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The effect of entrepreneurship orientation and flexibility toward adaptive innovation and improved firm performance

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Abstract
This study analysed the effect of entrepreneurial orientation and flexibility on adaptive innovation and firm performance. The sample of this study consisted of 114 orchid business actors. The data analysis technique used in this study uses quantitative methods with the SEM analysis method (WarpPLS) as an analytical tool to process data. Data was collected by direct interview and through a Google Form. This study proves that entrepreneurial orientation directly and positively affects firm performance and adaptive innovation. Flexible management has a direct and positive effect on firm performance and adaptive innovation, while adaptive innovation has a positive effect on improving firm performance. On the other side, adaptive innovation has not a mediation role of entrepreneurship orientation toward firm performance, but adaptive innovation has a mediation role flexibility toward firm performance. The novelty of this study emphasize on the green economy run by orchid SMEs, that strives to enhance business performance through entrepreneurial orientation, adaptability, and adaptive innovation.

Keywords:
adaptive innovation; entrepreneurship orientation; firm performance; flexibility.

JEL Code: L25, L26

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Introduction

Ornamental plants, one of the commodities to divert stress or stress release by most people in various parts of the world, including in Indonesia, encourage an increase in market demand for live plant products, both ornamental plants (including orchids) (VOI, 2021). Indonesia's ornamental plant exports recorded a significant increase reaching 69.7% from January to September 2021 compared to the previous year. Orchid cultivation in villages becomes a communal, egalitarian economic climate that supports the fulfilment of Village Sustainable Development

Goals (SDGs) (Arobaya et al., 2021). Specifically, orchid cultivation will support the fulfilment of the eighth goal of Village SDGs of egalitarian village economic growth. According to Statistics Indonesia (BPS) data, East Java successfully produced 4.2 million orchids in 2020, of which 301 villages have already exported their primary product (BPS, 2021).

Orchid business managers in Malang Raya were chosen as one of the business fields for several reasons, including Malang has the icon "Malang as the city of flowers" the icon is the right choice for researchers to conduct research in the field of green economics. Among several orchid-producing regions, Malang continues to hold orchid flower exhibitions, both at the national and international levels, with this exhibition increasing competition among orchid entrepreneurs, which can affect their performance. Furthermore, Malang Raya, as a tourism destination in East Java, can encourage competitive orchid business actors to provide good service to prospective buyers and continue to provide various types of orchids to consumers. For these reasons, the researchers chose the orchid business manager in Malang Raya as the research object because it has high attractiveness (Andri et al., 2015).

Following natural conditions, potential business development prospects have high business opportunities, so it is urgent to conduct research focusing on orchid business actors. Various efforts to encourage the growth and development of SMEs in this field encourage the realisation of superior businesses in each region according to their potential, prospects and opportunities (Kemenperin, 2019). To achieve organisational performance, it always faces various environmental changes. SMEs are required to think creatively to produce reliable and flexible management, agile strategies, and entrepreneurship orientation. When everyone is restless, they must have creativity and strategies to turn less productive resources into productive and added value. Entrepreneurs will always face formidable challenges (Sellapan & Shanmugam, 2021; Rofiaty et al., 2022). Therefore, they must look for breakthroughs in running their business to achieve optimal business performance.

There are different ways to measure how well business performance, but profit is the most important (Margaretha & Supartika, 2016). For some business actors, profit is the goal of people doing business. Several variables affect performance, including entrepreneurial orientation, as an orientation to be the first in terms of market innovation, willingness to take risks and to be proactive to changes in the market (Miller, 1983). The entrepreneurial orientation variable is measured by risk-taking, proactiveness, innovation, competitive aggressiveness, and autonomy. Based on the results of empirical studies, it is stated that entrepreneurial orientation influences company performance (Al-Dhaafri & Al-Swidi, 2016; Al-Dhaafri & Alosani, 2020; Mahrous & Genedy, 2019; Rofiaty, 2019). However, there are different research results, Pardi et al. (2014) stated that entrepreneurial orientation has no significant effect on organisational

performance. They state that entrepreneurial orientation has a significant effect on company performance.

The organisation, resources, coordination, and business are uncertain (Acosta et al., 2018). Another factor that affects performance is management flexibility. Flexibility is the degree to which an organisation has various managerial capabilities and the speed at which they can be activated to increase management control capacity and improve organisational control capabilities (Sushil, 2000), so measuring flexibility can use structural indicators. Previous studies show that there is an effect of flexibility on firm performance, i.e., Chan & Moon (2017), Cingöz & Akdoğan (2013), and Shalender & Yadav (2019). However, Yu (2012) mentions that flexibility does not affect business performance (flexibility on business performance).

