“Achieving organizational resilience in two-wheel electric vehicle firms in Indonesia: Outcomes of entrepreneurial orientation, agile leadership, and innovation capabilities”

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ACHIEVING ORGANIZATIONAL RESILIENCE IN TWO-WHEEL ELECTRIC VEHICLE FIRMS IN INDONESIA: OUTCOMES OF ENTREPRENEURIAL ORIENTATION, AGILE LEADERSHIP, AND INNOVATION CAPABILITIES

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Abstract

Entrepreneurs in Indonesia's emerging electric two-wheeler industry struggle to maintain business resilience. This study aims to examine how a company's organizational resilience can be achieved by focusing on the effects of entrepreneurial orientation and agile leadership, with innovation capabilities serving as a mediating variable. A quantitative approach was employed, and a purposive sampling survey was conducted in November 2025 among 40 managerial-level employees at leading Indonesian electric two-wheeled vehicle companies to capture actual market conditions. Using SmartPLS, the study found that entrepreneurial orientation positively influences innovation capabilities (t-value = 1.964, p-value = 0.050), which, in turn, is positively associated with organizational resilience (t-value = 4.859, p-value = 0.000). However, the association between entrepreneurial orientation and organizational resilience is less significant when mediated by innovation capabilities (t-value = 1.681, p-value = 0.093). Moreover, agile leadership is not significantly associated with either innovation capabilities (t-value = 1.112, p-value = 0.266) or organizational resilience (t-value = 0.818, p-value = 0.413). The study documented leadership types aligned with leaders' generation characteristics, with a focus on adaptation. This study contributes to theory in two ways: by employing a quantitative approach in a rarely studied context of electric vehicles and by advancing the resource-based theory. Additionally, it offers practical insights for entrepreneurs by focusing on their company's innovation capabilities to foster resilience. The study is limited by its cross-sectional design; future research should use longitudinal data and additional variables.

Keywords resilience, entrepreneurship, innovation, leadership, electric vehicle

JEL Classification L21, O31, M13

INTRODUCTION

The study of electric vehicles in the automotive industry has become a significant area of research (Dehkordi et al., 2024; Shalender, 2018). The emerging electric vehicle (EV) industry remains subject to uncertainties that make its survival in a rapidly changing automotive market and technological landscape a common challenge. In Indonesia, this phenomenon is also evident across all EV market segments, including the two-wheelers.

Indonesia's two-wheeler market ranks third worldwide, with an estimated annual domestic sale of about 6 million units, as reported by the Association of Indonesian Motorcycle Industry (Choi et al., 2022; Kim et al., 2025). Kim et al. (2025) documented that this vehicle remains popular and has become a backbone of Indonesian urban mo-

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bility due to limitations in public transportation and its agility in navigating narrow roads and heavy traffic. However, the majority of these two-wheelers in Indonesia are still powered by internal combustion engines, and in some major cities, this has significantly contributed to air pollution. The adoption of electric vehicles is crucial to achieving decarbonization in the transportation sector (Boateng & Klopp, 2024). To accelerate the adoption of two-wheeled electric vehicles, various government institutions in Indonesia have set policies to promote the growth of the electric vehicle industry (ACVentures & AEML, 2023; Negara & Hidayat, 2021). The rising demand for decarbonization and government support for the two-wheeled electric vehicle market have created opportunities for new companies in Indonesia's automotive sector.

Although significant opportunities have been identified, the industry remains in the nascent phase, and as of the end of November 2025, there were 38 two-wheeler EV companies in Indonesia as listed in Appendix A. These companies face major challenges, leading to the immediate closure of several companies and causing others to prioritize survival over high performance. The ability of a company to survive, an organizational resilience, is not just about securing revenue but involves addressing the volatility, uncertainty, complexity, and ambiguity of the macroeconomic environment of Indonesia's two-wheeled automotive market, which is still largely dominated by Japanese internal combustion engine players (Haryanto et al., 2026). Therefore, the management team must lead with agility and guide the company's entrepreneurship to continuously adapt and respond to internal and external changes. At the same time, they should minimize liability exposure by avoiding excessive innovation when entering the market. By exploring the critical relationships among leadership, entrepreneurial orientation, and innovation, a business strategy should incorporate strong organizational capabilities to better forecast, adapt to, and manage difficult circumstances, thereby achieving resilience. However, empirical research on this relationship, particularly in the electric vehicle industry, remains limited.

1. LITERATURE REVIEW AND HYPOTHESES

In a constantly evolving and unpredictable world, a company must keep adapting to remain competitive and resilient. Limited studies have been conducted on the specifics of electric vehicles, with recent studies by Dehkordi et al. (2024), Ziegler and Abdelkafi (2022), and Shalender (2018). Their studies focused solely on qualitative analyses of various electric-vehicle business models and identified the need for flexible models to adapt to change and succeed.

Resilience is generally viewed as the ability to recover quickly from unexpected setbacks or to adapt and reconfigure in order to achieve higher performance levels. From a business strategy perspective, Ahmić (2022) and Mehta et al. (2024) define organizational resilience as an organization's capacity to forecast, adapt, and manage challenging circumstances, ensuring survival and success in a rapidly changing environment, maintaining stability, and building a strong future. Although not explicitly defined, the ongoing cycle of resilience is portrayed in Schumpeter's theory of Creative Destruction. The theory has prompted companies to continuously innovate by reconfiguring their resources to respond to rapidly evolving environments (Alvarez & Barney, 2007; Bari et al., 2022; Jacobson, 1992). These resource reconfiguration activities are captured by the resource-based theory, a core framework in strategic management that highlights a firm's internal resources and capabilities as the key sources of competitive advantage. Proposed by Birger Wernerfelt in 1984 and further refined by Jay Barney in 1991, the resource-based theory defines that a company's unique resources and capabilities are the primary drivers of long-term success (Wernerfelt, 1984). The theory states that competitive advantage comes from resources and skills that are valuable, rare, inimitable, and non-substitutable. These resources and capabilities include both tangible and intangible assets, such as organizational processes and the firm's knowledge (Alvarez & Barney, 2007; Barney, 1991).

The company's valuable and rare capabilities are essential for fostering innovation toward resilience, and these innovation abilities have been

widely studied in recent decades. Studies of these variables' interrelationships typically examined them as a multidimensional construct, and these interrelationships were commonly documented in small- and medium-scale enterprises (SMEs), as documented by Olaleye et al. (2024) in the study of Nigerian SMEs. At the firm level, Saemaldaher and Emeagwali (2025) found a direct relationship between innovation and resilience in private-sector companies in the United Arab Emirates. Innovation capabilities encompass internal and external factors that foster competitive advantage, although there remains limited agreement on their precise nature (Mendoza-Silva, 2020). These capacities to innovate encompass product, market, organizational, process, and business model innovation (Mendoza-Silva, 2020; Ziegler & Abdelkafi, 2022).

In driving innovation, a widely recognized firm-level concept, entrepreneurial orientation, is typically used to illustrate the managerial philosophies and strategic behaviors that drive the company's strategy. Entrepreneurial orientation is a framework for entrepreneurs that reflects a firm's strategic stance on innovation, proactivity, and risk-taking (Lumpkin & Dess, 2001; Manzano-García & Ayala-Calvo, 2020; Wahyuni & Sara, 2020). By encouraging proactivity, innovation, risk-taking, and continuous learning, entrepreneurial orientation can significantly influence business performance, subjective entrepreneurial success, and the development of diverse opportunities (Karami et al., 2023; Manzano-García & Ayala-Calvo, 2020; Titus et al., 2020). The relationship between entrepreneurial orientation and innovation capabilities has consistently been positive, with implementing entrepreneurial orientation into daily business activities boosting the company's ability to foster innovation (Aloulou, 2023; Maldonado-Guzman et al., 2019; Ribau et al., 2017; Sánchez-García et al., 2022; Wach et al., 2022; Yu et al., 2023; Ali Zaidi & Zaheer Zaidi, 2021). A study by Yu et al. (2023) on 279 new ventures in China found that entrepreneurial orientation encourages companies to use resources more creatively to pursue innovation through technological and business upgrades more quickly than their competitors.

