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STARTUP BUSINESS INNOVATION DEVELOPMENT MODEL FOR UNIVERSITY'S STUDENTS: COMPARISON OF INDONESIA AND MALAYSIA

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Startup Business Innovation Development Model for University's Students: Comparison of Indonesia and Malaysia

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Abstract

The aim of this research is to analyze the connection between startup business performance and factors such as environmental dynamism, entrepreneurial autonomy, and opportunity exploration, a pro-growth business climate, and service innovation. Surveys of millennials under 38 who are actively involved in startup enterprises and attend a variety of public and private colleges in Indonesia and Malaysia were used to gather data. Analysis was done on 400 valid responses in total. The findings suggest that opportunity exploration is positively and significantly impacted by environmental dynamism. Additionally, entrepreneurial autonomy significantly contributes to fostering a pro-growth business climate, which in turn substantially enhances opportunity exploration and service innovation. Additionally, opportunity exploration positively influences service innovation, which subsequently improves startup business performance. These insights contribute to a deeper understanding and practical application of

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startup innovations and their outcomes, supporting the successful implementation of entrepreneurship programs in academic institutions.

Keywords: environmental dynamism; autonomy in entrepreneurial moves; opportunity exploration; pro-growth business climate; service innovation; startup business performance.

Introduction

The process of using innovation and creativity to create something unique, valuable, and resilient to life's obstacles by recognizing opportunities among risks and uncertainties in order to generate profit and growth is known as entrepreneurship. As stated by Suryana (2006), entrepreneurship is the process of using imagination and creativity to find solutions to problems that arise in daily life and to look for business possibilities. The capacity to combine, modify, or reconstruct preexisting ideas to produce new ones is what is known as creativity. While innovation involves the use of a newly discovered manufacturing technique or a newly introduced product.

A startup is a newly formed company or endeavor that aims to take the lead in the market and grow quickly in order to become a major corporation. Co-founder and co-CEO of Warby Parker Neil Blumenthal defines a startup as an organization that aims to address difficult problems for which there are no certain answers or chances of success. In a similar vein, Adora Cheung, co-founder and CEO of Homejoy, characterizes a startup as a way of thinking, stressing that these businesses focus on novel concepts and offer clients solutions to their issues (Blumenthal, 2021; Cheung, 2013).

Between 1998 and 2000, the dot-com boom sent many businesses into the internet sphere, contributing to a notable expansion of the startup scene. Even though the dot-com bubble burst, this time period saw the establishment of numerous internet-based firms nearly simultaneously, which contributed to the global prominence of startups. This expansion showed that the internet may be a good starting point for new businesses (Jones, 2005).

Innovations in technology, especially in areas like computers, the internet, and mobile devices, are frequently linked to startups. Usually, they work on developing trading platforms, systems, services, and applications that depend on the internet and related technology. The entrepreneurial ecosystem is further propelled by investors' ongoing interest in cutting-edge technologies, which encourages tech entrepreneurs to pursue their ideas and found new businesses (Smith, 2017).

The Covid-19 pandemic is one of the causes of humans being intense in using the internet. Because activities outside the home are limited such as physical and social interactions to break the virus chain. So, for mobilizing activities,