The results of the empirical study show that there is a research gap, and the research gap is filled with adaptive innovation variables. Adaptive innovation is a company mechanism to adapt to a dynamic environment, while the indicators of adaptive innovation consist of technology, product innovation, process innovation, competitiveness, and attractiveness (Zhou, 2017). Based on the results of empirical studies, it is stated that entrepreneurial orientation influences adaptive innovation. Rofiaty (2019) and Zhang (2016) mention that entrepreneurial orientation affects adaptive innovation. Empirical studies show the influence of flexibility on adaptive innovation (Dibrell, 2014; Li & Liu, 2010). Furthermore, there is a relationship between adaptive innovation and performance, which is supported by Hosseini & Narayanan (2014), Klingebiel & Rammer (2011), Zhou & Wu (2009), and Li & Liu (2010). The novelty of this study emphasises on the green economy run by orchid SMEs, that strives to enhance business performance through entrepreneurial orientation, adaptability, and adaptive innovation.

Literature review

Firm performance

Firm performance is defined as "the total value created by the firm through its activities, which is the sum of the utility created for each legitimate stakeholder of the firm" (Herciu, 2017). According to Rofiaty et al. (2022), performance is the extent to which the company achieves the goals that have been set. So far, most companies have focused on the resulting economic goals. In addition, company performance can be evaluated in terms of "profitability, growth, market value, total shareholder return, economic added value, customer satisfaction, based on stakeholder expectations" (Herciu, 2017). Performance is significant to an organisation as it evaluates the results of all its financial, marketing and human resource activities. In strategy research, ignoring performance is impossible because improving performance is one of many strategic goals (George et al., 2019; Rofiaty et al., 2019). Performance is essential for an organisation as it evaluates all its finance, marketing, and human resources activities. In strategy

research, ignoring performance is impossible because improving performance is one of many strategic goals (George et al., 2019). Kimathi et al. (2015) stated that company performance was identified as one of the most important indicators of the influence of capital structure in a literature review. Performance is a general term used for part or all of the actions or activities of an organisation in a period by referring to a standard amount, such as historical costs or projected costs, based on efficiency, accountability, or management accountability (Christensen & Lægreid, 2015).

Performance is defined as the extent to which the company achieves the goals that have been set. Companies have primarily focused on the resulting economic goals. The company has also contributed to environmental issues as its business goal in recent years. It underlies the company to change its orientation to become a green economy. The achievement of the company's business goals can be reflected in the company's performance. The company's performance in the green economy can be measured through financial performance, marketing performance, and human resource performance (Obeidat et al., 2017).

Entrepreneurship orientation

Entrepreneurial orientation is an ongoing activity to improve innovative capabilities, risk management, effective use of resources, and value development to retain customers and benefit the organisation (Al-Mamary & Alshallaqi, 2022). This variable includes the following indicators: autonomy, the ability to make their own decisions regarding performance achievement; risk-taking, courage to take opportunities in the uncertainty of decision making; proactiveness, entrepreneurial activities are active, dynamic, and high-spirited and never go out due to obstacles, obstacles, and challenges to achieve achievements. Gupta & Batra (2016) examined the effect of entrepreneurial orientation (proactive, autonomy, and risk-taking). It showed that top managers who dare to take risks, like activities full of innovation, show a highly proactive attitude (the stronger the entrepreneurial orientation) proven to improve performance significantly. Entrepreneurial activity is considered necessary in company performance, for example, risk-taking, autonomy, proactiveness, and innovation, which are characteristics of entrepreneurial orientation (Fadda & Soren, 2017). Entrepreneurs could improve company performance by increasing entrepreneurial orientation, especially risk-taking, proactive, and innovation (Jalali et al., 2014).

Entrepreneurship is when individuals or groups use organised efforts to utilize available resources, create opportunities and value, and fulfil needs and wants through innovation and uniqueness (Robbins & Coulter, 2004). The nature of entrepreneurship refers to the nature, character, and characteristics inherent in someone with high motivation to realize innovation in the real and challenging business field in developing it. The concept of entrepreneurship is constantly

evolving from aspects of mentality, creativity, and innovation to a paradigm shift to respond to the progress of change and adaptation to environmental changes (Sopiah, 2008).