In practice, entrepreneurial orientation builds a mindset that drives knowledge-sharing behavior and research and development (R&D) capabilities to anticipate shocks, respond effectively, and drive transformation activities, particularly during crises, thereby turning resilience into a strategic asset. Research on the relationship between entrepreneurial orientation and organizational resilience consistently demonstrates a positive association, with entrepreneurial orientation enhancing companies' ability to adapt to market shifts and overcome challenges (Al-Hakimi et al., 2020; Asare-Kyire et al., 2023; Kwiotkowska, 2023). Previous studies have found this link to be evident in small and medium-sized enterprises (SMEs), where entrepreneurial efforts foster resilience by managing uncertainty and creatively solving problems (Branicki et al., 2018; Zighan et al., 2022).

As previous studies have identified direct interconnections among entrepreneurial orientation, innovation capabilities, and organizational resilience, the mediating role of innovation capabilities between entrepreneurial orientation and organizational resilience enables companies to overcome business barriers through innovation and to remain flexible to tap into growth opportunities. This mediating role was supported by Aloulou (2023), who studied Saudi small and medium-sized enterprises, and by Yu et al. (2023), who demonstrated that entrepreneurial orientation significantly influences sustainable innovation capabilities in 279 new ventures in China, enabling them to make quick decisions and adapt to external changes. Studies in other settings consistently report that innovation measures (including general innovation, absorptive capacity, digital business capability, and product innovation) improve firms' ability to withstand disruptions and stay competitive.

To navigate innovation, leaders play a vital role in identifying, understanding, and restructuring opportunities, particularly in today's fast-changing environment. Leaders' agility is identified as a key strategy for effective operations because it provides a framework for establishing guiding principles, developing strategies, and creating mechanisms that facilitate smooth transitions through ambiguous and complex situations (Attar & Abdul-Kareem, 2020; Siregar et al., 2023). In business research, agile leadership is a multidimensional construct that emphasizes responsiveness to change, collaboration, and innovation (Akkaya

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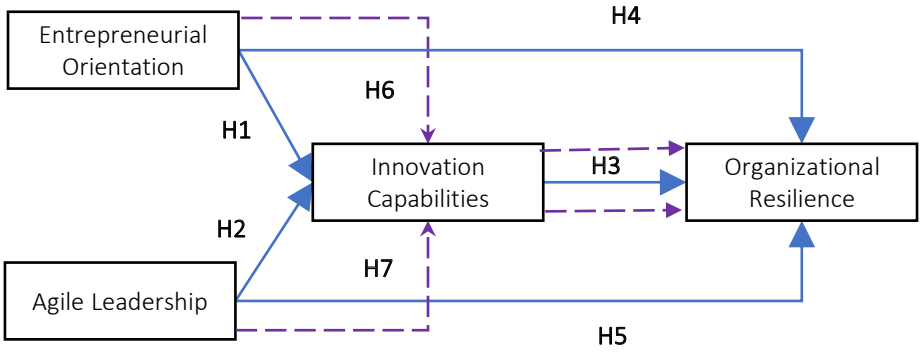

Note: Blue line – direct impact; Purple line – mediating impact.

Figure 1. Conceptual model

et al., 2022; Anggadwita et al., 2021; Siregar et al., 2023). This leadership style has become a catalyst for the organization's innovation by creating an environment that supports creativity and calculated risk-taking (Akkaya et al., 2022; Chan et al., 2019; Marouf Abdelhamid Amr et al., 2023; Porkodi, 2024). In Indonesia, Astuti et al. (2023) found that agile leadership positively affects innovation in a quantitative study involving 365 middle- and senior-level managers at existing automotive manufacturing companies.

As agile leadership drives innovation, it also plays a crucial role in maintaining core functions during disruptions. It helps organizations 'bounce forward' by turning crises into opportunities for renewal and gaining a new competitive edge. Agility has become essential for organizational resilience, as shown in various studies, and is achieved by adapting to and responding effectively to market changes, enabling the organization to thrive in a competitive environment (Berg et al., 2020; Pöhlmann et al., 2024; Von Kolpinski et al., 2024). In the Indonesian context, agile leadership also encourages private companies to develop adaptive and innovative solutions that boost resilience, as demonstrated by Indrianti et al. (2024), who researched 340 Indonesian start-up companies. However, a study by Lisdiono et al. (2022) on Indonesian state-owned enterprises and their subsidiaries presents a different picture and emphasizes the importance of leadership skills in managing risks.

Following the literature review, the study aims to examine how the company's organizational resilience can be achieved by focusing on the effects of entrepreneurial orientation and agile leadership, with innovation capabilities as a mediating variable. The study examines the direct impact of entrepreneurial orientation, agile leadership, and innovation capabilities on organizational resilience, and the indirect impact of entrepreneurial orientation and agile leadership on organizational resilience, with innovation capabilities serving as a mediating variable. Figure 1 shows the research model, and the hypotheses are as follows:

H1: Entrepreneurial orientation positively influences innovation capabilities.

H2: Leader's agility encourages the firm's innovation capabilities.

H3: Innovation capabilities are positively related to organizational resilience.

H4: Entrepreneurial orientation positively influences organizational resilience.

H5: Leader's agility drives organizational resilience.

H6: Firm's innovation capabilities mediate entrepreneurial orientation and organizational resilience.

H7: Leader's agility drives innovation capabilities toward organizational resilience.

2. METHOD

This study employs a quantitative method to empirically analyze the positivist relationships among the variables as illustrated in Figure 1. Positivism in sci-

entific research facilitates testing cause-and-effect relationships in real-world phenomena and, subsequently, enables the generalization of test findings (Saunders et al., 2009; Sekaran & Bougie, 2020).

The constructs of variables were measured using indicators adapted from prior validated scales. Entrepreneurial orientation was operationalized through innovativeness, proactiveness, and risk-taking, following the established entrepreneurial orientation literature. Agile leadership was measured through creativity, adaptability, responsiveness, and stress-handling ability, based on prior studies on agile leadership capabilities. Innovation capability was operationalized as the firm's perceived ability to develop and implement product, market, process, organizational, and business model innovations. Organizational resilience was measured through anticipation, coping, and adaptation capabilities, consistent with the core capability-based view of organizational resilience. All items were adapted to the context of Indonesian electric two-wheeler firms, and a new set of questionnaires was created, as presented in Table B1 in Appendix B. The questionnaire was reviewed by experts prior to its administration.

The questionnaire survey was administered online via the SurveyMonkey platform as a single cross-sectional data-collection point (e.g., a one-off survey). The survey includes a sequence of structured, closed-ended questions on a 5-point Likert scale (1 – Strongly Disagree, 3 – Neutral, 5 – Strongly Agree) to rate the respondent's agreement with each statement. Supporting data comprise personal data (age, gender, job title, and educational background) and vital corporate data (business scope, company age, company size, geographical coverage, digital literacy, and implementation of an agile framework).

Data were collected through a purposive non-probability survey conducted in November 2025 among managers of Indonesian electric two-wheeler firms. The unit of analysis was the firm, represented by a managerial-level respondent. The sample was restricted to firms with annual sales exceeding 1,000 units in both 2024 and 2025, because the study focuses on firms that had moved beyond market entry and were facing resilience-related strategic challenges. Based on industry sales data, managers from firms operating the Smoot, United, Volta, ALVA, and VIAR brands were targeted. The final sample consisted of 40 respondents. Given the small population of eligible firms, the sample size was also assessed using PLS-SEM-specific guidance on minimum sample size. The inverse-square-root method indicated a minimum required sample size of 39, assuming an expected path coefficient between 0.31 and 0.40 at the 5% significance level. Therefore, the final sample of 40 respondents meets the minimum threshold, although the small sample size should be acknowledged as a limitation. Nevertheless, the small sample size limits the statistical power of the study and the generalizability of the findings. Therefore, the results should be interpreted as exploratory.

In analyzing the survey data, the questionnaire responses were coded and organized into a database by calculating dimension scores as averages of indicator outcomes. The database was then analyzed using structural equation modeling (SEM) with SmartPLS version 4 to test multiple complex relationships between dependent and independent variables and address the study objective. SEM was selected for its precision in simulating simple models and its ability to observe all variables without restrictions (Hair et al., 2021). SmartPLS is the statistical software for partial least squares structural equation modeling (PLS-SEM) that provides advanced simulation and reporting capabilities, particularly for handling small sample sizes and asymmetric data with non-normal distributions.