many use the internet, such as working at home and online school. Even though there is a pandemic, life continues, and human needs must be fulfilled. Startup businesses that utilize technology can be used as a way for humans to survive. Startup businesses that are increasing and being used intensively are in the fields of education, health, household needs, hobbies, and food and beverages. In Indonesia, Tokopedia, Shopee, and Bukalapak experienced an increase in demand for food sales by up to 400 percent, a week after the government announced the PSBB status, with a transaction value of Rp. 4.1 billion. Indonesia has many companies with young entrepreneurs trying to build and develop a startup business. It takes strong determination, creativity, and unlimited innovation so that a startup business can hold the title of the unicorn. According to the Startup Ranking, Indonesia ranked fifth globally in terms of the highest number of startups, with 2,193 startups in 2019. This ranking places Indonesia behind the United States, India, the United Kingdom, and Canada, while surpassing other developed nations such as Germany, Australia, France, and Spain. Currently, Indonesia hosts four unicorns-companies valued at over \$1 billion - and one decacorn, valued at more than \$10 billion. Rapid growth and high contribution are an opportunity to develop startups in remote villages. According to the Ministry of Communication and Information, these digital business players have grown faster and easier thanks to the Indonesian government. To encourage the development of fresh local entrepreneurs, the government launched the 1000 Start-up Movement program coordinating the national Cybercreative movement to organize the development of fundamental digital skills in the field of human resource development. Tens of thousands of people have benefited from the Digital Talent Scholarship program, which is offered for the intermediate level. In the meantime, the government organized the Digital Leadership Academy initiative to promote advanced digital skills. Malaysia is the third largest economy in Southeast Asia and ranks 34th globally, with a nominal GDP of US\$ 365 billion in 2020. Over 50% of Malaysia's GDP is derived from the service sector. China stands as Malaysia's largest trading partner, with significant trade conducted through internet-based systems. Malaysia boasts a vibrant startup ecosystem, underpinned by strategic location, access to modernized ports, and robust government regulations.

Literature Review

Environmental Dynamism and Opportunity Explorability

Organizations face uncertainty as a result of environmental dynamism, which is a function of how rapidly and to what extent the factors in the particular and overall environment change over time (Taghizadeh *et al.*, 2021). If an organization is unable to anticipate how forces will change and vice versa, the environment is considered unstable and dynamic (Popa *et al.*, 2017). In a dynamic and unstable

environment, an organization will seek to reduce uncertainty and increase predictability in its surroundings (Wilhelm *et al.*, 2015). Companies in dynamic environments have to deal with shifting consumer preferences and technological advancements, shorter product life cycles, unpredictable competition, and other problems. In this scenario, businesses will have to develop new goods, markets, and technologies to offset the risk that their current offerings may become outdated (Ferrerias-Méndez *et al.*, 2015). When developing new products and markets, businesses operating in dynamic contexts usually focus on the innovation process because this is where they may enhance their innovation performance. Put another way, explore novel ideas to take advantage of the chances that come with change. Moreover, past studies have shown that environmental dynamism improves export opportunities (Mohammad *et al.*, 2014). Drawing from the preceding discourse, the ensuing conjecture was formulated, as illustrated in Figure 1.

Hypothesis 1 (H1). Environmental dynamism exerts a substantial positive influence on opportunity exploration.

Autonomy in Entrepreneurial Move and Pro-Growth Business Climate

In terms of business ethics, the autonomy principle refers to a person's mindset or capacity to decide and behave in accordance with his awareness of what is right and necessary to accomplish. In this instance, the firm or business owner is free to exercise authority in accordance with the industry being pursued as well as the goals and objectives of the operating business (Palma *et al.*, 2017). The principle of autonomy must be able to regulate the behavior of every business person to be oriented towards the prosperity and welfare of employees and their communities (Muthmainnah, 2019). In terms of business ethics, the autonomy principle refers to a person's mindset or capacity to decide and behave in accordance with his awareness of what is right and necessary to accomplish. In this instance, the firm or business owner is free to exercise authority in accordance with the industry being pursued as well as the goals and objectives of the operating business (Palma *et al.*, 2017).

Hypothesis 2 (H2). Autonomy in entrepreneurial activities significantly positively impacts a pro-growth business environment.

Pro-Growth Business Climate and Opportunity Explorability

Sustainability has improved strategy and structure alignment, which helps a firm better access competitive resources and adjust to changing surroundings. By determining and implementing the combination of organizational traits linked to the best performance, organizations develop strategies. The recognition of sustainability as a critical way for learning companies to create transformative change through organic learning, dynamic orientation, and greater reach has changed strategy. In reaction to environmental uncertainties, the entrepreneurial

process of innovating and concentrating on new techniques or developing a new sustainability culture seeks to solve issues, find new market opportunities, and encourage innovation or alternative product strategies. Consequently, strategy, competition, and cultural adaptation are intertwined practices that form the foundational elements of sustainable development and reporting (Sisaye, 2013; Sisaye and Birnberg, 2010). An entrepreneurial marketing strategy that provides unmatched value to clients through creative processes and ongoing opportunity exploitation is developed when entrepreneurial thinking is included into the marketing function (Morrish, 2011). According to Alqahtani and Uslay (2020), entrepreneurial marketing is a proactive, inventive, and socially acceptable risk-taking strategy that aims to produce value that is co-created for stakeholders and customers. Opportunities are critical to the success of entrepreneurs, the core of entrepreneurship research, and the foundation of the discipline's credibility. Opportunity has been emphasized as being crucial to entrepreneurship, with an emphasis on comprehending how opportunities arise and how future goods and services are found, produced, and utilized, as well as by whom and with what outcomes (Busenitz *et al.*, 2014).