The development of entrepreneurship in this area is one form of increasing added value for the region towards an innovation-driven economy following the 2025 development vision, which is realised through three things: (1) increasing added value and expanding the value chain of the production process and distribution of asset management and access the potential of natural resources, geographical regions, and human resources through the creation of integrated and synergistic economic activities within and between areas of economic growth centres; (2) encouraging the realisation of increased production and marketing efficiency as well as domestic market integration in order to strengthen competitiveness and economic resilience nationally; (3) encouraging the strengthening of the national innovation system in terms of production, process and marketing to strengthen sustainable global competitiveness (Kartika, 2013).

Entrepreneurial orientation is a company orientation based on identifying and exploiting opportunities (Lumpkin & Dess, 1996). Other literature defines entrepreneurial orientation as an orientation to be first in market innovation, willing to take risks and proactive to market changes (Miller, 1983). Entrepreneurial orientation has been shown to positively influence organisational performance in several studies conducted in different industrial sectors and countries (Yu, 2012; Rofiaty, 2019; Linton et al., 2016; Martin & Javalgi, 2016; Anwar. et al., 2018).

Entrepreneurial orientation positively affects innovation behaviour and job performance (Ha, 2022). Jalali et al. (2014) reveal that entrepreneurs could improve company performance by increasing entrepreneurial orientation, especially risk-taking, proactive, and innovation. Research results findings suggested the significantly positive direct relationships among entrepreneurial orientations, organisational commitment, and innovation performance (Iqbal et al., 2021). Based on the explanation, the following hypothesis is proposed.

H1: Entrepreneurial orientation has a significant effect on performance.

Management flexibility

Organisations engaged in any field, whether large, medium, or small, must have flexibility and innovation in this digital era. That means that organisations must be able to face business competition, such as the challenges of speedy change. Therefore, a rapid adaptation to environmental changes is needed, which of course, requires a strategy that must align the internal change with the level of external change. The trend in management refers to the traditional understanding of flexibility as the antithesis of rigidity (Sushil, 2000). Flexibility is the most valuable strategic option in an ever-changing environment and proposes internal and external flexibility constructs at operational, structural

and strategic levels (Volberda, 1997). Flexibility is agility that demands multi-dimensional concepts related to change, innovation and novelty, coupled with robustness and resilience, implying stability, sustainable advantage and capability that can evolve (Bahrami, 1992). Flexibility is the degree to which an organisation has various managerial capabilities and the speed at which they can be activated to increase management control capacity and organisational control capabilities (Sushil, 2000). Flexibility in a business context is a rather complicated concept because it combines several dimensions (Shi & Daniels, 2003). Strategy flexibility has been shown to have a positive effect on performance in research conducted on manufacturing companies in Turkey (Cingöz & Akdoğan, 2013), garment companies in Asia (Chan & Moen, 2017), and automotive companies in India (Shalender & Yadav, 2019). Meanwhile, strategic flexibility does not affect performance in research conducted on high-tech companies in China (Yu, 2012).

Flexibility in the resource-based perspective is determined by the nature and adaptability of the firm's resources and the allocation of managerial attention. Flexibility has been shown to have a positive effect on adaptive innovation in research conducted in multi-industrial companies in the United States (Dibrell, 2014) and China (Li & Liu, 2010). Meanwhile, research conducted in high-tech companies in China shows that flexibility does not affect adaptive innovation (Zhou & Wu, 2009). Research on strategic flexibility in product and process adaptive innovation has been widely studied (Bock et al., 2012; Broekaert et al., 2016; Oke, 2013). Nevertheless, empirical research in organisational management flexibility still needs to be improved, so it is possible to study, identify and adopt new types of innovations (Teece, 2010).

In manufacturing companies, results show a significant positive relationship between the new product and market flexibility on operational performance (Alamro et al., 2018). Yousuf et al. (2021) prove that strategic flexibility positively affects companies' performance. The result of research strategy flexibility has been shown to positively affect performance (Cingöz & Akdoğan, 2013; Chan & Moen, 2017; Shalender & Yadav, 2019). Based on the explanation, the following hypothesis is proposed.

H2: Flexibility has a significant effect on performance.

Adaptive innovation

Adaptive creativity refers to thinking that applies solutions, techniques, or products to new scenarios or changing conditions by generating innovative solutions. Adaptive creative thinkers try to do things better, while innovative, creative thinkers try to do things differently. Adaptive creative thinkers create original ideas that are more suitable for the existing paradigm, while innovative, creative thinkers create original ideas that challenge the paradigm. Adaptively creative thinkers generally apply a disciplined, systematic approach, want to solve (rather than identify) problems, improve current practices, and perform well in

organisations (Kim & Pierce, 2013). Several studies have proven that entrepreneurial orientation positively affects adaptive innovation (Zhang, 2016; Rofiaty, 2019). The company's adaptive innovation model includes practices that combine multiple inputs with building future innovation capabilities, including partnering customer focus, transformational R&D, technology adaptability and responsiveness (Jackson & Haubelt, 2017).

