Knowledge integration capability, innovativeness, and entrepreneurial orientation on business performance

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Article Info	ABSTRACT
	Objectives – This study aims to analyze the business performance of SMEs in South Sumatera, which has limited resources and is affected by the COVID-19 pandemic but can still survive. The business performance is analyzed through knowledge integration capability, innovativeness, and entrepreneurial orientation. Design/methodology/approach – The research method used is a questionnaire survey, and the respondents observed were 232 SMEs in South Sumatra. The data analysis technique uses a two-step approach to SEM with SEM-AMOS 25. Findings – The Business Performance Model is acceptable. Furthermore, business performance is influenced by knowledge integration capability, innovativeness, and entrepreneurial orientation. The more SMEs that have a strong entrepreneurial orientation can integrate the knowledge of their employees and have the ability to adopt innovation (innovativeness) quickly, SMEs can improve their performance, even in difficult times due to the COVID-19 pandemic. Research limitations/implications – This study only observed SMEs that survived the COVID-19 pandemic and did not involve SME respondents who failed to adapt to the pandemic. This study only uses knowledge integration capability, innovativeness, and entrepreneurial orientation in predicting performance. The ability to integrate knowledge has a relatively small impact on the performance of SMEs, and it is better if the influence of this knowledge can be analyzed further to get better results. Originality/value – This study adds entrepreneurial orientation as a determinant of the ability to integrate knowledge in one model analyzed to predict SMEs' performance after the COVID-19 pandemic. The respondents of this research are also SMEs that have been affected by COVID-19 and are still surviving now.

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Introduction

The growing understanding in the scientific literature illustrates that organizational expertise in coordinating resources, skills, and knowledge has a relevant role in achieving performance excellence (Marchiori et al., 2022). Several research results show that superior performance is obtained by building and developing information technology capabilities by investing in IT resources. Human resources, consisting of technical skills, interpersonal skills, and posture of team members in dealing with technology, can be identified as the human capital of an organization's IT (Chen et al., 2015). However, the IT literature does not link IT human resources with IT capabilities. At the same time, some studies incorporate the human aspect into IT capabilities as an intrinsic part of their training (Chen and Tsou, 2012); (Marchiori et al.,

2022). Other research shows that information technology can positively impact the development of an innovation-oriented organizational environment and recognizes the potential to boost organizational capacity to innovate from organizational innovation capabilities (Guo et al., 2021).

IT capabilities or innovativeness can improve communication, information and knowledge sharing, exchange between organizations, and organizational learning processes, which support innovation. Dong and Yang (2019) show that IT capabilities help organizations capture and recombine knowledge to create new knowledge and succeed in innovation. In the public sector context, Hartley (2011) suggests that public sector innovation can increase with the adoption of IT, as public sector organizations create new services that they cannot offer without proper use of IT. Also, in this regard, Pang et al. (2014) showed a positive relationship between IT capabilities and resources (innovation) and the innovation of public organizations. However, there is little empirical evidence on the nature of this relationship, especially given the public sector context (Hartley, 2011; Pang et al., 2014). That is, there is a gap in scientific knowledge in IT and innovation. More specifically, is a lack of studies that address, in an integrated manner, the relationship between IT human resources, IT capabilities, innovativeness, as well as the interaction impact of these organizational phenomena on overall organizational performance. In other words, this study combines different theoretically related constructs in such a way as to allow structural and simultaneous analysis of the underlying direct and indirect relationships. Guo et al. (2021) explain that the integrated approach is more realistic because it provides broader and more complete results.