Hypothesis 3 (H3). A pro-growth business climate significantly enhances opportunity exploration.

Pro-Growth Business Climate and Service Innovation

According to Armenta *et al.* (2015), it is the process of introducing new and substantially enhanced service concepts and offerings, applicable to both manufacturing and service industries. Given the service sector's economic significance, service innovation is vital for advancing a knowledge-driven economy. Services that involve higher levels of customer interactivity offer greater opportunities for innovation through enhanced knowledge sharing and learning processes, which in turn drive service innovation. Essentially, the implementation of service innovation must be oriented towards market changes, such as shifts in customer behavior (Armenta *et al.*, 2015). The literature examining the relationship between the institutional environment and performance employs various factors to assess these constructs, with some studies focusing on innovation as a measure of performance. Erdil *et al.* (2013) found that the institutional environment, particularly Turkish support for R&D, has a significant impact on improving innovative performance.

Hypothesis 4 (H4). A pro-growth business environment significantly boosts service innovation.

Opportunity Explorability and Service Innovation

Strong customer orientation gives businesses a competitive edge because it prioritizes building and sustaining customer value (Olson *et al.*, 2005). Furthermore,

a company's capacity to compete over the long term is determined by its size, distinctiveness, and accuracy of market analysis (market intelligence) (Aribawa, 2015). Capabilities for service innovation can arise from an organization's ability to concentrate on client-driven thinking in order to produce outcomes that surpass consumer expectations. The one who can spot prospects for services that customers require to either surpass their expectations or become the market leader in terms of service speed is the one who will win the competition (Kandampully, 2002).

Hypothesis 5 (H5). Opportunity explorability significantly boosts service innovation.

Service Innovation and Startup Business Performance

Zimmerer *et al.* (2008) describe innovation as the capacity to apply new approaches to opportunities and problems in order to improve or enrich human life. An organization's effectiveness in the global market depends heavily on its ability to innovate and be creative (Craven *et al.*, 2009). According to Lin *et al.* (2008), innovation provides small and medium-sized firms (SMEs) in Taiwan's information and electronics sector with competitive advantages. According to Kandampully (2002), the launch of new products, together with process and market innovations, are positively correlated with corporate growth. Similar to this, studies conducted in Turkey's manufacturing sector by Gunday *et al.* (2011) show that performance outcomes are influenced by different aspects of innovation, including product, process, marketing, and organizational. Similar findings were made by Hassan *et al.* (2013), who noted that these aspects of innovation affect manufacturing sector performance in Pakistan.

Hypothesis 6 (H6). Service innovation significantly boosts startup business performance.



Figure 1. Research model

Methodology

A quantitative approach (survey) is used to ascertain literacy comprehension and acquisition of the application of start-up business innovation and its impact on establishing effective entrepreneurship programs at universities. Respondents in this study were 400 millennial generation students aged less than 38 years, in various public and private universities, who are running start-up businesses both at universities in Indonesia and Malaysia. This study employs a purposive sampling technique..

Table 1 shows the sources of item measurements. Environmental Dynamism consists of 2 items (Andersson *et al.*, 2020; Jiao *et al.*, 2011). Autonomy in Entrepreneurial move consists of 3 items (Samman, 2007). Opportunity Explorability consists of 5 items (Kusa *et al.*, 2021). Pro-Growth Business Climate consists of 6 items (Andersson *et al.*, 2020). Business Performance consists of 8 items (Kusa *et al.*, 2021). Service innovation consists of 3 items (Kusa *et al.*, 2021).