Business innovation is a company mechanism to adapt to a dynamic environment. Therefore, companies must be able to create new thoughts and ideas by offering innovative products and improving services that can satisfy customers. The ability to continuously generate adaptive innovation depends on accumulating technological, social, and organisational innovations (Zhou, 2017). Adaptive innovation has been shown to have a positive effect on performance in research conducted on SMEs in Malaysian manufacturing (Hosseini & Narayanan, 2014), companies in Germany (Klingebiel & Rammer, 2011), and companies in China (Zhou & Wu, 2009; Li & Liu, 2010). Meanwhile, other study found that innovation does not affect organisational performance (Rofiaty, 2019).

Research results prove that the effects of entrepreneurial orientation on the exploitation and exploration of sustainable innovation are significantly positive (Mao et al., 2021). Iqbal et al. (2021) suggested the significantly positive direct relationships among entrepreneurial orientations, organisational commitment, and innovation performance at various levels in SMEs. Lee at al., (2019) show the significant curvilinear relationships of EO with technology and product innovation in Korean ventures. Based on the explanation, the following hypothesis is proposed.

H3: Entrepreneurial orientation has a significant effect on adaptive innovation.

The novelty value lies in flexibility perception which consists of: external (with suppliers and customers) and internal cooperation flexibility. Research results Tomášková & Kanovská (2022) show that external cooperation flexibility and internal cooperation flexibility are related to innovation flexibility in SMEs. Flexibility has positively affected adaptive innovation (Dibrell, 2014; Li & Liu, 2010). Based on the explanation, the following hypothesis is proposed.

H4: Flexibility has a significant effect on adaptive innovation.

The nature of entrepreneurship refers to the nature, character, and characteristics inherent in someone with high motivation to realize innovation in the field of business that is real and tough to develop (Sopiah, 2008). Entrepreneurial orientation is needed to overcome changes in consumer desires, so that high entrepreneurial orientation will affect the level of adaptive innovations of business actors that aim to meet diverse consumer desires to improve their business performance.

The results of empirical studies of the effect of entrepreneurial orientation on performance include Anwar et al. (2018) and Linton (2016) mention that

entrepreneurial orientation has a significant effect on performance. However, the results of different studies by Pardi et al. (2014) mention that entrepreneurial orientation does not affect performance. Furthermore, Rofiaty (2019) and Zhang (2016) mention that entrepreneurial orientation significantly affects adaptive innovation.

Flexibility is related to the company's ability to adapt to the business environment. Based on the results of empirical studies, there is a relationship between flexibility and performance. Cingöz & Akdoğan (2013) and Chan & Moen (2017) mention that flexibility has a significant effect on business performance, but in contrast to these results, Yu (2012) mention that flexibility strategy does not affect performance. Furthermore, Dibrell (2014) and Li & Liu (2010) mention that flexibility significantly affects adaptive innovation.

Adaptive innovation has been shown to have a positive effect on performance in research conducted on SMEs in Malaysian manufacturing (Hosseini & Narayanan, 2014), firms in Germany (Klingebiel & Rammer, 2011), and firms in China (Zhou & Wu, 2009; Li & Liu, 2010). Meanwhile, other study found that innovation does not affect organisational performance (Rofiaty, 2019). Hence, Figure 1 shows the research framework. Based on this explanation, the following hypothesis is proposed.

H5: Adaptive innovation has a significant effect on performance.

