

PRODUCT INNOVATION STRATEGY AND ITS IMPACT ON SME COMPETITIVENESS IN THE ERA OF THE DIGITAL ECONOMY

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Abstract

This research examines product innovation strategies and their impact on the competitiveness of small and medium enterprises (SMEs) in the food and beverage sector in Kendari City, in the context of the digital economy. The aim of this research is to explore effective innovation strategies, analyze the impact of innovation on increasing competitiveness, and evaluate available support and resources. The research method uses mixed methods with survey design and in-depth interviews. The respondents were 50 small and medium businesses in the food and beverage industry in Kendari City. The research results show that the use of digital technology and the frequency of product development are key factors that help increase the competitiveness of SME businesses. In addition, external government support and access to financial resources greatly influence SMEs' ability to innovate. The implications of this research indicate the need for policies that support the integration of digital technology into SME innovation strategies and increase access to external resources and support.

Keywords: Product Innovation Strategy, SME Competitiveness, Digital Economy, Digital Technology

1. Introduction

The global economy has experienced a significant transformation due to digital technology (Hu et al. 2024; Kraus et al. 2021; Nadkarni and Prüggl 2021). The digital economic era, characterized by the integration of information and communication technology into every aspect of economic life, has revolutionized the way businesses operate (Magoutas et al. 2024) and interact with customers (Ribeiro et al. 2024). In the context of ultra-modern business, digitalization not only speeds up business processes (Soto Setzke et al. 2023) and expands market access (Naeem, Kohtamäki, and Parida 2024), but also opens up new opportunities for product and service innovation (Opazo-Basáez, Vendrell-Herrero, and Bustinza 2022). On the other hand, digitalization also

presents new challenges, especially for small and medium enterprises (SMEs) (Thrassou et al. 2020) which often lack the resources (de Mattos et al. 2024) and ability to quickly adapt to technological developments (Kergroach 2021). Therefore, product innovation plays a central role in determining the success and sustainability of businesses in various industries, including small and medium enterprises (SMEs) (Rustiarini, Bhegawati, and Mendra 2022). However, in today's digital economy, small and medium enterprises (SMEs) face many complex and dynamic challenges (Masongsong et al. 2024) (Aminullah et al. 2022; Samadhiya, Kumar, and Garza-Reyes 2023). Failure to adapt to these changes will not only reduce the competitiveness of SMEs but also threaten the sustainability of their business operations in a market that is increasingly dominated by technology and digitalization (Lopez-Torres 2023; Roux et al. 2023; Vrontis, Chaudhuri, and Chatterjee 2022). As a result, many small and medium businesses are left behind in developing innovative new products, which not only reduces competitiveness but also limits business growth and sustainability in the digital economy era (Belyaeva and Lopatkova 2020). As the digital era continues to develop rapidly, SMEs (small and medium enterprises) often face challenges in developing effective innovation strategies (Adam and Alarifi 2021; Agazu and Kero 2024; Mishrif and Khan 2023; Pertuz and Pérez 2021; Quintero Sepúlveda and Zúñiga Collazos 2023). Despite recognizing the importance of innovation to maintain competitiveness, many SMEs still do not have clear guidelines or frameworks for implementing effective innovation in the technology and digitalization landscape digitalisasi (Martínez-Peláez et al. 2024). In general, the literature has shown the importance of product innovation as the main key to increasing the competitiveness of SMEs (Small and Medium Enterprises) in various industrial sectors (Audretsch and Guenther 2023; Le 2023; Lewandowska, Berniak-Woźny, and Ahmad 2023; Ringo, Tegambwage, and Kazungu 2023; Rubio-Andrés et al. 2024). However, there is a significant gap in the literature regarding the specific strategies that SMEs need to overcome challenges and exploit opportunities in the digital technology landscape (Hu et al. 2024). Therefore, in-depth research that strengthens the link between product innovation, business strategy and SME competitiveness in the digital economy era is needed to provide a comprehensive and more relevant view for practitioners, researchers and public policy practitioners who are interested in supporting business growth and sustainability . SMEs in the era of digitalization are contributing to an increasingly connected and digitalized global economy. Although the literature on product innovation and SME competitiveness has grown rapidly, important gaps still need to be filled, especially in the context of the digital economy. Existing research tends not to delve into specific innovation strategies for SMEs in facing digitalization challenges. Therefore, it is

hoped that this research can provide a comprehensive and applicable framework to help SMEs innovate effectively in the digital economy era.