This study aims to analyze the organizational performance model of SMEs in the South Sumatra region, which is influenced by entrepreneurial orientation, knowledge integration ability, and innovativeness. Knowledge integration capability is the company's ability to integrate valuable knowledge inside and outside the organization (Guo et al., 2021). IT capabilities (innovation) and knowledge integration capabilities must be present in every learning organization, where companies can achieve efficiency and novelty in business model design. In particular, the information systems (IS) literature that focus on organizational learning processes shows that IT capabilities facilitate easy learning (Lu and Ramamurthy, 2011). Meanwhile, the knowledge management literature describes that the ability to integrate knowledge will be more effective if there is an increase in organizational learning both in terms of quantity and quality of learning content (Santos-Vijande et al., 2012); (Guo et al., 2021). Entrepreneurial orientation refers to a firm's tendency to act independently, take risks and be proactive when faced with market uncertainties (Ferreras-Méndez et al., 2021). Although there are different definitions of entrepreneurial orientation, many existing studies have conceptualized entrepreneurial orientation at the firm level as an aggregate of three core sub-dimensions: innovation, risk-taking, and proactiveness (Bouncken et al., 2016; Patel et al., 2015). The former refers to a company's tolerance for new ideas, experimentation, and creativity as sources of competitive advantage; the second refers to a firm's willingness to make significant and risky resource commitments, and the third captures a company's tendency to take the initiative to compete aggressively against its competitors. The Resources Based View (RBV) theory shows that entrepreneurial orientation is related to different performance dimensions such as sales growth and market share, profitability, and stakeholder satisfaction (Kraus et al., 2022). Although the existing literature suggests that entrepreneurial orientation promotes innovative activities that enhance the introduction and implementation of product innovations within firms, there is still some explicit empirical evidence involving its effect on performance (Moreno-Moya and Munuera-Aleman, 2016). The literature review conducted to identify previous empirical research on the relationship between performance and entrepreneurial orientation attests to the lack of studies assessing the role of entrepreneurial orientation in shaping organizational performance (Ferreras-Méndez et al., 2022).

Literature Review
Business Performance
According to Resources Based View (RBV), a company's competitive advantage is a unique, rare, and difficult resource for competitors to imitate (Barney, 1991). The heterogeneity approach argues that firms do not achieve competitiveness because of their assets but their competence in making superior use of assets. Effective allocation of resources must be more visionary in business from time to time. Enterprise management includes subjective choices about asset allocation, arrangement, and support. The RBV highlights the firm as a unique pool of resources, but RBV theory explains that not all resources will provide or drive a firm's sustainable competitive advantage. RBV theory also provides the most significant perspective in a strategic context because it shows that resources are essential to driving sustainable competitive advantage and superior company performance (Ferreira & Azevedo, 2007). The item's progress will be a source of competitive advantage and a determinant of the company's victory. The execution appears to be part of the company's general execution based on utilizing the company's assets of interest. In this case, Indonesian SMEs known to have scarce resources have profitable, unusual, entrepreneurial abilities, cannot

be imitated, and cannot be replaced according to the RBV hypothesis (Tipu., & Fantasy, 2018). This study uses the RBV theory to assess SMEs' performance in Indonesia.

Entrepreneurial Orientation (EO)

Industry competition is getting more demanding, and fast market developments suppress the company's competitive advantage (Ojha, Struckell, Acharya, & Patel, 2020). Despite the substantial competitive advantage that high speed brings to the market, it is still one of the most minor understood phenomena in the innovation-related literature (Behrens & Patzelt, 2018). Entrepreneurial orientation is the decision-making processes, practices, and activities that lead to new changes, which indicate more entrepreneurial strategic orientations perform better (McKenny, Short, Ketchen Jr, Payne, & Moss, 2018). EO captures a strategic posture that reflects how companies handle entrepreneurial decisions and actions (Moreno-Moya & Munuera-Aleman, 2016). Ferreras-Méndez et al., (2022) show that the emphasis of EO is on autonomy, competitive aggressiveness, innovation, proactiveness, and risk-taking. EO is one of the prerequisites for organizational success. Researchers show that every organization with a high level of EO tends to be innovative and encourage creative initiatives in developing new products and services, especially in the space of technological advancement and new opportunities. The imbalance that occurs due to the rapid development of technology in developing countries today makes companies have to identify new opportunities. In terms of EO innovation, the novelty in emerging markets can be seen in the development of new forms of low-cost products, especially for sale to low-income groups (Bruton et al., 2013). Similarly, the emerging market environment requires companies to develop and use risk-taking kind to meet customer demands efficiently.

EO is a behavioral construct that considers the actions of entrepreneurs not only in terms of their behavioral intentions but entrepreneurs who proactively accept risks to act and innovate (Dung et al., 2021). EO as a behavioral construct is not an attribute of entrepreneurial culture or entrepreneurial mindset. EO in the context of SMEs with minimal resources and often without employees often adopt Miller/Covin and Slevin's conceptualization of EO as a repeatable and enduring behavioral pattern of action to innovate, accept economically attractive risks, and act proactively to earn profits (Dung et al. al., 2021).