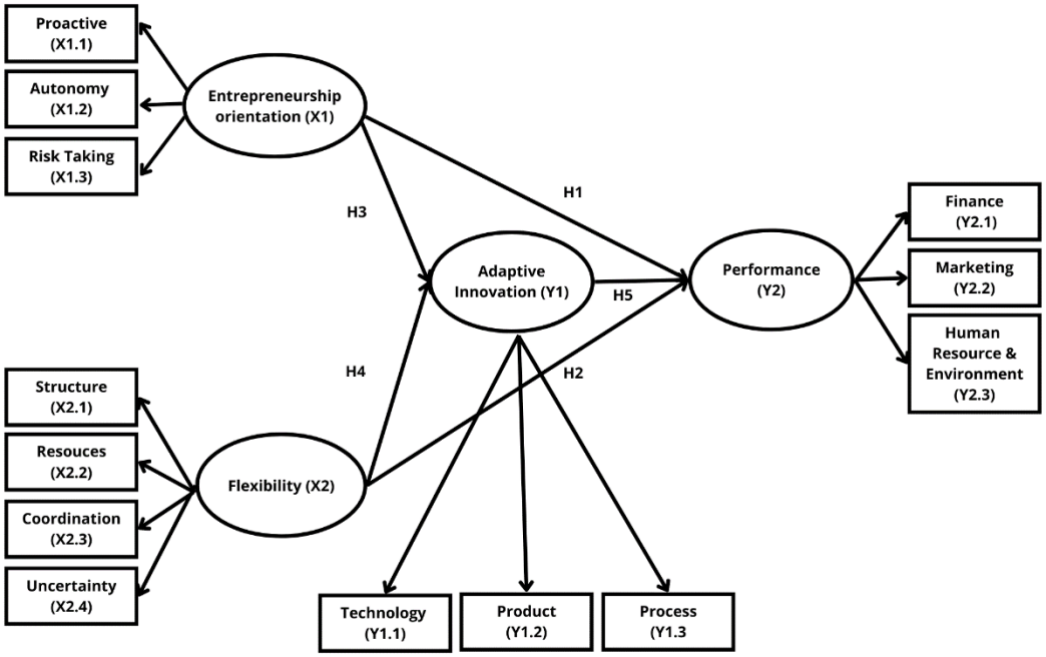
H6: Adaptive innovation mediates the influence of entrepreneurial orientation on business performance.

H7: Adaptive innovation mediates the effect of flexibility on business performance.

Research method

This research is a quantitative explanation to obtain measurements and depth in the data (Sekaran & Bougie, 2016). The object of this research is orchid business actors, while the object of this research is orchid plant managers and business people (strategic decision makers of the organisation). The sampling method in this research is purposive to 114 respondents. This condition has met the number of samples with the requirements to be analysed using WarpPLS. Respondents' criteria following the research objectives are: (1) having employees; (2) having a business that is still productive and growing; (3) having been operating for at least 3 years in the field; (4) having used information technology as a means of communication and market expansion, increasing insight and knowledge in product design.

Figure 1
Research Framework



Data analysis and results

Respondent profiles

Based on Appendix 1, there are 78 male respondents and 36 female respondents. Most respondents (36.8% or 42 respondents) are 21 to 30 years old, and (42.1% or 57 respondents) have a bachelor's education level.

Construct model testing (outer model)

Appendix 2 shows that all indicators of the three variables have a loading factor value (coefficient) above 0.5. It explains that all indicators have met the validity of the study. Entrepreneurial orientation (X.1) is measured by three indicators: autonomy (X.1.1), risk-taking (X.1.2), and proactivity (X.1.3). The results of SEM analysis, WarpPLS show that the highest loading factor value is autonomy (X.1.1). It means that the autonomy indicator (X.1.1) has a dominant role in the entrepreneurial orientation variable (X.1).

Four indicators measure flexibility (X.2): structure (X.2.1), resources (X.2.2), coordination (X.2.3.) and uncertainty (X.2.4.). The result of SEM analysis shows that the highest loading factor value is coordination (X.2.3), meaning that the coordination indicator (X.2.3) has a dominant role in the flexibility variable (X.2).

Three indicators measure adaptive innovation (Y.1): technology (Y.1.1), product (Y.1.2), and process (Y.1.3). The highest loading factor is in process innovation (Y.1.3). It indicates that process innovation (Y.1.3) has a dominant

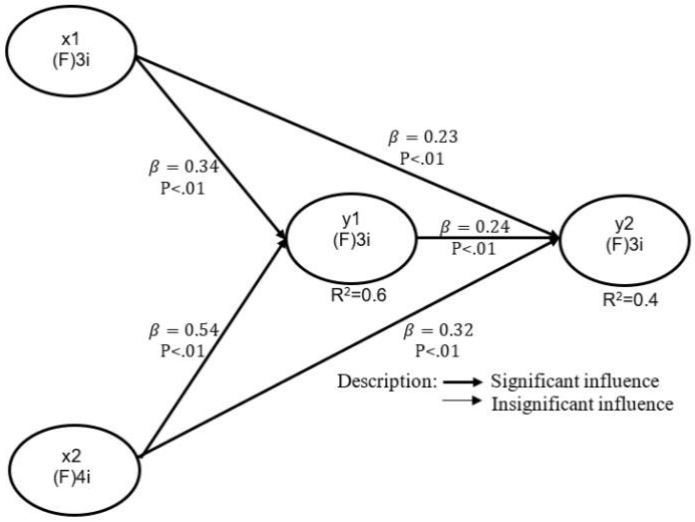
value on the adaptive innovation variable (Y). Three indicators measure firm performance (Y.2): financial (Y.2.1), marketing (Y.2.2), and human resources & environment (Y.2.3). The highest loading factor is the human resources & environment, which means that it has a dominant role in the firm performance (Y.2).