2. Research methods

This research uses a mixed-method descriptive design to identify effective product innovation strategies and their impact on the competitiveness of small and medium enterprises in the digital economy era. Quantitative methods are used to collect numerical data that can be analyzed statistically, while qualitative methods are used to explore the perspectives and in-depth experiences of SMEs in the food and beverage sector in Kendari City. This interview aims to better understand the experiences and perspectives of SMEs in implementing product innovation strategies. Qualitative data were analyzed using thematic analysis techniques, including coding the data, identifying key themes, and interpreting the results to provide deeper context to the results of the quantitative analysis.

3. Results and Discussion

The results of this research show product innovation strategies and their impact on the competitiveness of small and medium enterprises (SMEs) in the Kendari City food and beverage sector, especially in the rapidly developing digital economic landscape. Therefore, the results of this research can be seen in the results and discussion as follows.

A. Respondent Profile

Respondents in this study consisted of owners or main managers of SMEs in the food and beverage sector in Kendari City. They have diverse characteristics, including educational background, industry experience, and length of operation of their business. The majority of respondents are individuals who have managed their businesses for more than three years, demonstrating a level of stability and continuity in running their businesses amidst rapidly changing market dynamics.

Table. 1.2. Respondent Profile Characteristics

No	Category	Frequency	Percentage (%)
1.	Long Operation		
	Less than 1 year	5	10
	1-3 years	15	30
	3-5 years	20	40
	More than 5 years	10	20
2.	Highest Education		
	SMA/SMK	8	23
	D3	12	34

S1	10	29
S2	5	14
3. Business fields		
Snack	12	34
Drink	10	29
Heavy meal	8	23
Catering	5	14

Source: processed primary data, 2024

The table above shows the profile of respondents according to the length of time the company has been in operation, the highest level of education achieved, and the type of company in which they operate. This data provides a clear picture of participants' differences in experience and education levels, as well as the specific industries in which their companies operate. The profile of respondents in this study shows significant differences in the business characteristics and operational experience of SMEs operating in the food and beverage sector in the city of Kendari. Based on survey data, most respondents have been running a business for more than three years, 30% have been running a business for three to five years, and 40% have been running a business for more than five years. The majority are highly educated. SMEs have sufficient business experience in the context of many changes in the local economy. In terms of number of employees, the majority of companies represented in this survey are classified as SMEs with 1 to 5 employees, namely 50% of all respondents. Additionally, 30% of respondents have 6 to 10 employees, while 15% have 11 to 20 employees. Only a small percentage, about 5%, have more than 20 new employees, but they play an important role in the local economy and provide good jobs. The diversity of respondent profiles provides different perspectives when analyzing product innovation strategies and their impact on competition. Being aware of these differences is important for understanding the context in which SMEs operate and developing relevant policy recommendations and strategic solutions that can increase the innovation capacity and competitiveness of SMEs in Kendari City.

B. Product Innovation

Product innovation is a key factor determining the competitiveness of SMEs in the digital economy era. Based on the results of mixed methods research, product innovation is defined by SMEs as efforts to develop new products and improve existing products to meet customers' evolving needs and preferences.