Knowledge integration capability (KIC)

Knowledge integration capability is the organization's ability to create new combinations of different knowledge, which helps solve organizational problems, both from within and outside the organization, across time, and from individual and group contributions, facilitated by formal and social processes. Zahra et al., 2020). Knowledge integration capability is a significant source of competitive advantage, and its significance depends on the efficiency, scope, and flexibility of knowledge integration. Integration efficiency reflects how a company can access and utilize the specialized knowledge held by its members. The scope of integration describes the extent to which specialized knowledge is integrated. Integration flexibility refers to reconfiguring existing knowledge and generating new knowledge. The entrepreneurial orientation explicitly includes the entrepreneurial phase of the company's strategy. Entrepreneurial orientation is an organizational resource that enables companies to differentiate themselves from their competitors through innovation (Ireland, Hitt, & Sirmon, 2003). The distribution of knowledge within the company turns into knowledge creation and circulation of knowledge throughout the business enterprise. This knowledge is then transformed into innovations intended to take advantage of market opportunities. Alshanty & Emeagwali (2019) argue a relationship between entrepreneurial orientation and knowledge formulation. SMEs with a high strategic entrepreneurial orientation are likely to be very proactive and seek and seize opportunities in the market. Acharya et al. (2022) researched 139 small companies showing that EO positively affects KIC and KIC affects organizational innovation through the novelty and strength of relational resource relationships. EO dynamic capabilities are high-level capabilities that can expand, modify, or create static capabilities over time and determine how quickly companies can reorganize their current capabilities and competencies by integrating new knowledge of the requirements and opportunities of the business environment (Guo et al., 2021). The first hypothesis: Entrepreneurial Orientation affects the Knowledge Integration Capability

Innovativeness

Innovativeness is the tendency of organizations to create and support the creation of new products, processes, and services. According to Marchiori et al. (2022), the ability to innovate can be understood as an organization's ability to acquire new knowledge and stimulate learning and exploration of knowledge from the organization's external environment. Innovation involves an organization's ability to exploit and recombine its resources and capabilities, redefining them and presenting innovative results. This understanding shows that the idea of innovation is an important aspect to be developed in the organizational

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culture of developing modern organizations (Story et al., 2015). Innovation is a multidisciplinary concept applied by the management literature, with deep links to other themes such as strategic management, organizational performance, knowledge management, and market orientation (Marchiori et al., 2022). The positive relationship between knowledge, ability to innovate, and organizational performance was highlighted in the study by Hyytinen et al. (2015). The strength and form of these relationships change with different levels of market orientation, access to financial resources, and environmental dynamism. Parida et al. (2017) find evidence that innovation capacity positively impacts organizational performance through innovation. The entrepreneurial literature also recognizes the importance of innovation, listing it as one of the dimensions of entrepreneurial orientation, alongside being proactive and a propensity to accept risk. In this context, the ability to innovate reflects the organization's tendency to engage and support new ideas, experimentation, and creativity. Marchiori et al. (2022) explained a relationship between market orientation, entrepreneurial orientation, and knowledge (KIC) on innovation and performance. As a result, it was identified that performance is positively influenced by entrepreneurial orientation and KIC through innovation.

The second hypothesis: Knowledge integration capability affects innovativeness
The third hypothesis: Knowledge integration capability affects SME's performance

Innovativeness is one of the critical determinants of company performance (Dung et al., 2021), and organizational success is influenced by the innovation ability of the organization, through innovation in finding solutions to organizational problems and challenges, paving the way for organizational success and survival. Innovation makes organizations renew existing practices, stimulate exploratory and experimental activities, and become a force of attraction for creative employees, helping them increase their productivity and reduce their turnover. Organizational innovation refers to an organization's ability to embrace changes imposed by the market, change its business approach, and implement change (Groza et al., 2021). Innovativeness is not just about delivering innovative products. And it involves establishing a culture within the organization that emphasizes innovation in all aspects of its business. In addition to focusing on new product and service development, highly innovative companies often adopt the latest technological advances (Anning-Dorson, 2018). Organizational innovativeness can positively influence various revenue-based performance indicators due to continuously innovative approaches. Collective knowledge structures emerge in an organization which ultimately helps employees absorb knowledge, utilize it and apply it (Guo et al., 2021). Parida et al. (2017) explain that organizations need innovation to create public value in the public sector. The literature also notes other evidence of the positive influence of innovation on organizational performance (Groza et al., 2021). Fourth hypothesis: Innovativeness affects SME's performance.