The constructed model was evaluated to see whether the manifest variables could measure the latent variables studied in this study properly and reliably. Evaluation of the constructed model in this study consisted of three evaluations, i.e., evaluation of convergent validity, discriminant validity, and construct reliability (Hair et al., 2017). The test results in Appendix 3. show that all question items have a value above 0.6.

Testing the direct effect in testing the significance of the path coefficient of the partial least square (PLS), the path coefficient shows the magnitude of the effect of one exogenous variable on the endogenous variable. If the path coefficient value is significant, it can be stated that the exogenous variable affects the endogenous variable. The path coefficient on the direct effect in this study can be seen in Figure 2.

Figure 2

Path Coefficient of Partial Least Square (PLS) Analysis Results



Based on Appendix 3, the value of the coefficient of the influence of each exogenous variable on the endogenous variable is obtained as the p-value of each coefficient of influence. The results of results of Testing direct effects on research hypotheses shows in Table 1.

Table 1

Results of Testing Direct Effects on Research Hypotheses

Relationship	Coefficient	p-values	Information
Entrepreneurship orientation (X1) on performance (Y2)	0.299*	<0.001	Significant
Flexibility (X2) on performance (Y2)	0.573*	<0.001	Significant
Entrepreneurship orientation (X1) on adaptive innovation (Y1)	0.280*	<0.001	Significant
Flexibility (X2) on adaptive innovation (Y1)	0.225*	0.006	Significant
Adaptive innovation (Y1) on performance (Y2)	0.290*	<0.001	Significant

Table 2

Results of Indirect Influence Testing

Tested Effect	Indirect influence		Information
	Coefficient	p-value	
The effect of entrepreneurship orientation (x1) on performance (Y2) through adaptive innovation (Y1)	0.084*	0.100	Insignificant
The effect flexibility (X2) on performance (Y2) through adaptive innovation (Y1)	0.160*	0.007	Significant

Table 3

Factor Loading

Variable	Indicator	Factor loading
Entrepreneurship	Proactive	0,852
	Outonomy	0,791
	Risk-taking	0,724
Flexibility	Organization structure	0,757
	Resources	0,862
	Coordination	0,906
	Uncertainty	0,71
Innovation	Technology	0,884
	Product	0,575
	Process	0,771
Performance	Profit	0,996
	Market	0,974
	Sustainability	0,94

The indirect effect is known by looking at the indirect effect coefficient, which is obtained by multiplying the path coefficient of the direct influence of the independent variable with the mediating variable's path coefficient of the direct influence of the mediating variable and the dependent variable. Testing is done by looking at the p-value on the Sobel test for indirect effects. The results of the indirect effect test are described in Table 2. The indirect effect is declared significant if the p-value of the Sobel test results $<\alpha=0.05$ (5%) and vice versa. Hence, factor loading shows in Table 3.

The effect of entrepreneurship orientation on performance

Entrepreneurial orientation can improve the performance of orchid farmers. The test results show that the entrepreneurial orientation shown by the proactive, autonomous, and risk-taking indicators can improve performance. Radipere (2014) states the importance of entrepreneurial orientation and its impact on business performance. Based on the distribution of answers, it is known that the entrepreneurial orientation and autonomy indicators have the highest mean value. It means that in autonomy, orchid business actors have the opportunity to issue their business ideas and have high ability, experience and knowledge in the orchid business. Mahmood & Hanafi (2013) stated that entrepreneurial orientation is a human resource that can give companies a competitive advantage and make performance superior. Wiklund (1999) shows a positive relationship between entrepreneurial orientation and performance. However, the indirect effect of entrepreneurial orientation on performance through innovation has no significant effect. It means that the mediating role of adaptive innovation cannot play a mediating role.