Table 1. Measurement of Variables

Variables	Number of Items	Source
Enviromtmental Dynamism	2	Jiao <i>et al.</i> (2011)
Autonomy in Entrepreneurial move	3	Baluko <i>et al.</i> (2019)
Opportunity Explorability	5	Kusa <i>et al.</i> (2021)
Pro-Growth Business Climate	6	Anderssona <i>et al.</i> (2012)
Business Performance	8	Kusa <i>et al.</i> (2021)
Service Innovation	3	Kusa <i>et al.</i> (2021)

AMOS 22.0 software was used to assess the measurement and structural models using Structural Equation Modeling (SEM). First, each assessment item's correlation coefficient matrix served as the basis for Confirmatory Factor Analysis (CFA). At this point, the Goodness of Fit Index (GOFI) was computed to evaluate how well the dimensions and indicators represented the construct. Factor loadings were employed to assess convergent validity and ascertain the degree of correlation between the dimensions and the construct. Additionally, the Average variation Extracted (AVE) value - which represents the total variation captured by the dimensions and indicators for each construct - was used to evaluate convergent validity in more detail. After the measurement model was assessed, the structural model was looked at in order to verify the theories put forth.

Results

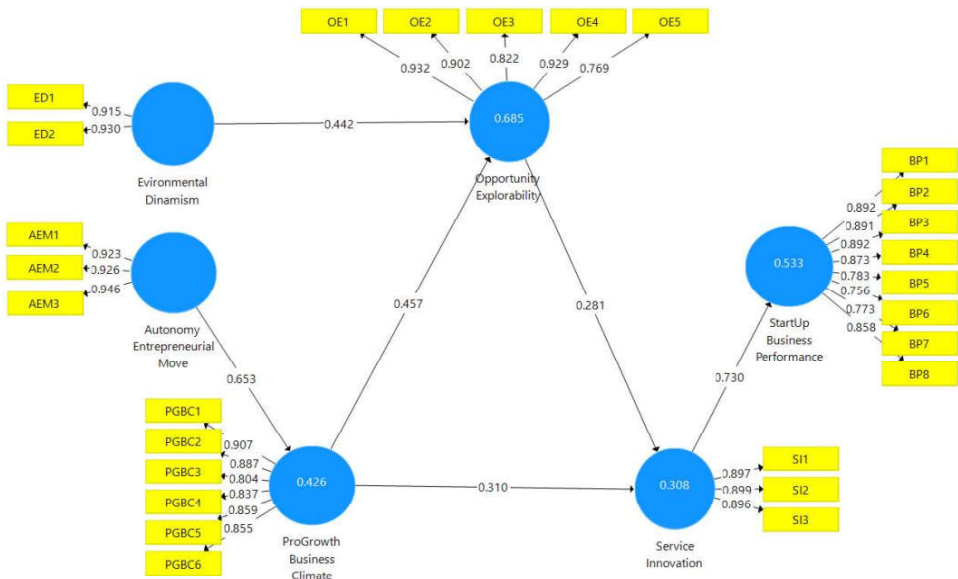


Table 2. Convergent Validity and Reliability

Constructs	Items	Loading Factors	Cronbach's Alpha	CR	AVE
Autonomy Entrepreneurial Move			0.924	0.952	0.868
	AEM1	0.923			
	AEM2	0.926			
	AEM3	0.946			
Environmental Dynamism			0.825	0.919	0.851
	ED1	0.915			
	ED2	0.930			
Opportunity Explorability			0.921	0.941	0.762
	OE1	0.932			
	OE2	0.902			
	OE3	0.822			
	OE4	0.929			
	OE5	0.769			

Pro-Growth Business Climate			0. 929	0.944	0.737
	PGBC1	0.921			
	PGBC2	0.889			
	PGBC3	0.836			
	PGBC4	0.924			
	PGBC5	0.780			
	PGBC6	0.927			
Service Innovation			0. 879	0.925	0.805
	SI1	0.897			
	SI2	0.899			
	SI3	0.896			
Startup Business Performance			0. 940	0.951	0.708
	BP1	0.892			
	BP2	0.891			
	BP3	0.892			
	BP4	0.873			
	BP5	0.783			
	BP6	0.756			
	BP7	0.773			
	BP8	0.858			