Method

Sample and Data Collection

This research is quantitative deductive research with hypothesis testing. This research was conducted on 232 SMEs in South Sumatra. The population of this research is SMEs in South Sumatra. The sampling technique used was purposive sampling, with the criteria for SMEs that are still actively operating after the pandemic. SMEs have more than ten employees and have been operating for at least five years. The research sample requirements are set to explain the proposed research variables adequately from the sample data obtained. Data collection techniques with questionnaires. Each item was measured using a 5-point Likert scale.

Variable measurement

The EO variable consists of nine items developed by Hughes & Morgan (2007) and (Dung et al., 2021) obtained from the three dimensions of EO. The organizational innovation variable is measured by five items adapted (Groza et al., 2021). Eight items measured KCI and innovation performance, and four items were adopted from (Guo et al., 2021) and (Acharya et al., 2022).

Data Analysis Technique

Hypothesis testing uses the Structural Equation Modeling (SEM) technique using AMOS 25. This technique is used because of its ability to estimate the relationship of multiple interrelated dependencies, represent concepts that cannot be observed in the relationship, and check for measurement errors in the estimation process (Hair et al., 1998; Byrne, 2001). This study uses a two-step approach to SEM. The steps taken in the two-step approach to SEM are: estimating the measurement model and the structural model. Before processing the data using AMOS 25, the magnitude of the error (ε) is calculated using the formula 0.1

x σ2, and lambda (λ) terms using the formula 0.95 x σ (Anderson dan Gerbing, 1988). After the error (ε), and lambda (λ) terms are known, these scores are entered as parameters in the analysis of the SEM measurement model.

Hypothesis Testing and Causal Relationships

The direct effect is observed from the standardized regression weights, with a comparative significance test of the CR (Critical Ratio) value which is the same as the t_{count} value with t_{table}; if t_{count} is greater than t_{table} it means that it is significant. From the output of the AMOS 25 program, a causal relationship between variables will also be observed by looking at the direct and indirect effects and their total effects. In the causal model, the problem often faced is the identification problem. In the AMOS program, the solution to overcome this identification problem by providing constraints on the analyzed model is overcome. They were testing the developed model with various Goodness of Fit criteria (Hair et al., 1998). The goodness of fit value measurement is divided into three types, namely absolute fit measures, incremental fit measures, and parsimonious fit measures. Absolute fit measures measure how the overall model predicts the covariance matrix. The interpretation of the results of the latent construct measurement based on the significance level of the loading factor or the lambda coefficient (λ), which is based on the probability value (p), is considered significant if the p-value ≤ 0.05—furthermore, testing the complete model derived from all significant constructs and indicators to examine the factors affecting organizational performance by observing the path coefficient (standardized regression), direction, magnitude, and significance. The significance assessment is based on the probability value (p), the significance limit used is the p-value ≤ 0.05.

Results and Discussion

Model Description of respondent characteristics

The data collection results showed that the number of SMEs in the handicraft sector was 40%, in general trade at 40%, and in culinary 20. 80% of SMEs have employees between 10 -15 people, while 20% have employees above 15. SMEs' average length of operation in South Sumatra is relatively high; namely, 78.5% have been established for more than 5-10 years and 21.5% for more than ten years. The average turnover per year is relatively low; 21% have a turnover of 10 million to 50 million (rupiah), 77% have a turnover of 50 million to 300 million (rupiah), and 2% have a turnover of 300 million to 500 million Rupiahs. The ownership status of SMEs is their own.

Validity and Reliability

The results of the validity analysis are carried out by confirmatory factor analysis using the AMOS-25 statistical application program. The four primary constructs are and have 24 questions. When confirmatory factor analysis was performed to test construct validity, the 24 instruments were declared to be of good validity because they had factor loadings ≥ 0.5 (MacLean and Gray, 1998). The results of measuring factor loading for each item and construct using confirmatory factor analysis can be seen in Table 1. The internal consistency reliability test results for each construct above show good results because the Cronbach's Alpha coefficient obtained has met the required rules of thumb ≥ 0.7 (Hair et al., 1998; Sekaran & Bougie, 2016). In addition to testing Cronbach's Alpha internal consistency, it is also necessary to reliability and variance extracted. Both tests are still in the corridor of internal consistency testing, giving researchers greater confidence that individual indicators measure the same. The results of the instrument reliability test with construct reliability and variance extracted showed a reliable instrument, which was indicated by the construct reliability value above 0.7. Although this figure is not a "dead" measure if the research conducted is exploratory, a value below 0.70 is still acceptable as long as it is accompanied by empirical reasons seen in the exploration process. And the variance extracted is recommended at a 0.50 level. The results of the calculation of construct reliability and variance extracted can be seen in Table 1.