Using the SmartPLS path model, the analyses began by assessing the data completeness, validity, and reliability. Validity ensures that the data are accurate for testing, and reliability checks the consistency of the data (Saunders et al., 2009). Validity and reliability are assessed by examining outer loadings, construct reliability and validity, and discriminant validity parameters. For acceptance, Hair et al. (2021) recommend outer loadings above 0.708; however, loadings above 0.50 are considered sufficient for an absolute contribution to the construct. For internal consistency acceptance, composite reliability (rho) must be below 0.95 to avoid redundant response patterns, and Cronbach's alpha must be above 0.70. For testing convergent validity, the minimum Average

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Variance Extracted (AVE) must be 0.50. To assess discriminant validity, the Fornell–Larcker assessment criterion is used. To assess collinearity, the variance inflation factor (VIF) must be below 5 to ensure no collinearity. Following successful tests of completeness, validity, and reliability, the path model was adjusted, and a bootstrapping procedure with a two-tailed test and a 5% error rate was performed using 10,000 subsamples to evaluate interrelationships among variables. The relationship is significant only if the *t*-value is greater than 1.96 or the *p*-value is less than 0.050. The strength of the relationships, including both positive and negative ones, is indicated by the path coefficients (Hair et al., 2021).

After screening for completeness, all respondents' responses were deemed valid. The respondents consist mainly of males (82.5%), with 65% from the millennial generation and 65% Indonesian citizens, working at diverse two-wheeler electric vehicle companies, including original equipment manufacturers, parts and service companies, and supporting infrastructure companies. These companies are considered the top two-wheel electric vehicle companies in Indonesia by sales, and therefore, their responses reflect market conditions. The general characteristics of the respondents are presented in Table 1, and the primary data are provided in Table B2 in Appendix B.

The data used in this study were verified to the highest ethical standards for accuracy and confidentiality. Participants were informed of the study's purpose, their voluntary participation, and the confidentiality of their responses. As part of the online questionnaire, all participants were required to acknowledge informed consent before beginning the survey. All responses were kept anonymous, and data were stored securely to ensure confidentiality. The studies involving humans were approved by the Management Department, BINUS Business School Doctor of Research in Management, Bina Nusantara University, Jakarta, Indonesia. The analyses were conducted in accordance with local legislation and requirements set by the institution.

3. RESULTS

The SmartPLS path model for this research is developed as a reflective measurement model and is illustrated in Figure 2. Hair et al. (2021) note that

Table 1. Characteristics of survey respondents

Characteristics	Classifications	Total Respondents	Percentage
Gender	Male	33	82.50%
	Female	7	17.50%
Nationality	Indonesian	39	97.50%
	Non-Indonesian	1	2.50%
Generation	Gen X (born between 1965 and 1980)	14	35.00%
	Millennial (born between 1981 and 1996)	26	65.00%
Highest Educational Background	Diploma/ Vocational Study	1	2.50%
	Bachelor's degree	29	72.50%
	Master's degree	9	22.50%
	Doctoral degree	1	2.50%
Position in the Company	C-level	1	2.50%
	Vice President	16	40.00%
	Manager	23	57.50%
Company age	1–2 years old	1	2.50%
	> 3 years old	39	97.50%
Total Employees	50-100	3	7.50%
	101-500	33	82.50%
	501+	4	10.00%
Company Services	Original Equipment Manufacturer (OEM)	30	75.00%
	Service Company	2	5.00%
	Part Manufacturer	2	5.00%
	Supporting Infrastructure	3	7.50%
	OEM and Supporting Infrastructure	2	5.00%
	OEM, Part Manufacturer and Supporting Infrastructure	1	2.50%

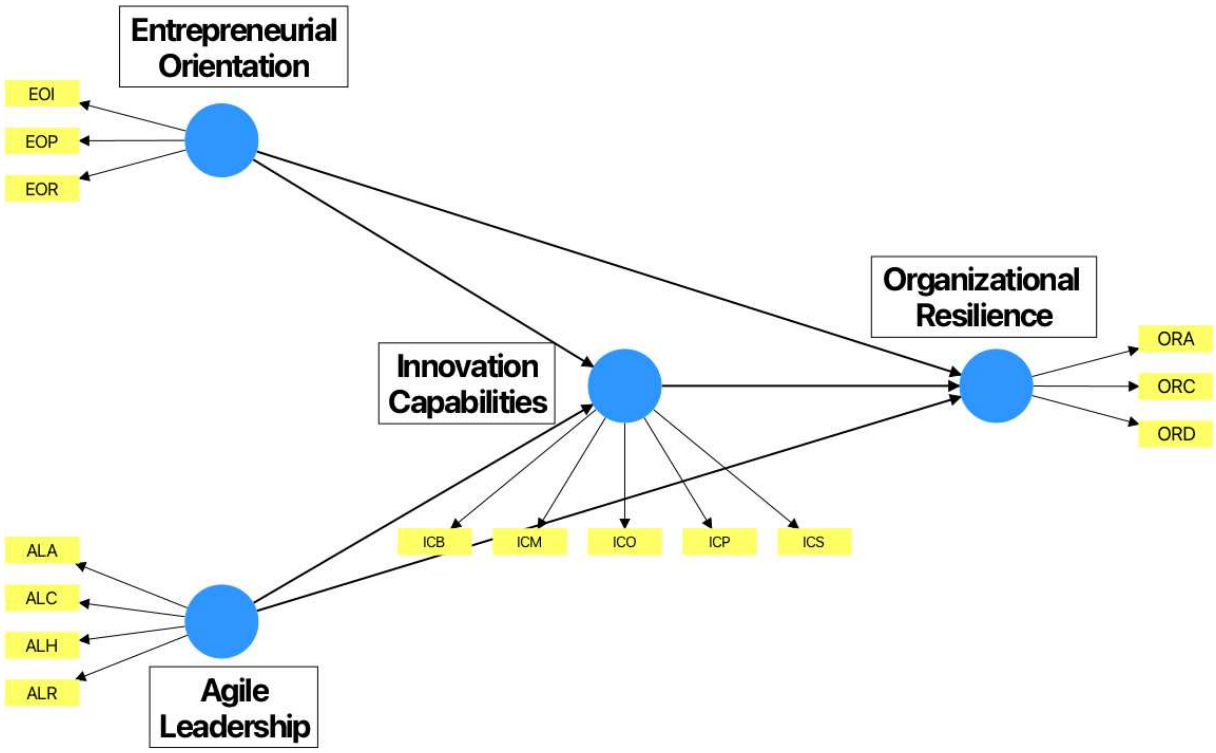

Figure 2. SMART PLS path model

the reflective model assumes that the measurement of indicators affects the construct variables, and, for this study, the average value of the dimensional indicators' measurements is adopted as the model indicators.

The reflective model was evaluated using the standard PLS-SEM algorithm in SmartPLS, beginning with validity and reliability assessment. The initial assessment examined the outer loadings of the research path model, and the results are presented

Table 2. Outer loading analysis

Dimension	Outer loadings	Result
ALA ← Agile Leadership	0.941	Accept
ALC ← Agile Leadership	0.878	Accept
ALH ← Agile Leadership	0.875	Accept
ALR ← Agile Leadership	0.879	Accept
EOI ← Entrepreneurial Orientation	0.811	Accept
EOP ← Entrepreneurial Orientation	0.841	Accept
EOR ← Entrepreneurial Orientation	0.875	Accept
ICB ← Innovation Capabilities	0.835	Accept
ICM ← Innovation Capabilities	0.639	Accept
ICO ← Innovation Capabilities	0.831	Accept
ICP ← Innovation Capabilities	0.716	Accept
ICS ← Innovation Capabilities	0.659	Accept
ORA ← Organizational Resilience	0.911	Accept
ORC ← Organizational Resilience	0.856	Accept
ORD ← Organizational Resilience	0.874	Accept

Note: ALA = Agile Leadership - Adaptability; ALC = Agile Leadership - Creativity; ALH = Agile Leadership - Handling Stress; ALR = Agile Leadership – Reactivity; EOI = Entrepreneurial Orientation – Innovativeness; EOP = Entrepreneurial Orientation – Proactiveness; EOR = Entrepreneurial Orientation – Risk Taking; ICB = Innovation Capabilities – Business Model Innovation; ICM = Innovation Capabilities – Market Innovation; ICO = Innovation Capabilities – Organizational Innovation; ICP = Innovation Capabilities – Product Innovation; ICS = Innovation Capabilities – Process Innovation; ORA = Organizational Resilience – Anticipation Capabilities; ORC = Organizational Resilience – Coping Capabilities; ORD = Organizational Resilience – Adaptation Capabilities.