Factor loadings are instrumental in demonstrating the correlation value and weight of the observed indicators. The Composite Reliability (CR) function provides a more precise estimation value in the research model through factor loadings. High reliability results indicate that each indicator consistently measures its intended construct. Generally, a reliability level of >0.70 is considered acceptable. Table 3 illustrates that all variables exhibit strong reliability within the research model, as indicated by Cronbach's alpha values exceeding 0.70 and composite reliability values also above 0.70. Furthermore, factor loadings surpassing 0.50 should be accompanied by an average variance extracted (AVE) value greater than 0.50, serving as an additional measure of reliability. When these criteria are met, the variable is deemed valid. As shown in Table 3, all factor loadings exceed 0.50, AVE values are above 0.50, and both CR and Cronbach's alpha values are greater than 0.70. These findings indicate a high level of unidimensionality and affirm that each variable indicator is both valid and reliable.

Table 3. Cross Loading Value

	Autonomy Entrepreneurial Move	Environmental Dynamism	Opportunity Explorability	Pro-growth Business Climate	Service Innovation	StartUp Business Performance
AEM1	0.923	0.502	0.511	0.635	0.260	0.419
AEM2	0.926	0.474	0.430	0.559	0.218	0.378
AEM3	0.946	0.506	0.467	0.624	0.202	0.364
BP1	0.475	0.586	0.655	0.670	0.612	0.892
BP2	0.411	0.588	0.626	0.648	0.650	0.891
BP3	0.388	0.561	0.614	0.613	0.632	0.892
BP4	0.489	0.583	0.622	0.624	0.597	0.873
BP5	0.261	0.359	0.342	0.368	0.628	0.783
BP6	0.217	0.406	0.410	0.384	0.543	0.756
BP7	0.229	0.374	0.348	0.316	0.608	0.773
BP8	0.317	0.475	0.472	0.451	0.629	0.858
ED1	0.451	0.915	0.668	0.592	0.439	0.500
ED2	0.526	0.930	0.733	0.692	0.426	0.578
OE1	0.430	0.677	0.932	0.718	0.499	0.557
OE2	0.476	0.688	0.902	0.688	0.471	0.558
OE3	0.477	0.644	0.822	0.632	0.371	0.463
OE4	0.432	0.708	0.929	0.744	0.518	0.606
OE5	0.398	0.599	0.769	0.536	0.384	0.465
PGBC1	0.678	0.601	0.680	0.907	0.448	0.548
PGBC2	0.620	0.637	0.663	0.887	0.510	0.582
PGBC3	0.481	0.591	0.656	0.804	0.312	0.380
PGBC4	0.590	0.581	0.566	0.837	0.325	0.431
PGBC5	0.478	0.565	0.678	0.859	0.517	0.529
PGBC6	0.504	0.623	0.693	0.855	0.559	0.634
SI1	0.283	0.470	0.496	0.510	0.897	0.666
SI2	0.142	0.344	0.420	0.395	0.899	0.631
SI3	0.222	0.439	0.473	0.499	0.896	0.665

Discriminant validity is used to assess how distinct indicators (constructs) are from one another. The crossloading value serves as the measurement benchmark for discriminant validity. An indicator's cross-loading value on the designated variable must be greater than the values of the other variables in order for it to pass this test. Since the cross-loading values for variable indicators are larger than those of other variables, Table 4's results clearly demonstrate that the constructs are unique from one another. As a result, the model meets the requirements for discriminant validity.