Based on the distribution of answers, the lowest mean value for adaptive innovation is an indicator of product innovation. The result supports the result of a study by Ha (2022), Jalali et al. (2014), and Iqbal et al. (2021). Some orchid business actors still need help developing new variants of orchids according to consumer demand. When there is consumer demand for certain orchids, most of them look for these products from several suppliers from other regions.

The effect of flexibility on performance

Flexibility can improve the performance of orchid farmers. Based on hypothesis testing, it shows that flexibility shown by indicators of organization structure, resources, coordination, and uncertainty has a significant positive effect in improving performance.

Flexibility is generally a problem for SMEs due to limited resources (Fuertes et al., 2013). Strategic flexibility is closely related to environmental uncertainty (Nadkarni & Narayanan, 2010). When the external environment experiences turmoil, SMEs must develop high flexibility in order to be able to adapt to changes in the external environment. In this study, the flexibility indicators consist of organisational structure, resources, coordination and business uncertainty. The coordination indicator has the largest loading factor of the four indicators, meaning that orchid business actors can establish good communication and coordination with stakeholders. Orchid market share is a business with a certain market; one of the largest market shares of orchids is orchid hobbyists. For that, it is necessary to communicate well with consumers and coordinate with suppliers to fulfil consumer desires for orchid products. It will impact their business performance because the industry must continually adapt products, services and images to meet consumer demands (Lewis & Hawksley, 1990).

Strategic flexibility is a dynamic capability that helps companies reallocate resources and break up existing operating routines (Zhou & Wu, 2009). Orchid business actors can carry out flexibility properly so that they can make adaptive innovations and be able to improve business performance. The interview revealed that orchid business actors continue to explore information related to orchids either through online media, attending orchid exhibitions or directly seeking information from several orchid sources in Indonesia and Asia. They continue to actively follow the information on external changes that affect the orchid business, especially the changes related to orchids which are currently trending. It means they are very flexible, making adaptive innovations that aim to improve their business performance easy. This result supports previous study by Alamro et al. (2018), Yousuf et al. (2021), Chingoz & Akdogan (2013), Chan & Moen (2017), and Shalender & Yadav (2019).

The effect of entrepreneurship orientation on innovation

The effect of entrepreneurship on innovation is significant. A more entrepreneurial orientation will increase adaptive innovation. In this study, entrepreneurial orientation consists of proactive indicators, autonomy and risk-taking; of the three indicators, the proactive indicator has the highest loading factor, meaning that orchid business actors have a high initiative to seek ideas in business management involving customers, suppliers and competitors. This activity makes the ability of adaptive innovation to be higher; using internal and external knowledge can improve the innovation process (Chesbrough, 2003). The more often they carry out activities to search for information on the external environment, they will be able to increase their ability to adapt to changing consumer needs (Keh et al., 2007). The result supports the result of a study by Lee et al. (2019), Mao et al. (2021), and Iqbal et al. (2021).

The effect of flexibility on innovation

The influence on innovation is significant. The stronger the flexibility, the more adaptive innovation will be. Business model innovation is based on high resources, coordination and managerial flexibility. In this study, indicators of flexibility consist of organisational structure, organisational resources, coordination and business uncertainty. The coordination indicator has the highest loading factor, followed by resources; this is supported by the education level of orchid business actors with many undergraduate backgrounds. It means that the flexibility carried out by orchid business actors is maximised, especially in the indicators of coordination and resources, so that adoption innovations can be carried out to the maximum. If the absorption of strategic flexibility drivers can be carried out properly, it will be able to increase business model innovation (Miroshnychenko et al., 2020). This result supports previous research by Dibrell (2014), Li & Liu (2010), and Tomášková & Kanovská (2022).

The effect of innovation on performance

The effect of innovation on performance is significant. The more advanced adaptive innovation will improve performance. Based on hypothesis testing, it shows that the innovation shown by the indicators of technological innovation, product, competitiveness, and attractiveness affects performance. This result supports previous research by Hosseini & Narayanan (2014), Klingebiel & Rammer (2011), Zhou & Wu (2009), Li & Liu (2010), and Rofiaty et al. (2019).

One of the factors that support adaptive innovation has a significant effect on performance is the age of the respondent. Based on the respondent's characteristics table, the majority of respondents are 21-30 years old, as many as 42 respondents. It means that those under 30 years old able to do adaptive innovations. Due to digitalisation, respondents can get information through online media about various types of orchids and consumer preference to various orchids. Based on education level, 60 respondents feel easy to adopt innovations to improve their performance. This study supports the previous study which stated that education is one of determinant of innovation adaptability (Paci et al., 2013).