1. Product Innovation Aspects

Product innovation in Kendari City's food and beverage industry often involves the use of unique local ingredients, product differentiation to attract different market segments, and improving packaging quality to increase sales and remain loyal to the product. New product development is carried out by 65% of respondents, with an emphasis on creating different products that are not yet on the market. For example, many small and medium companies develop healthy food products made from natural ingredients and are well received by consumers. Additionally, 45% of survey respondents said they are improving existing products, including improving taste, texture and packaging. Digital technology plays an important role in this innovation: 60% of respondents use social media and e-commerce to promote new products and collect customer feedback. However, the main obstacles faced in this innovation process are limited funding, access to modern technology and lack of knowledge about innovation management.

Table 1.3. Response to Product Innovation Aspects

No	Product Innovation Aspects	Percentage of Respondents	Description
1.	Definition of Product Innovation		Efforts to develop new products and improve existing products to meet evolving market needs and preferences
2.	New Product Development	65%	Creating new product variations that do not yet exist on the market, such as healthy food products based on natural ingredients
3.	Existing Product Improvements	45%	Improve aspects of taste, texture and packaging of existing products
4.	Use of Digital Technology	60%	Using social media and e-commerce for promotions and customer feedback
5.	Main Challenges		Limited funds, limited access to advanced technology, lack of knowledge about innovation management

Source: processed primary data, 2024

2. Use of Digital Technology

Based on the results of mixed methods research, it was found that the majority of SMEs have integrated digital technology into daily operations to increase competitiveness and efficiency. Social media use and e-commerce are two of the most important trends observed by economists. Social media, used for effective marketing and advertising purposes, allows small and medium businesses to reach the public at relatively low costs. On the other hand, e-commerce channels expand markets and increase sales by making it easier for customers to buy products online. In-depth analysis shows that 60% of participants use digital technology in their innovation process, 50% use social networks, and 40% use social networks. e-commerce, 30% use data analysis and 20% use CRM (Customer Relationship) system management. Respondents who used digital technology reported significant increases in sales and customer satisfaction. Qualitative research supports these findings, with respondents saying digital technology helps them collect real-time customer feedback, identify market trends, and offer products based on customer preferences. However, the use of digital technology also faces challenges such as limited funding, limited technical expertise and inadequate infrastructure. To overcome these problems, community support is needed in the form of training and financial support from the government and corporate organizations. This study shows the importance of improving the digital skills of SMEs to digitally improve manufacturing processes.