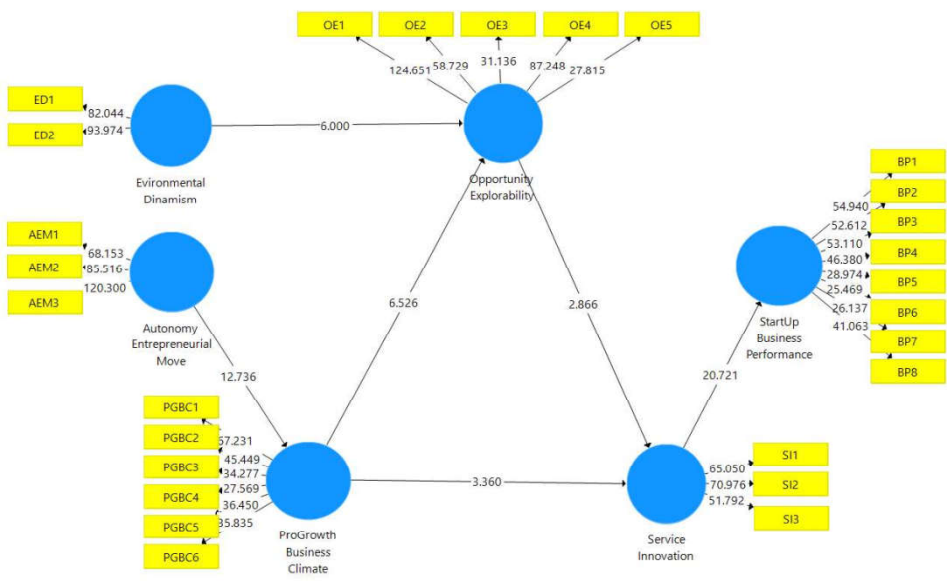


Figure 3. Inner (Structural) Model

Table 4. Value of R-Square

Variable	R Square
Opportunity Explorability	0.685
Pro-Growth Business Climate	0.426
Service Innovation	0.308
StartUp Business Performance	0.533
Average	0.488

Based on the data presented in Table 5, the R-Square value for opportunity exploration is 0.685. This signifies that environmental dynamism, a pro-growth business climate, and service innovation together explain 68.5% of the variance in opportunity exploration, with the remaining variance due to other factors. Furthermore, the R-Square value for the pro-growth business climate is 0.426, indicating that the autonomy entrepreneurial move variable accounts for 42.6% of the variance in the pro-growth business climate, while other factors contribute to the remaining variance. For service innovation, the R-Square value is 0.308, suggesting that the pro-growth business climate variable accounts for 30.8% of the variance in service innovation, with other factors influencing the rest. Lastly, the R-Square value for start-up business performance is 0.533, implying that other variables account for 53.3% of the variance in start-up business performance.

Overall Model Validity Test (Outer and Inner Model)

Table 5. Average Variable Extracted (AVE) Value

Variable	AVE
Autonomy Entrepreneurial Move	0.868
Environmental Dynamism	0.851
Opportunity Explorability	0.762
Pro-Growth Business Climate	0.737
Service Innovation	0.805
StartUp Business Performance	0.708
Average	0.789

The Goodness of Fit (GoF) index ranges from 0 to 1, with values indicating the following: a small GoF is 0.1, a moderate GoF is 0.25, and a large GoF is 0.36. According to the calculations presented in Table 6, the average variance extracted (AVE) is 0.789, while the average R-square value, as shown in Table 5, is 0.488. Therefore:

$$\text{GoF value} = \sqrt{0.789 \times 0.488} = 0.43 \text{ (large GoF)}$$

Hypothesis test

Table 7. Testing of Hypothesis

	Original Sample (O)	T Statistics (O/STDEV)	P Values
Environmental Dynamism → Opportunity Explorability	0.442	6.000	0.000
Autonomy Entrepreneurial Move → Pro-Growth Business Climate	0.653	12.736	0.000
Pro-Growth Business Climate → Opportunity Explorability	0.457	6.526	0.000
Pro-Growth Business Climate → Service Innovation	0.310	3.360	0.001
Opportunity Explorability → Service Innovation	0.281	2.866	0.004
Service Innovation → StartUp Business Performance	0.730	20.721	0.000

To evaluate the causal relationships among the variables, the significance value must be utilized. A relationship between variables is considered significant when the t-statistic exceeds 1.96 at the 5% level (two-tailed). Additionally, the direction of the relationship whether positive or negative is determined based on the original sample data. As indicated by the results in Table 7, all hypotheses are substantiated.