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Table 3. Internal consistency and convergent validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average Variance Extracted (AVE)	Result
Agile Leadership	0.916	0.917	0.941	0.799	Valid
Entrepreneurial Orientation	0.799	0.820	0.880	0.710	Valid
Innovation Capabilities	0.792	0.813	0.857	0.549	Valid
Organizational Resilience	0.855	0.862	0.912	0.776	Valid

in Table 2. All dimensions, except marketing innovation (ICM) and process innovation (ICS), exceeded the recommended loading of 0.708. For ICM and ICS, the outer loadings were assessed at 0.639 and 0.659, respectively, and were not removed from the model because the selected minimum absolute loading in this study is 0.5.

Subsequent tests of internal consistency found that Cronbach's alphas for all variables ranged from 0.792 to 0.916, which are above the selected minimum of 0.70. Further analysis of the average variance extracted (EVA) results for the variables showed values ranging from 0.549 to 0.799, all above the minimum of 0.50. Combining both results, as shown in Table 3, the internal consistency and convergent validity tests across all variables confirm that the model is valid for path analysis.

Prior to path analysis, collinearity assessment was performed using the variance inflation factor (VIF). The assessment, as described in Table 4, showed that the VIFs for all dimensions ranged from 1.443 to 4.733, confirming the absence of multicollinearity, as VIFs were below 5. Lastly, discriminant validity was also tested using the Fornell-Larcker criterion, as presented in Table 5. The result confirmed the model's discriminant validity and final validity for path modeling assessment.

Based on all selected criteria, the reflective model was deemed complete, with good validity and reliability, and exhibited no collinearity. Hence, the model is representative of the bootstrapping procedure for analyzing intercorrelations among variables and for testing all direct and indirect hypotheses. The bootstrapping procedure used a two-tailed test and a 5% significance level, corresponding to a 95% confidence level. The procedure was performed assuming 10,000 subsamples, and the resulting *t*-value and *p*-value were used to test the relationship's significance and, subsequently, the hypotheses. Table 6 shows the hypotheses

Table 4. Variance inflation factor (VIF)

Dimension	VIF	Dimension	VIF	Dimension	VIF
ALA	4.733	EOP	1.667	ICP	2.049
ALC	2.612	EOR	1.736	ICS	1.565
ALH	2.755	ICB	2.086	ORA	2.615
ALR	2.821	ICM	1.443	ORC	1.820
EOI	1.713	ICO	1.861	ORD	2.359

Note: ALA = Agile Leadership - Adaptability; ALC = Agile Leadership - Creativity; ALH = Agile Leadership - Handling Stress; ALR = Agile Leadership – Reactivity; EOI = Entrepreneurial Orientation – Innovativeness; EOP = Entrepreneurial Orientation – Proactiveness; EOR = Entrepreneurial Orientation – Risk Taking; ICB = Innovation Capabilities – Business Model Innovation; ICM = Innovation Capabilities – Market Innovation; ICO = Innovation Capabilities – Organizational Innovation; ICP = Innovation Capabilities – Product Innovation; ICS = Innovation Capabilities – Process Innovation; ORA = Organizational Resilience – Anticipation Capabilities; ORC = Organizational Resilience – Coping Capabilities; ORD = Organizational Resilience – Adaptation Capabilities.

Table 5. Fornell–Larcker results

Variables	Agile Leadership	Entrepreneurial Orientation	Innovation Capabilities	Organizational Resilience
Agile Leadership	0.894			
Entrepreneurial Orientation	0.829	0.843		
Innovation Capabilities	0.721	0.751	0.741	
Organizational Resilience	0.479	0.544	0.770	0.881

Table 6. Hypotheses testing results

Code	Hypotheses	Path Coefficient	*t*-values	p-values	Accept/Reject
H1	EO → IC	0.492	1.964	0.050	Accept
H2	AL → IC	0.313	1.112	0.266	Reject
H3	IC → OR	0.871	4.859	0.000	Accept
H4	EO → OR	0.043	0.207	0.836	Reject
H5	AL → OR	−0.184	0.818	0.413	Reject
H6	IC mediate EO → OR	0.428	1.681	0.093	Reject
H7	IC mediate AL → OR	0.272	1.133	0.257	Reject

Note: EO = Entrepreneurial Orientation; IC = Innovation Capabilities; AL = Agile Leadership; OR = Organizational Resilience.

testing; it is concluded that only Hypothesis 1 and Hypothesis 3 are accepted.

Following the bootstrapping procedures for the reflective model, a further study was conducted using a 2nd-order reflective model to assess the validity of each dimension with respect to selected key variables and to clarify the path analysis results. The initial 2nd-order reflective model is illustrated in Figure 3, and as in the path modeling model test, validity and reliability tests were performed. The test concluded that the ICM1 and ORA1 indicators must be removed from the model because their outer loadings are below the selected minimum absolute loading of 0.5. Following the removal of these indicators, further validity and reliability tests were performed, and the results showed that the handling stress under agile leadership variable must be removed because its Cronbach's alpha was 0.626, which is below the minimum of 0.70. Following completeness, validity, and reliability tests, the bootstrapping procedure was performed using 10,000 subsamples and a confidence level of 95%. All 2nd order model

Table 7. Path model for the entrepreneurial orientation variable

Dimension	Cronbach's alpha	rho_a	rho_c	Average Variance Extracted (AVE)	*t*-values	*p*-values	Result
Proactiveness	0.801	0.814	0.871	0.631	20.667	0.000	Valid
Innovativeness	0.826	0.830	0.896	0.742	8.650	0.000	Valid
Risk-Taking	0.778	0.775	0.871	0.694	19.425	0.000	Valid

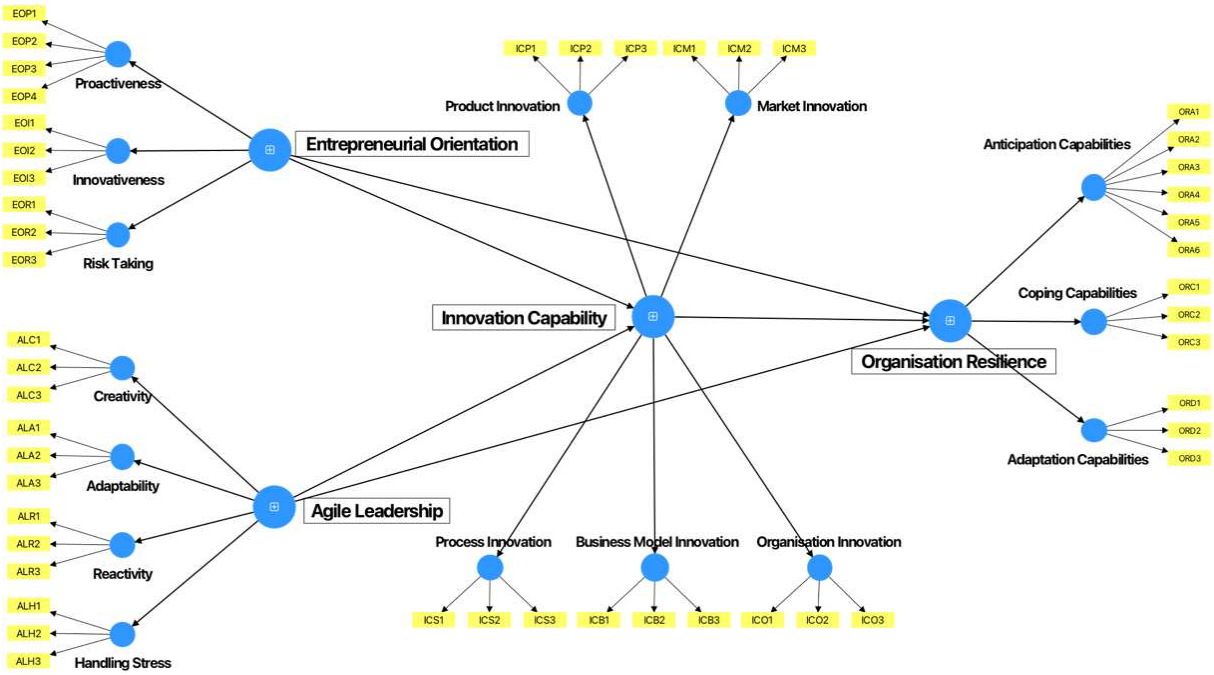

Figure 3. SmartPLS 2nd order path model

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Table 8. Path model for the agile leadership variable