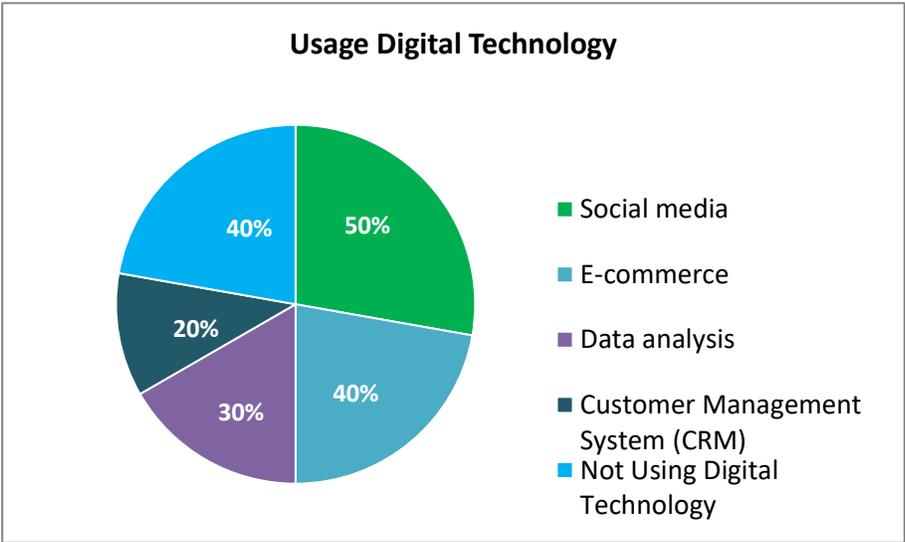


Figure 1: Usage Digital Technology

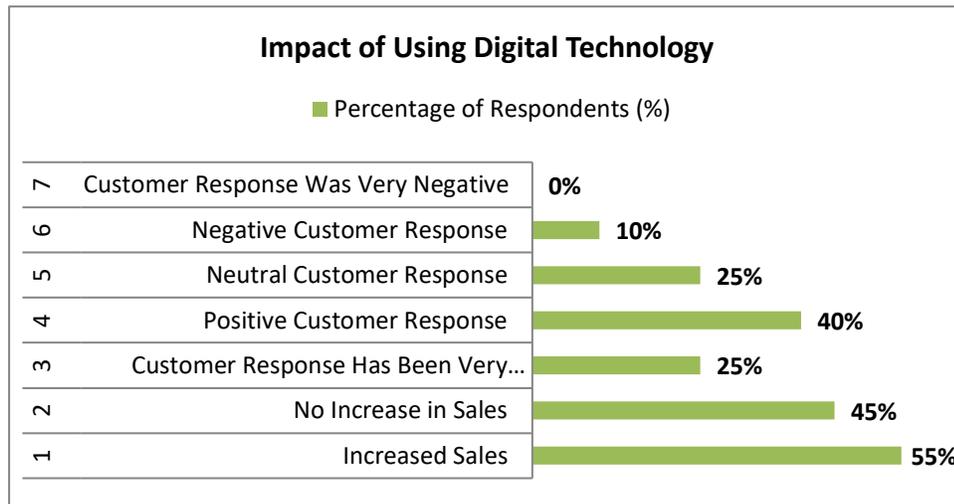


Figure 2: Impact of Using Digital Technology

3. Product Development Frequency

This research shows that SMEs in the food and beverage industry in Kendari City are at different levels in developing new products and improving existing products. Based on survey results, 20% of SMEs often develop new products, while 35% always introduce new products. About 30% said they sometimes develop new products, and 10% said they rarely develop new products. Only 5% admitted that they had never developed a new product. Other qualitative analysis shows that SMEs that continue to innovate tend to have better access to technology and external support such as training and financial support. In contrast, SMEs that rarely or never develop new products face high capacity and low knowledge. Therefore, the frequency of product development is positively related to the availability of external resources and support, which ultimately affects a company's competitiveness.

Table 1.5. Product Development Frequency

No	Product Development Frequency	Percentage (%)
1.	Very often	20%
2.	Often	35%
3.	Sometimes	30%
4.	Seldom	10%
5.	Never	5%

Source: processed primary data, 2024

Product innovation in the Kendari City food and beverage industry not only involves developing new products but also implementing strategies that will differentiate competition and meet consumer expectations. The innovation strategies implemented by SMEs in this research include various methods, from research and development of new technology to operational improvements and effective marketing strategies. The use of technology is one reason to increase the ability to create small innovations that can speed

up product development, increase efficiency and create a better experience for users. However, despite the importance of innovation in increasing competitiveness, SMEs in Kendari City also face many challenges related to implementing innovation strategies. This article highlights the challenges and difficulties faced by SMEs in implementing innovation strategies and highlights the opportunities that can be exploited through the efficient use of technology through common strategies and innovative resource management methods. By understanding these factors, efforts to increase the competitiveness of SMEs in the food and beverage sector in Kendari City can be more targeted and have a positive and sustainable impact.

4. Challenges in Product Innovation Strategy

This research identifies several challenges faced by SMEs in the food and beverage sector in Kendari City in implementing product innovation strategies in the digital economy era. Based on quantitative data, limited funds are the main challenge faced by 50% of respondents. Furthermore, 30% of SMEs face obstacles in accessing the technology needed for product innovation. Lack of knowledge about innovation strategies is also a significant problem, with 40% of respondents recognizing this as a major barrier. Regulatory barriers are also felt by 20% of SMEs as a challenge in implementing product innovation. Qualitative data from in-depth interviews shows that these challenges directly affect SMEs' ability to develop new products or improve existing products. However, some SMEs have succeeded in overcoming these challenges through collaboration with research institutions or using government support programs.

