environment. The intrinsic and extrinsic entrepreneurial motivation was also shown to have a positive relation to better decision-making performance suggesting its importance in the context of innovation-oriented and goal-focused behaviour. These results highlight the role of the dual nature that affects the decision-making of Gen Z entrepreneurs in California: behaviour and technology adoption. These findings enrich the general literature on technology-enabled entrepreneurship and provide guidance to the above young entrepreneurs operating in the contemporary increasingly globalised, digital landscape of SMEs.

Declarations

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This research received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

Ethical Approval and Informed Consent

Informed consent was obtained from all subjects involved in the study.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon request.

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Appendix

Measurement Scales

Constructs	Items	Sources
AI Integration	1. My business uses AI tools to analyse customer data. 2. We rely on technology to forecast business trends. 3. AI systems are integrated into our core decision-making processes. 4. I use AI-enabled platforms for inventory or financial management.	Mikalef et al. (2019)
Entrepreneurial Commitment	1. I am dedicated to making my business a long-term success. 2. I am willing to make personal sacrifices for the success of my business. 3. I rarely consider leaving or quitting my business. 4. I constantly strive to improve and grow my business.	Hollenbeck et al. (1989)
Leadership Support	1. I receive adequate guidance from mentors or advisors when making business decisions. 2. My leadership environment supports innovation and experimentation. 3. I can rely on my team or support network during critical decisions. 4. I feel encouraged to take calculated risks in my business.	Podsakoff et al. (1990)
Entrepreneurial Flexibility	1. I can quickly adjust my strategies when market conditions change. 2. I welcome new technologies that improve business operations. 3. I easily adapt to changing customer preferences. 4. I can pivot my business model when necessary.	Zhou et al. (2005)
Entrepreneurial Motivation	1. I started my business to be independent and self-reliant. 2. I am motivated by the challenge of building something successful. 3. Financial success is a major goal for my business. 4. I am passionate about the work I do as an entrepreneur.	Robichaud et al. (2021)
Decision-Making Performance	1. I make business decisions quickly and efficiently. 2. My decisions are based on reliable data and insights. 3. I feel confident in the quality of my business decisions. 4. My decisions have led to positive outcomes for my business.	Dean and Sharfman (1996)