Dimension	Cronbach's alpha	rho_a	rho_c	Average Variance Extracted (AVE)	*t*-values	*p*-values	Result
Creativity	0.778	0.780	0.872	0.696	17.421	0.000	Valid
Adaptability	0.860	0.861	0.915	0.782	46.976	0.000	Valid
Reactivity	0.864	0.865	0.917	0.787	19.565	0.000	Valid
Handling Stress	0.626	0.646	0.802	0.578	–	–	Not Valid

Table 9. Path model for the innovation capabilities variable

Dimension	Cronbach's alpha	rho_a	rho_c	Average Variance Extracted (AVE)	*t*-values	*p*-values	Result
Product Innovation	0.723	0.724	0.844	0.643	6.408	0.000	Valid
Process Innovation	0.774	0.856	0.871	0.697	6.172	0.000	Valid
Market Innovation	0.794	0.824	0.906	0.828	6.506	0.000	Valid
Organization Innovation	0.847	0.849	0.908	0.766	12.804	0.000	Valid
Business Model Innovation	0.758	0.758	0.861	0.675	16.980	0.000	Valid

analyses are presented in Table 7 for the entrepreneurial orientation variable, Table 8 for the agile leadership variable, and Table 9 for the innovation capabilities variable.

4. DISCUSSION

Previous studies examining organizational resilience have identified interrelationships among innovation capabilities, leadership agility, and entrepreneurial orientation; however, in emerging electric two-wheeler companies, these interrelationships are unclear, particularly in the Indonesian automotive industry. Therefore, this study fills this gap by providing insight into the empirical relationship among the complexities of interrelationships, revealing both alignment with and deviations from the existing literature.

Hypothesis 1 tested the relationship between entrepreneurial orientation and innovation capabilities. The statistical analysis using model bootstrapping yielded a *t*-value of 1.964 and a *p*-value of 0.05, indicating that entrepreneurial orientation positively influences innovation capabilities. This finding supports previous studies highlighting the key role of entrepreneurship and innovation in preserving market presence, as explained in Schumpeter's creative destruction theory (Jacobson, 1992; Wiggins & Ruefli, 2005). An in-depth analysis across the dimensions of entrepreneurial orientation was performed and indicates that the strongest dimensions to enhance innovation are proactiveness (*t*-value of 20.667) and risk-taking (*t*-value of 19.425). For implementation, aggressive, calculated risk-taking is required for a company to enhance its innovation capabilities; however, it must be supported by capable employees willing to take initiative and collaborate on research and development to meet market demand. This finding supports the evidence from Maldonado-Guzman et al. (2019) that implementing an entrepreneurial orientation (generally defined by innovativeness, proactivity, and risk-taking, and sometimes competitive aggressiveness) as part of daily business activities increases a company's potential to enhance innovation.

The statistical analysis of the relationship between agile leadership and innovation capabilities yielded a path coefficient of 0.313, a *t*-value of 1.112, and a *p*-value of 0.266, indicating an insignificant relationship. The study of the Indonesian two-wheeled electric vehicle reveals that Hypothesis 2 is rejected; therefore, agile leadership has not enhanced innovation. This evidence contradicts prior literature, particularly Astuti et al. (2023), who showed that leaders in Indonesian automotive manufacturing companies adapt to and respond to change by fostering collaborative thinking and cultivating an environment that supports innovation.

Further analysis of the agile leadership aspect was conducted on the demographics and the dimensions to identify the cause. From a demographic perspective, the majority of respondents are millennial vice presidents and managers (65%), with

the remainder from Gen X (35%). Their positions are directly linked to the company's strategy implementation and performance; however, they are not responsible for the company's strategic direction because they are not C-level executives. Moreover, most respondents operate companies that are over 3 years old and must limit the company's liability exposure. The leadership characteristics of the millennial generation, like those of Gen X, are unique and emphasize non-directive, non-transactional approaches while upholding professional ethics in the workplace (Easton & Steyn, 2022, 2025).

Assessment of the agile leadership dimension further revealed that managing stress is insignificant, and the most important relationship is with adaptability (*t*-value of 46.976). Creativity and reactivity are almost equally influential on the leadership variable, consistent with the millennial generation's leadership style, which focuses on a non-transactional, governance-based approach. In Indonesia's electric two-wheeler industry, evidence suggests that leaders prefer to adapt rather than be creative in responding to difficult situations. This adaptation behavior contradicts findings on the entrepreneurial orientation dimension, particularly on the importance of aggressive risk-taking in orienting the entrepreneurship. Agility is being shaped by proactivity and adaptability rather than by creativity and aggressive risk-taking.

The analysis of the relationship between innovation capabilities and organizational resilience supports Hypothesis 3, with a *t*-value of 4.859 and a *p*-value of 0.000. This result confirms a positive correlation between the two variables and aligns with the literature, which holds that an organization's innovation capability is crucial for enabling firms to enhance their business value in a competitive environment, encompassing process, product, marketing, and organizational innovativeness. Moreover, this finding aligns with previous research, particularly Saemaldaher and Emeagwali (2025), who found that companies adopt innovation to maintain their resilience. An in-depth analysis across the dimensions of innovation capabilities was conducted to assess the effectiveness of each innovation item, and the evidence indicates that business model innovation has the most significant relationship, with a *t*-value of 16.980. The subsequent aspect of innovation found to influence the two-wheeler industry is organization innovation (*t*-value of 12.804), and process innovation is the least significant indicator in innovation capabilities (*t*-value of 6.172).

Hypothesis 4 tested the direct relationship between entrepreneurial orientation and organizational resilience, and the statistical analysis yielded a *t*-value of 0.207 and a *p*-value of 0.836. The result indicates that entrepreneurial orientation has an insignificant effect on organizational resilience, which contrasts with prior literature that reports a positive interrelationship between the variables. As the study indicates, the strongest dimensions of entrepreneurial orientation are proactiveness and risk-taking, and further assessment identifies that the respondents are focusing on managing risk carefully. This finding aligns with Gali et al. (2024), who suggest that entrepreneurial orientation may lead to resource depletion and increase the risk of business failure.

When testing the relationship between agile leadership and organizational resilience, the result of statistical analysis yielded a *t*-value of 0.818 and a *p*-value of 0.413. These findings indicate that agile leadership has an insignificant influence on organizational resilience, in contrast to the findings of Berg et al. (2020), Pöhlmann et al. (2024), and von Kolpinski et al. (2024), which found that agile leadership is essential for organizational resilience. Further assessment of the study's outcomes indicates that a different leadership approach is required in Indonesian two-wheeler electric-vehicle companies to achieve better outcomes. This finding is similar to that of Gagel (2021), who examined 126 US-based business units across 47 organizations and identified leadership elements that contribute to higher or lower agility outcomes.

The mediating role of innovation capabilities in enhancing the impact of entrepreneurial orientation on organizational resilience was found to be insignificant. The statistical analysis of the mediating role of innovation capabilities between entrepreneurial orientation and organizational resilience yielded a *t*-value of 0.1681 and a *p*-value of 0.093, leading to the rejection of Hypothesis 6. In general, this finding suggests a departure from the consistent pattern found by Aloulou (2023) and Indrianti et al. (2024), where innovation capabilities are an active mechanism that entrepre-

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neurs can use to enhance organizational resilience. This departure aligns with Somwethee et al. (2023), who found that the mediating relationship between entrepreneurial and organizational performance can only be partial because entrepreneurial capabilities are influenced by several key factors, such as passion and achievement.

Similarly, the mediating role of innovation capabilities in enhancing the impact of agile leadership on organizational resilience was also found to be insignificant. The statistical analysis of the mediating role of innovation capabilities between agile leadership and organizational resilience yielded a *t*-value of 0.133 and a *p*-value of 0.257, leading to the rejection of Hypothesis 7. This finding shows another departure from the general paradigm that agility is essential for organizational resilience, and previous research by Indrianti et al. (2024) in the Indonesian private sector. Despite this departure, this finding supports the previous study by Lisdiono et al. (2022), which showed similarities between Indonesian two-wheel electric vehicle companies and the Indonesian state-owned enterprises and their subsidiaries.