Evaluation of the model with the Two-Step approach to SEM.

The steps taken in the two-step approach to SEM are: Estimating the measurement model and estimating the structural model. Before processing the data using AMOS 25, the magnitude of the error (ε) is calculated using the formula 0.1 times σ^2, and lambda (λ) terms using the formula 0.95 times σ (Anderson and Gerbing, 1988). After the error (ε) and lambda (λ) terms are known, these scores are entered as parameters in the analysis of the SEM measurement model. The results of the calculation of the standard deviation, lambda, and error term construct using the two-step approach are shown in Table 2.

Table 1 <Reliability Test>

NO	CONSTRUCT	Standardized Factor Loading (SL)	SL^2	CR	Standard Error	Variance Extracted	Construct Reliability
						> 0.5	> 0,7
1	EO1 ← EO	0.665	0.442	11.128	0.049		
	EO2 ← EO	0.805	0.648	14.627	0.053		
	EO3 ← EO	0.592	0.350	7.685	0.047		
	EO4 ← EO	0.593	0.352	9.609	0.049		
	EO5 ← EO	0.793	0.629	14.29	0.056		
	EO6 ← EO	0.679	0.461	11.459	0.062		
	EO7 ← EO	0.833	0.694	15.424	0.057		
	EO8 ← EO	0.850	0.723	-	-		
	Total	5.810	4.299		0.373		
	(Std. Loading)2	33.756					
	Reliability dan Variance extracted					0.920	0.989
2	KIC1 ← KIC	0.921	0.848	21.455	0.041		
	KIC2 ← KIC	0.910	0.828	20.854	0.042		
	KIC3 ← KIC	0.896	0.803	20.119	0.043		
	KIC4 ← KIC	0.845	0.714	17.746	0.043		
	KIC5 ← KIC	0.884	0.781	-	-		
	Total	4.456	3.975		0.169		
	(Std. Loading)2	19.856					
	Reliability dan Variance extracted					0.959	0.992
3	inn1 ← Innovativeness	0.719	0.517	10.523	0.082		
	inn2 ← Innovativeness	0.852	0.726	12.370	0.084		
	inn3 ← Innovativeness	0.731	0.534	10.707	0.081		
	inn4 ← Innovativeness	0.704	0.496	10.300	0.081		
	inn5 ← Innovativeness	0.750	0.563				
	Total	3.756	2.835		0.328		
	(Std. Loading)2	14.108					
	Reliability dan Variance extracted					0.896	0.977
4	Op1 ← O.Performance	0.838	0.702	16.093	0.054		
	Op2 ← O.Performance	0.782	0.612	14.391	0.049		
	Op3 ← O.Performance	0.868	0.753	16.998	0.051		
	Op4 ← O.Performance	0.876	0.767				
	Total	3.364	2.835		0.154		
	(Std. Loading)2	11.316					
	Reliability dan Variance extracted					0.948	0.987

Table 2 <Standard Deviation, Lambda dan Error Term>

Construct	Standard Deviation (σ)	Lambda (λ)	Error (ε)
Entrepreneurial Orientation (EO)	0.895	0.850	0.084
Knowledge Integration Capability (KIC)	0.949	0.880	0.120
Innovativeness	0.888	0.870	0.039
Organizational Performance (OP)	0.853	0.810	0.068

The results of testing the structural equation model with the AMOS 25 program can be seen in Figure 1. Evaluation of the results of testing the model can be seen in Table 3.
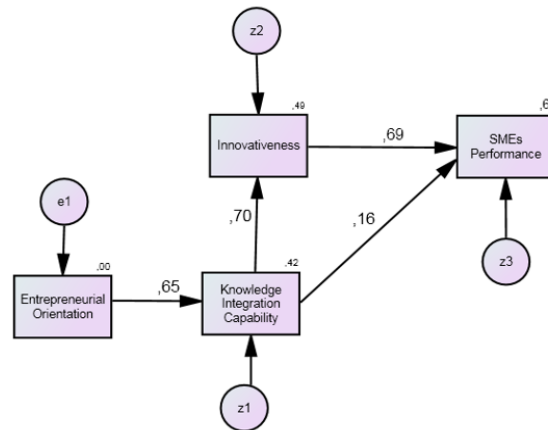
Figure 1. Performance Model of SMEs