This study results confirm the theory of Brozovic (2018), which stated that strategic flexibility as the company ability to respond the uncertainty by making goal and resource and capabilities adjustments. This study contributes to a deeper understanding of entrepreneurial orientation, flexibility, adaptive innovation, and orchid actors' business performance. For orchid businesses, they must continue to carry out flexibility because it is evident from the 3 exogenous variables forming performance that the flexibility variable has the most decisive influence, even though the coefficient value is far above the other two variables. Because the more business actors increase their flexibility, the higher their ability to adapt to the business environment, the impact that will occur is able to meet various consumer desires and improve their performance.

Conclusion

Based on the data analysis and hypothesis testing, it can be concluded as follows: increasing entrepreneurial orientation can improve the performance of orchid farmers, and entrepreneurial orientation represented by proactive, autonomous, and risk-taking indicators can improve performance. However, the indirect effect of entrepreneurial orientation on performance through innovation proved to have an insignificant effect.

However, flexibility represented by indicators of organisational structure, resources, coordination, and uncertainty has a significant positive effect on improving performance. The indirect effect of flexibility on performance through innovation has been shown to have a significant effect. It means that adaptive innovation's mediating role is pseudo-mediation. Entrepreneurial orientation represented by proactive, autonomous, and risk-taking indicators cannot increase adaptive innovation. The mediating role of adaptive innovation has the character

of a pseudo-mediation that bridges the influence of flexibility on performance and increasing adaptive innovation as represented by technological innovation, product, process, competitiveness, and attractiveness indicators. The more robust the flexibility, the more adaptive innovation will be. Flexibility through indicators of structure, resources, strong coordination and the ability to improve adaptive innovation.

This study has limitations as it only focuses on orchid business actors in Malang, so the generalization of the results is limited to the scope of the research object. This study recommends to add R & D expenditures, consumer trend and business model as determinants of adaptive innovation for further study.

Author contribution

Rofiaty Rofiaty: Theoretical and empirical roadmap, Conceptual framework, Writing result of this research, Original draft and article. **Siti Aisjah:** Collecting data, data analysis. **Christine Susilowati:** Collecting data, Roadmap empirics.

Declaration of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix 1

Respondent Characteristics

Characteristic		Amount	Percentage
Gender	Male	78	68,4
	Female	36	31,6
Age	<20 Years	6	5,3
	21-30	42	36,8
	31-40	24	21
	41-50	18	15,8
	>50	24	21,2
Last education	Junior high school	6	2,6
	Senior high school	48	50
	Bachelor	57	42,1
	Postgraduate	3	5,3
Amount		114	100

Appendix 2

Convergent Validity Variable

Variable	Indicator	Item	Correlation	Information
Entrepreneurship orientation X1	X1.1 Proactive	X1.1.1	0.773	Valid
		X1.1.2	0.773	Valid
	X1.2 Autonomy	X1.2.1	0.674	Valid
		X1.2.2	0.674	Valid
	X1.3 Risk Taking	X1.3.1	0.677	Valid
		X1.3.2	0.677	Valid
Flexibility X2	X2.1 Structure	X2.1.1	0.702	Valid
		X2.1.2	0.702	Valid
	X2.2 Resouces	X2.2.1	0.570	Valid
		X2.2.2	0.817	Valid
	X2.3 Coordination	X2.3.1	0.868	Valid
		X2.3.2	0.766	Valid
	X2.4 Uncertainty	X2.4.1	0.689	Valid
		X2.4.2	0.689	Valid
Adaptive innovation Y1	Y1.1 Technology	Y1.1.1	0.582	Valid
		Y1.1.2	0.627	Valid
	Y1.2 Product	Y1.2.1	0.549	Valid
		Y1.2.2	0.549	Valid
	Y1.3 Process	Y1.3.1	0.424	Valid
		Y1.3.2	0.500	Valid
Firm performance Y2	Y2.1 Finance	Y2.1.1	0.942	Valid
		Y2.1.2	0.942	Valid
	Y2.2 Marketing	Y2.2.1	0.956	Valid
		Y2.2.2	0.956	Valid
	Y2.3 Human resources & rnvironment	Y2.3.1	0.929	Valid
		Y2.3.2	0.875	Valid
		Y2.3.3	0.567	Valid

Appendix 3

Reliability Test Results

Variable	Alpha cronbach	Information
Entrepreneurship orientation (X1)	0.890	Reliable
Flexibility (X2)	0.912	Reliable
Adaptive innovation (Y1)	0.785	Reliable
Firm performance (Y2)	0.960	Reliable