Summarizing the hypotheses testing, positive and significant relationships were found only between entrepreneurial orientation and innovation capabilities (Hypothesis 1) and between innovation capabilities and organizational resilience (Hypothesis 3). This indicates that a company's distinctive resources and capabilities are the primary drivers in the Indonesian two-wheeler electric vehicle company, thereby supporting the resource-based theory.

CONCLUSION AND LIMITATIONS

The study aims to examine how the company's organizational resilience can be achieved by focusing on the effects of entrepreneurial orientation and agile leadership, with innovation capabilities as a mediating variable. Using a nonprobability purposive quantitative survey, the study found that organizational resilience is enhanced by fostering innovation capabilities and that innovation capabilities are positively influenced by entrepreneurial orientation. Although these direct relationships exist, there is no evidence that innovation capabilities mediate the relationship between entrepreneurial orientation and organizational resilience. In terms of leadership, leadership agility style shows an insignificant relationship with innovation capabilities or organizational resilience, and the study finds that leadership style in Indonesian two-wheel electric vehicle companies is driven by the leaders' generation characteristics. The evidence showed that leaders prefer to adapt rather than be creative and react to difficult situations.

Throughout the study, the importance of organizational resilience as a company objective is highlighted, grounded in entrepreneurial orientation and innovation capabilities, and this supports Schumpeter's Creative Destruction Cycle, particularly the resource-based theory. The study offers novelty, particularly through its in-depth analysis of the innovation capabilities dimension, which shows that business model innovation is the most significant, whereas process innovation is the least significant. Moreover, the study finds that a focus on entrepreneurial orientation enhances the development of innovation capabilities and that entrepreneurs must innovate across products, processes, organizations, marketing, and business models to achieve organizational resilience. The study evidence also shows that a single extreme leadership style is insufficient to drive innovation to achieve resilience.

From a practical perspective, the study provides entrepreneurs with insights into achieving organizational resilience in Indonesia's two-wheeled electric vehicle industry. The findings suggest that key innovations in Indonesian electric two-wheel EV entrepreneurship lie in the business model and organizational innovation. Moreover, the study showed that innovation capabilities can be enhanced through entrepreneurial behavior characterized by aggressive, calculated risk-taking, thereby building resilience.

Lastly, the study has several limitations. The data were collected cross-sectionally from a sample of the two-wheeler electric vehicle industry. Therefore, a longitudinal study and data collection beyond two-

wheeler electric vehicle players will enrich the model. Furthermore, further studies are recommended to incorporate additional influencing variables, such as those contributing to Porter's five competitive forces, to overcome the seven market barriers and achieve competitive advantage, thereby providing stakeholders with insights into achieving organizational resilience (Porter, 2008).

AUTHOR CONTRIBUTIONS

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APPENDIX A

Table A1. List of electric vehicle two-wheeler companies in Indonesia as of November 2025

No.	Company	Brand
1	PT Lisgo Motor Indonesia	LISGO
2	PT AIMA Electric Vehicles Indonesia	AIMA EV
3	PT Electra Mobilitas Indonesia	ALVA
4	PT Benelli Motor Indonesia	BENELLI
5	PT Charger Tech Indonesia	ChargeD
6	PT Davigo Artha Luas	DAVIGO
7	PT Kreasi Energi Bersama	ELECTRUM
8	PT Adias Sarana Elektrik	EMMO
9	PT Ninetology Indonesia	ENINE
10	PT Gesits Motor Nusantara	GESITS
11	PT Green City Traffic	ECGO
12	PT Asia Putra Perkasa	HTM
13	PT Distribusi Ion Mobilitas	ION MOBILITY
14	PT Jarvis Lintas Mandiri	JARVIS
15	PT Dinamika Teknologi Jaya	JHL IMOTO
16	PT Benelli Motor Indonesia	KEEWAY
17	PT Kilats Energy Indonesia	KILATZ
18	PT KBrothers Energi Terbarukan	KKBROTHER
19	PT Kendaraan Listrik Nusantara	MAKA MOTOR
20	PT Bagaskoro Mega Langgeng	MINERVA
21	PT Semesta Motor Indonesia	MOTORIZ
22	PT Pangeran Maju Bahagia	NUV
23	PT OKLA Internasional Trading	OKLA
24	PT Roda Pasifik Mandiri	PACIFIC
25	PT Hartono Istana Teknologi	POLYTRON
26	PT Alessa Motors Nusantara	ALESSA
27	PT Garda Energi National Indonesia	SAVART
28	PT Juara Bike	SELIS
29	PT Smoot Indonesia	SMOOT
30	PT Sunra Distributor Indonesia	SUNRA
31	PT Barisan Anak Pamungkas	TANGKAS
32	PT Terang Dunia Internusa	UNITED
33	PT Uwinfly Indonesia Industries	uWINFLY
34	PT Triangle Motorindo	VIAR
35	PT Volta Indonesia Semesta	VOLTA
36	PT Voxa Indo Nusa	VOXA
37	PT Yadea Manufaktur Kendaraan Listrik	YADEA
38	PT Elektrik Motoriz Global	ZERO

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APPENDIX B

Table B1. Questionnaire list for measuring the dimensions and indicators

Variable	Dimension	Research Indicator	Coding	Questions	Literature Sources
Entrepreneurial Orientation	Proactiveness (EOP)	Dynamism	EOP1	My company has a good, dedicated team to learn from the lessons of competitors' strategies	Escamilla-Fajardo et al. (2021), Lumpkin and Dess (2001), Mao et al. (2021), Rank and Strenge (2018), Zighan et al. (2022)
		Future Oriented	EOP2	My company always looks for ways to do things differently from our competitors	Andersen (2020), Escamilla-Fajardo et al. (2021), Mao et al. (2021), Rank and Strenge (2018)
		Initiative	EOP3	In my company, the team always takes initiative in any situation	Fan et al. (2021), Gali et al. (2024), Mao et al. (2021), Zighan et al. (2022)
		Inter-organization	EOP4	My company culture is putting forward collaboration with external stakeholders	Andersen (2020), Bouguerra et al. (2023), Rank and Strenge (2018)
	Innovativeness (EOI)	Innovation Investment	EOI1	My company has adequate funding for carrying out research and development to create output(s) that meet the market demand	Escamilla-Fajardo et al. (2021), Gali et al. (2024), Lumpkin and Dess (2001), Zighan et al. (2022)
		Innovation Resources	EOI2	My company has adequate researchers for carrying out research and development to create output(s) that meet the market demand	Escamilla-Fajardo et al. (2021), Gali et al. (2024), Lumpkin and Dess (2001), Zighan et al. (2022)
		Technology Knowledge	EOI3	My company has easy access to knowledge of new technology	Escamilla-Fajardo et al. (2021) Mao et al. (2021), Rank and Strenge (2018)
	Risk Taking (EOR)	Critical Resources	EOR1	My company has the right capable personnel to operate the company	Gali et al. (2024), Lumpkin and Dess (2001), Rank and Strenge (2018)
		New Ideas	EOR2	People in my company are encouraged to take calculated risks with new ideas	Escamilla-Fajardo et al. (2021), Fan et al. (2021), Mao et al. (2021)
		Risk Aggressiveness	EOR3	My company has typically adopted a bold, aggressive risk posture to maximize the probability of exploiting potential opportunities	Escamilla-Fajardo et al. (2021), Fan et al. (2021), Mao et al. (2021), Zighan et al. (2022)
Agile Leadership	Creativity (ALC)	Innovation Solution	ALC1	My company's leadership team is known to be a catalyst in the business	Akkaya et al. (2022), Potchana et al. (2020), Siregar et al. (2023)
		Expertise	ALC2	My company's leadership team is an expert in the industry who can assess the current business situation	Bushuyeva et al. (2019), Dajani (2022), Siregar et al. (2023)
		Problem Solver	ALC3	My company leadership team develops new methods to solve problems	Akkaya et al. (2022), Anggadwita et al. (2021), Siregar et al. (2023)
	Adaptability (ALA)	Viewpoints	ALA1	My company's leadership team has a good understanding on employees' business viewpoints	Akkaya et al. (2022), Dajani (2022), Potchana et al. (2020), Siregar et al. (2023)
		Continuous Improvement	ALA2	My company's leadership team encourages lesson learnt from previous output development to be adopted in the next development	Akkaya et al. (2022), Pöhlmann et al. (2024), Siregar et al. (2023)
		Behavioral Adaptation	ALA3	My company's leadership team has the capacity to acquire new leadership styles in response to changing circumstances	Akkaya et al. (2022), Potchana et al. (2020), Siregar et al. (2023)
	Reactivity (ALR)	Swift Reaction	ALR1	My company's leadership team reacts swiftly to take actions	Akkaya et al. (2022), Dajani (2022), Siregar et al. (2023
		Action	ALR2	My company's leadership team is willing to take action to respond to difficult business circumstances	Akkaya et al. (2022), Potchana et al. (2020), Siregar et al. (2023)
		Work Reorganization	ALR3	My company's leadership team can re-manage the priority of team responsibilities in creating output(s)	Akkaya et al. (2022), Bushuyeva et al. (2019), Dajani (2022), Potchana et al. (2020), Siregar et al. (2023)
	Handling Stress (ALH)	Calm Decision	ALH1	My company's leadership team always considers various scenarios in addressing problems	Çobanoğlu and Demir (2022), Siregar et al. (2023)
		Brainstorming	ALH2	My company's leadership team always encourages discussions among various levels of employees in finding solutions	Akkaya et al. (2022), Bushuyeva et al. (2019), Dajani (2022), Siregar et al. (2023)
		Flat Structure	ALH3	My company's organizational structure is less bureaucratic to allow employees to communicate directly with the C-level	Akkaya et al. (2022), Dajani (2022), Potchana et al. (2020), Pöhlmann et al. (2024), Siregar et al. (2023)