Table 3 <Evaluation Criteria Goodness of Fit Indices>

Criteria	Results	Critical Value *)	Model Evaluation
Cmin/DF	1.7965	≤ 2.00	Good
Probability	0.333	≥ 0.05	Good
RMSEA	0.073	≤ 0.08	Good
GFI	0.959	≥ 0.90	Good
TLI	0.982	≥ 0.95	Good
CFI	0.961	≥ 0.94	Good

The results of the evaluation of the proposed model turned out that most of the criteria used were good, meaning that the proposed model was good and acceptable. Furthermore, Table 4 shows the relationship between variables and the results of testing the proposed hypothesis.

Table 4 <Path Coefficient (Standardize Regression) between Variables>

	Standardized Regression	Estimate	CR	Probability (p)	Hypothesis
Entrepreneurial Orientation ➔ KIC	0.646	0.498	12.791	***	Supported
KIC ➔ Innovativeness	0.700	0.857	14.834	***	Supported
Innovativeness ➔ SMEs Performance	0.694	0.648	13.022	***	Supported
KIC ➔ SMEs Performance	0.165	0.189	3.096	0.002	Supported

Hypothesis testing (alternative) compares the probability (p) value. The hypothesis is said to be significant if the p-value ≤ 0.05. With these criteria, it can be seen that all paths are significant, and the results of previous empirical research can support all the hypotheses proposed in this study.

Discussion

This study examines an SME performance model involving 232 SMEs in South Sumatra. An organizational performance model influenced by entrepreneurial orientation, knowledge integration ability, and innovativeness has a good fit model. The results of the study expand on the findings that previous researchers have produced, including (Ferreras-Méndez et al., 2021); (Guo et al., 2021); (Groza et al., 2021); (Marchiori et al., 2022); and (Acharya et al., 2022). The results of this study indicate that the integration of knowledge and innovation of SMEs is essential in improving the performance of SMEs. On the other hand, entrepreneurial orientation also has an essential role in creating SME innovation and encouraging the creation of SMEs' knowledge integration capabilities and performance. Integration efficiency reflects how a company can access and utilize the specialized knowledge held by its members, and the scope of integration describes the integrated specialized knowledge. Integration flexibility refers to reconfiguring existing knowledge and generating new knowledge. It can be seen that these SMEs have an excellent entrepreneurial orientation which can be seen from the ability to capture ideas. Creativity is always focused on adopting innovations and taking other competitive actions that other SMEs often imitate.

Conclusion

This good entrepreneurial orientation can improve the ability of the SME sector to integrate the knowledge possessed by its employees. SMEs can integrate the knowledge of different employees to work together in fostering SME innovation. The effect of entrepreneurial orientation on the ability to integrate knowledge is 65%. The ability to integrate knowledge which is demonstrated by integrating team knowledge, technology, new knowledge, and acquiring technical knowledge quickly, can increase the innovation of SMEs. The innovativeness of SMEs is shown by the skills of SMEs in innovating and the ability to find new ideas in solving problems that exist in SMEs. The effect of this knowledge integration ability on innovativeness is 70%. The indirect effect of knowledge orientation on the performance of SMEs through knowledge integration capacity is 48.6% and through innovation is 45.2%. The indirect effect of entrepreneurial orientation on integrating knowledge and innovation is 42%. The ability to integrate knowledge and influence innovation can also directly affect organizational performance. Unfortunately, the direct effect of knowledge integration on the performance of SMEs is relatively small, only 16%. The ability to integrate knowledge turns out to have a better role as a mediating variable, which links entrepreneurial orientation and the performance of SMEs. The effect of innovation on organizational performance is 69%. The increase in the performance of SMEs can be seen from the improvement in internal and customer services, the ability to manage resources well, few complaints from employees, and in general, the performance is increasing from time to time.

Limitations of research and suggestions for further researchers

This study only analyzes SMEs that have successfully survived the Covid-19 pandemic and does not observe SMEs that failed to adapt to the crisis caused by the Covid-19 pandemic. In the future, it is better to re-examine those SMEs which cannot adapt to the crisis and which can adapt to the crisis so that better research findings and more precise generalizations can be obtained. Regarding the significant increase in technology during the pandemic and after the new standard, further research can add the variable of HR capability in adopting IT and IT human capital (Marchiori et al., 2022) to strengthen the performance model of SMEs in conditions of need. Information Technology is getting higher.

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