Discussion

Environmental Dynamism on Opportunity Explorability

The results indicate that environmental dynamism exerts a positive and significant impact on opportunity exploration, with a p-value of 0.000 and a t-statistic of 6.000, thereby supporting H1. This finding aligns with Boadu *et al.* (2023), who noted that the Chinese environment fosters a unique atmosphere conducive to environmental dynamism and entrepreneurial opportunities, driven by government initiatives to position China as the leading global innovation hub. Additionally, the influence of environmental dynamism and entrepreneurial opportunities is contingent on the subsidiary's commitment to mitigating the country's limitations. This research is novel in its focus on the impact of environmental dynamism on opportunity exploration. Environmental dynamism encompasses the rate of change in environmental factors, such as technological advancements, fluctuations in customer demand, and the intensity of market

competition (Frank & Kessler, 2017). It refers to the degree of uncertainty and instability within the business environment and is a critical factor in operational and environmental management (Chan *et al.*, 2016). Startups frequently encounter high-risk, rapidly changing, and highly unpredictable conditions, as summarized by Salamzadeh and Kawamorita (2017). In a dynamic environment, intensified market competition arises due to accelerated technological volatility and shifts in consumer demand. The pressures from technological change and fierce competition drive the development of incubator networks, while rapid changes necessitate that new ventures possess capabilities for resource integration and adaptability. Therefore, a dynamic environment imposes stricter requirements for innovation, proactiveness, and risk-taking, emphasizing the need for start-ups to focus on environmental dynamism to explore opportunities effectively.

Autonomy in Entrepreneurial Move on Pro-Growth Business Climate

The results show that the pro-growth business climate is positively and significantly impacted by autonomy in entrepreneurial activities. This outcome is in line with the findings of Ahmetoglu *et al.* (2020), who contend that an increase in job autonomy is favorably correlated with an individual's propensity for entrepreneurship and productivity. Entrepreneurship is generally linked to risk and autonomy, and while gig employment frequently entails restrictive restrictions that may contradict with the autonomy inherent in entrepreneurship (Ravenelle, 2019), autonomy remains a critical factor. Although results are not always consistent, Vecchio (2003) lists a number of important characteristics that are frequently linked to entrepreneurship, such as a predisposition for risk-taking, a need for autonomy, achievement, self-efficacy, and locus of control. However, these attributes are widely recognized among entrepreneurs. Yukongdi and Lopa (2017) argue that job autonomy, defined as the degree of independence, discretion, and freedom in daily work (Hackman & Oldham, 1980), is a crucial determinant for improving work-life balance. In the entrepreneurial context, achieving work-related freedom is a significant motivator for starting a business (Yukongdi & Lopa, 2017). De Clercq and Brieger (2022) further note that a sense of job autonomy enhances employers' satisfaction with balancing work and personal life, particularly in socio-economic and institutional environments with discriminatory conditions. Therefore, it can be concluded that autonomy in entrepreneurial activities plays a significant role in fostering a pro-growth business climate.

Pro-Growth Business Climate on Opportunity Explorability

The results show that opportunity exploration is positively and significantly impacted by the pro-growth business climate. An entrepreneurial marketing strategy that generates extraordinary value for clients through innovative processes and ongoing opportunity exploitation can be developed by incorporating

entrepreneurial thinking into the marketing function (Morrish, 2011). In its core business operations, a company's strategic formulation must include a pro-growth absorption plan. A business unit's strategy needs to be growth-oriented in order to improve its competitive position (Rahayu *et al.*, 2020). The Euro area's business environment has conflicting effects on economic expansion. The findings highlight the significance of managing interest rates and exchange rates in order to maintain economic growth, given the growing interconnection between internal and external business environments. (Hatmanu *et al.*, 2020). A positive business climate fosters a favorable attitude, which can enhance affective commitment and lead to greater job satisfaction across all employee age groups. It is evident that a positive business climate, characterized by perceived promotional opportunities, can further increase job satisfaction (Chen, 2019). Thus, it can be concluded that a favorable pro-growth business climate positively influences opportunity exploration.