Table B1 (cont.). Questionnaire list for measuring the dimensions and indicators

Variable	Dimension	Research Indicator	Coding	Questions	Literature Sources
Innovation Capabilities	Product Innovation (ICP)	Ratio of R&D to Operating Revenue	ICP1	My company allocates part of its operating revenue for research and development	Mendoza-Silva (2020), Mir et al. (2022), Sudolska and Lapinska (2020)
		Product Acquisition	ICP2	My company tries to acquire new products with differing technical specifications	Calik et al. (2017), Ferreira et al. (2020), Mendoza-Silva (2020), Mir et al. (2022), Sudolska and Lapinska (2020)
		First-to-Market	ICP3	My company, as the first-to-market player, will get the benefit	Arranz et al. (2020), Nafizah et al. (2024), Olaleye et al. (2024)
	Market Innovation (ICM)	Market Entrant	ICM1	My company is willing to make a late market entrance	Mendoza-Silva (2020), Nafizah et al. (2024), Olaleye et al. (2024)
		Marketing Method	ICM2	My company implements new marketing methods to promote the product	Arranz et al. (2020), Ferreira et al. (2020), Mendoza-Silva (2020), Mir et al. (2022)
		Customer Focus	ICM3	My company makes improvements in customer relationships to gain customer satisfaction	Calik et al. (2017), Mir et al. (2022)
	Process Innovation (ICS)	Change in Business Process	ICS1	My company actively works to constantly adjust its business processes	Arranz et al. (2020), Calik et al. (2017), Mendoza-Silva (2020), Mir et al. (2022)
		Change in Manufacturing Process	ICS2	My company develops in-house solutions to improve its production	Arranz et al. (2020), Calik et al. (2017), Ferreira et al. (2020), Mendoza-Silva (2020), Mir et al. (2022), Sudolska and Lapinska (2020)
		Investment in Machinery	ICS3	My company invests in the machinery to enhance output quality	Arranz et al. (2022), Calik et al. (2017), Mendoza-Silva (2020)
	Organizational Innovation (ICO)	New Organization Method	ICO1	My company is better than our competitors in managing its work	Arranz et al. (2020), Calik et al. (2017), Ferreira et al. (2020), Mendoza-Silva (2020)
		Information Sharing	ICO2	My company has good mechanisms for using technology from research to output development	Calik et al. (2017), Mendoza-Silva (2020), Sudolska and Lapinska (2020)
		Teamwork	ICO3	All departments in my company are working collaboratively to successfully maximize the value of new outputs	Calik et al. (2017), Mendoza-Silva (2020), Mir et al. (2022)
	Business Model Innovation (ICB)	Novelty	ICB1	The business model of my company offers a new way of conducting business	Foss and Saebi (2018), Haftor and Costa (2023)
		Complementary	ICB2	The business model of my company can integrate various resources in a new way	Foss and Saebi (2018), Haftor and Costa (2023), Ziegler and Abdelkafi (2022)
		Efficient	ICB3	The business model of my company can ensure that partners have sufficient information	Foss and Saebi (2018), Haftor and Costa (2023), Ziegler and Abdelkafi (2022)

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Table B1 (cont.). Questionnaire list for measuring the dimensions and indicators

Variable	Dimension	Research Indicator	Coding	Questions	Literature Sources
Organizational Resilience	Anticipation Capabilities (ORA)	Observation of Change	ORA1	My company is proactively (in advance) monitoring what is happening to receive early warnings of upcoming problems	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
		Thread Pinpoint	ORA2	My company can detect future potential crises	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
		Preparing Market Ability	ORA3	My company focuses on customer diversification	Ahmić (2022), Mehta et al. (2024), Kantabutra and Ketprapakorn (2021)
		Preparing Support Ability	ORA4	My company focuses on supplier diversification	Ahmić (2022), Mehta et al. (2024), Kantabutra and Ketprapakorn (2021)
		Mitigation Plan	ORA5	My company has prepared a formal disaster recovery plan on how to act when danger happens	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
		Plan Validity	ORA6	My company is committed to testing its operational emergency plans to ensure they are effective	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
	Coping Capabilities (ORC)	Accept Troubles	ORC1	My company quickly ensures smooth business continuity by keeping key stakeholders rightly informed about handling emerging problems	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Powley et al. (2020), Vogus and Sutcliffe (2007)
		Cognitive Challenge	ORC2	My company is open to dealing with changes	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024)
		Solution Development	ORC3	My company has a dedicated customer support team to inform customers about product defects	Ahmić (2022), Kantabutra and Ketprapakorn (2021)
	Adaptation Capabilities (ORD)	Recovery Ability	ORD1	Through good connections we have with suppliers, my company can recover quickly from a crisis	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
		Organizational Change	ORD2	If key people are unavailable, there are always others who can fill their roles in my company	Ahmić (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024), Vogus and Sutcliffe (2007)
		Reflection and Learning	ORD3	My company incorporates lessons learned from previous crises into its policy	Ahmić (2022), Evenseth et al. (2022), Kantabutra and Ketprapakorn (2021), Mehta et al. (2024)

Table B2. Primary data of the survey outcome

Respondent ID	ESP1	ESP2	ESP3	ESP4	ESP5	ESK1	ESK2	ESK3	ESC1	ESC2	ESC3	EOP1	EOP2	EOP3	EOP4	EOI1	EOI2	EOI3	EOR1	EOR2	EOR3	ALC1	ALC2	ALC3	ALA1	ALA2	ALA3	ALR1	ALR2	ALR3	ALH1	ALH2	ALH3
Participant 1	4	5	5	5	5	4	4	4	4	4	4	4	5	4	5	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	5	4
Participant 2	4	4	4	4	4	5	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 3	3	4	3	3	5	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	5	5
Participant 4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5
Participant 5	5	5	3	5	5	4	4	5	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 6	5	5	4	4	5	4	4	5	5	4	4	5	4	5	5	4	4	4	4	4	4	5	4	4	4	4	4	5	4	5	5	4	4
Participant 7	5	5	4	4	5	4	4	4	4	4	4	4	5	4	4	4	4	4	4	5	4	5	5	4	4	5	4	4	5	4	4	5	4
Participant 8	4	4	4	5	5	4	5	5	4	4	4	5	4	5	4	4	5	5	4	4	4	4	5	5	5	4	5	5	5	4	4	4	5
Participant 9	4	5	5	3	5	5	4	5	5	4	5	4	5	4	4	3	2	3	4	4	2	4	4	3	2	4	4	4	4	4	5	3	5
Participant 10	4	4	4	4	5	4	4	4	5	5	4	4	5	5	5	4	4	5	4	5	4	4	4	5	4	5	4	5	5	5	5	5	5
Participant 11	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 12	4	1	3	4	4	4	4	4	4	5	4	4	4	4	4	4	4	3	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4
Participant 13	4	5	3	4	5	4	4	4	4	3	4	4	5	5	5	4	4	5	3	3	4	4	3	3	3	4	3	4	4	4	4	3	4
Participant 14	4	4	4	4	3	4	3	4	3	3	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4
Participant 15	5	5	4	5	5	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 16	4	4	3	2	4	4	4	4	4	4	2	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2
Participant 17	5	4	4	2	4	4	3	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	4	5	5	5	5	5
Participant 18	3	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4	3	4	4	3	4	4	4	4	4	3	4	4
Participant 19	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 20	5	5	4	5	5	5	5	5	4	4	4	5	5	4	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4
Participant 21	4	4	3	5	4	4	4	4	4	4	4	4	5	4	4	4	4	4	3	3	4	4	4	3	4	4	4	4	4	4	3	4	3
Participant 22	5	5	5	4	4	5	4	4	4	4	4	5	5	5	4	4	4	4	4	4	3	4	5	5	4	4	4	4	4	4	4	5	4
Participant 23	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3	3	3	3	3	4	4	3	3	4	4	4	4
Participant 24	5	5	4	3	5	5	4	5	4	4	4	5	5	5	5	5	5	5	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5
Participant 25	5	5	4	5	5	4	4	4	5	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4
Participant 26	4	3	3	3	4	3	3	3	4	4	4	5	5	5	5	5	5	4	4	4	4	5	4	4	5	5	4	5	4	5	5	4	5
Participant 27	4	4	4	4	4	3	2	4	4	4	4	4	5	4	4	4	4	4	2	2	4	3	2	2	2	3	3	2	3	3	3	4	2
Participant 28	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Participant 29	4	4	3	4	4	4	4	5	4	4	4	3	3	3	4	5	5	4	3	3	3	3	3	4	3	3	3	2	3	3	4	4	3
Participant 30	4	5	3	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	5
Participant 31	4	4	4	5	5	4	4	5	5	5	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	5	4	4	5
Participant 32	4	5	2	4	4	4	5	4	4	4	2	4	2	4	4	4	2	4	4	4	2	2	4	4	4	4	4	4	4	4	5	2	4
Participant 33	5	5	4	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	4	5	5	5	5	5
Participant 34	1	4	4	3	3	3	3	3	4	4	4	4	4	4	5	4	4	4	4	4	3	3	5	4	3	4	3	4	4	4	3	3	4
Participant 35	4	4	4	5	4	4	4	4	4	4	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	3	3	3
Participant 36	5	5	5	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 37	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 38	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 39	2	3	3	2	3	2	2	2	2	1	3	4	5	4	4	5	3	3	4	3	3	5	4	4	4	4	4	4	4	3	4	4	5
Participant 40	4	5	3	3	4	4	3	5	4	4	3	4	5	4	4	3	3	4	4	4	3	4	4	4	4	5	4	4	4	4	4	4	5

Respondent ID	ICP1	ICP2	ICP3	ICM1	ICM2	ICM3	ICS1	ICS2	ICS3	ICO1	ICO2	ICO3	ICB1	ICB2	ICB3	GPA1	GPA2	GPA3	GPE1	GPE2	GPE3	ORA1	ORA2	ORA3	ORA4	ORA5	ORA6	ORC1	ORC2	ORC3	ORD1	ORD2	ORD3
Participant 1	4	4	4	2	4	5	4	4	4	4	4	4	4	4	4	2	3	2	2	2	4	4	4	4	4	4	3	4	4	4	2	4	4
Participant 2	4	4	4	3	3	3	3	3	3	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	3	3
Participant 3	4	4	4	3	3	4	4	4	4	3	4	4	4	4	4	3	3	3	2	2	3	4	4	4	4	4	3	4	4	4	4	3	3
Participant 4	4	4	5	4	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	5	4	4	5	5	4	4	4	5	5	4	4	4
Participant 5	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	4	4	3	4	4	4	4	5	4	4	4
Participant 6	5	4	5	3	4	5	5	4	4	5	5	5	4	4	4	3	3	3	3	3	3	4	4	5	4	5	5	5	5	5	5	4	4
Participant 7	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	4	4	5	5
Participant 8	5	5	5	4	5	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	5	5	5	4	2	4
Participant 9	4	4	4	4	5	5	4	4	4	4	4	4	4	2	4	3	4	3	2	3	2	4	4	4	4	4	4	4	4	4	3	4	4
Participant 10	4	4	4	4	5	5	4	5	5	4	5	5	4	5	4	4	3	3	3	3	3	4	4	5	4	4	4	4	5	5	4	4	4
Participant 11	4	4	4	2	4	4	4	4	4	4	4	4	4	4	4	3	3	3	2	2	4	4	4	4	4	4	4	4	4	4	3	4	4
Participant 12	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4	3	3	3	4	4	4	3	4	4
Participant 13	4	4	3	3	3	4	4	5	4	4	4	3	3	4	4	3	4	4	2	2	2	3	3	4	3	4	4	3	4	4	3	3	4
Participant 14	4	4	4	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4
Participant 15	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4
Participant 16	4	3	4	4	4	5	4	4	4	4	4	4	4	4	4	3	3	3	3	3	4	4	4	3	3	4	4	4	5	4	4	4	4
Participant 17	4	4	4	3	4	5	5	5	5	5	5	5	4	4	4	4	5	3	4	3	4	4	4	4	5	3	4	4	5	5	4	4	4
Participant 18	3	4	3	3	3	4	4	4	4	3	4	4	4	3	4	4	4	3	2	3	3	3	3	4	4	4	4	4	4	4	4	3	4
Participant 19	4	4	4	2	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 20	5	4	5	4	5	5	4	4	4	4	4	4	4	4	4	2	2	4	2	2	4	4	4	4	3	4	4	4	4	4	4	4	4
Participant 21	4	4	4	3	3	3	4	4	4	3	4	4	4	4	4	4	3	3	4	4	4	4	4	4	3	4	4	4	4	4	3	2	4
Participant 22	4	3	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	3	4	3	4	4	5	4	4	4
Participant 23	3	4	4	3	4	4	4	4	4	3	3	4	4	4	4	3	3	3	3	3	4	3	3	4	3	3	3	4	4	3	4	3	4
Participant 24	5	5	3	4	4	5	4	5	5	4	4	4	4	4	4	4	4	4	3	4	4	4	3	4	3	4	4	4	4	4	3	4	4
Participant 25	4	4	4	3	4	4	5	5	5	5	5	5	5	5	4	3	4	3	4	4	5	4	5	5	5	5	5	4	4	4	5	5	5
Participant 26	5	5	5	4	4	4	4	3	3	4	3	4	4	4	4	3	3	3	2	2	3	4	3	3	2	2	2	3	4	3	2	2	2
Participant 27	2	4	4	2	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	4	4	4	4
Participant 28	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Participant 29	4	4	4	4	2	3	3	4	3	3	4	3	4	4	3	2	3	3	2	2	4	4	3	2	2	3	3	3	4	3	3	2	3
Participant 30	4	4	5	4	4	5	4	4	4	5	4	5	4	4	4	3	3	3	2	2	3	4	5	4	4	4	4	4	4	4	4	4	4
Participant 31	4	4	5	3	4	4	5	5	5	5	4	4	4	4	4	4	4	4	3	3	3	5	3	4	4	4	4	4	5	5	4	4	5
Participant 32	5	4	4	5	4	5	1	4	4	4	4	4	4	4	4	4	5	5	4	4	4	5	4	4	2	4	4	4	4	4	4	4	4
Participant 33	5	5	5	4	5	5	4	4	4	5	5	5	5	5	5	5	5	5	2	2	4	4	4	4	4	4	4	4	5	5	5	5	5
Participant 34	4	3	4	4	3	4	4	2	3	3	3	5	4	3	4	3	4	4	3	3	3	3	3	4	3	3	4	4	5	4	3	4	4
Participant 35	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Participant 36	4	4	4	3	4	4	4	4	4	3	4	4	4	4	3	3	3	3	3	4	4	4	3	4	4	4	4	4	4	4	4	3	4
Participant 37	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Participant 38	4	3	3	2	4	4	4	4	4	3	4	4	4	4	4	3	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4
Participant 39	4	4	4	2	5	5	4	3	4	3	3	3	5	5	3	2	3	2	2	2	5	5	4	4	2	3	2	4	4	5	2	4	3
Participant 40	4	4	4	3	4	5	4	4	4	4	3	4	4	3	4	4	4	4	2	3	2	3	3	4	4	2	2	4	4	4	4	4	4

Note: 1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree.

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