Pro-Growth Business Climate on Service Innovation

The results show that service innovation is positively and significantly impacted by a company environment that is pro-growth. This finding aligns with the findings of Luu (2019), who discovered a favorable correlation between personnel in the tourism sector in Brazil and Vietnam who exhibit innovative service behavior and climate diversity. Harmonious work morale is positively impacted by diversity, and this in turn fosters creative service behavior. The term "climate" refers to how coworkers view both official and informal workplace policies and procedures as well as expected conduct (Reichers & Schneider, 1990). Service innovative behavior involves employees' discretionary actions to generate new ideas for enhancing the services provided to customers (Hon, 2011). Innovation strategies are crucial for adapting flexibly to changes and translating innovations into products or services that attract new customers and secure a competitive edge (Tutar *et al.*, 2015). Research suggests that organizational or contextual factors, such as high-performing HR practices (Dhar, 2015), employee perceptions of the business climate (Dhar, 2016), and leadership styles (e.g., ethical leadership) or leader-member exchange (Garg & Dhar, 2017), can encourage innovative behavior in the service industry. Consequently, it is crucial to prioritize service innovation in an environment that supports corporate growth.

Opportunity Explorability and Service Innovation

The findings indicate that there is a noteworthy and favorable impact of opportunity exploration on service innovation. According to De Vries *et al.* (2016), service innovation typically involves the development of brand-new public services with cutting-edge characteristics. According to Ostrom *et al.* (2015), businesses should prioritize this strategy in order to drive service innovation. Opportunities for service innovation have continuously expanded due to the

dynamic character of the service landscape and the quick speed of changes within the service sector. Service innovation is particularly crucial for businesses, as competitive pressures, shifting customer expectations, and demands for more personalized and customized services drive the need for continuous innovation, ultimately enhancing customer satisfaction (Mustelier-Puig *et al.*, 2019). From a results-oriented innovation perspective, the opportunity algorithm is customer-centric and conceptualizes service innovation from the customer's viewpoint. This approach posits that unmet but significant customer demand creates opportunities for innovation; as customer needs become more pressing and satisfaction declines, opportunities for value creation also increase (Zhang *et al.*, 2021).

Service Innovation on Startup Business Performance

The findings corroborate hypothesis H6, demonstrating that the performance of beginning businesses is significantly and/or favorably impacted by service innovation. These results are consistent with a 2021 study by Hameed *et al.* that showed how service innovation improves business performance. The findings highlight the significance of management-driven tactics that support service innovation and startup performance. Inadequate service levels are frequently associated with poor performance, so improving service innovation is essential to achieving better business results. Mention (2011) and Randhawa *et al.* (2018) came to similar conclusions, noting that innovation has a major impact on service innovation. Research by Love *et al.* (2010) and McDermott and Prajogo (2012) also supports the beneficial impact of service innovation on company success. Further studies in a variety of industries, such as Arshad *et al.* (2016), confirm that service innovation improves performance. In order to improve the success of their business, entrepreneurs should give priority to fostering service innovation.

Conclusions

This study makes a theoretical contribution by elucidating the relationships among environmental dynamism, autonomy in entrepreneurial activities, opportunity explorability, pro-growth business climate, service innovation, and startup business performance. The findings indicate that environmental dynamism positively and significantly affects opportunity exploration, while autonomy in entrepreneurial activities positively and significantly impacts the pro-growth business climate. Additionally, the pro-growth business climate has a positive and significant effect on both opportunity exploration and service innovation. Opportunity explorability also positively and significantly influences service innovation, which in turn positively and significantly affects startup business performance. Consequently, this study enhances the understanding of how startup

business innovations operate and their effects, thereby offering valuable insights for implementing effective entrepreneurship programs in academic institutions.

In practical terms, these findings can assist students managing start-up businesses in gaining a deeper understanding of start-up performance while enabling them to create service innovations that align more effectively with consumer needs. Furthermore, environmental dynamism and autonomy in entrepreneurial moves still need to be improved, which means the need for environmental dynamism and autonomy in entrepreneurial moves that can create quality start-up business performances and have good value for consumers.

This research has several limitations. Firstly, the study was conducted exclusively using quantitative methods, which constrained the range of respondents' perspectives. It is advised that future studies use a mixed-methods approach, integrating qualitative and quantitative research, in order to obtain a more thorough comprehension and deeper insights into the opinions of respondents. Furthermore, the study's respondents comprised students belonging to the millennial generation, particularly those in Indonesia and Malaysia under the age of 38. Future studies could benefit from including respondents from diverse countries to broaden the scope and applicability of the findings.

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