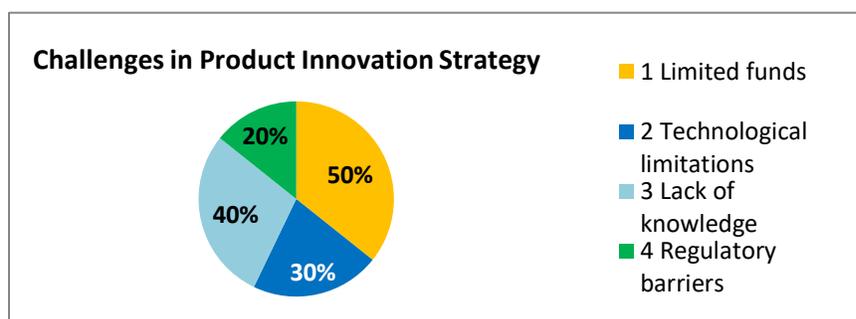


Figure 3: Challenges in Product Innovation Strategy

C. Impact of Innovation on Competitiveness

1. Increasing Competitiveness Through Product Innovation

This research highlights the positive impact of product innovation strategies on increasing the competitiveness of SMEs in the food and beverage sector in Kendari City. Based on quantitative analysis, 30% of respondents strongly agree that product innovation has significantly increased their competitiveness. As many as 45% of

respondents also agreed that product innovation had made a positive contribution to their competitiveness in today's increasingly competitive market. As many as 20% of respondents felt neutral about the impact of product innovation on their competitiveness, while only 5% disagreed with this statement. The results of a qualitative approach, through in-depth interviews with a number of respondents, show that SMEs that are active in developing new products or improving existing products have a higher competitive advantage. They are able to adapt to changes in market demand and maintain customer loyalty through product differentiation. Thus, product innovation strategies consistently provide a significant contribution to increasing the competitiveness of SMEs in the digital economy era.

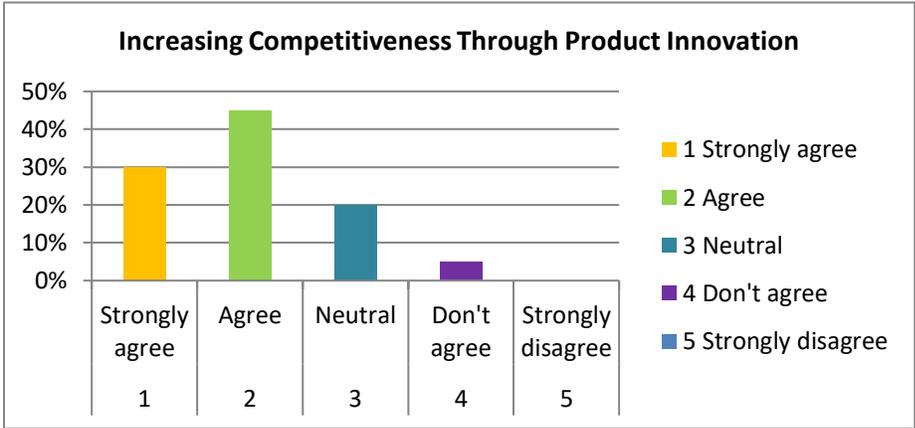


Figure 4: Challenges in Product Innovation Strategy

2. Increasing Sales through Product Innovation

This research found that product innovation strategies had a significant positive impact on increasing sales of SMEs in the food and beverage sector in Kendari City. Based on quantitative data, 25 out of 35 respondents (around 71%) reported an increase in sales after implementing product innovation in their business. Of these, 10 respondents (around 29%) recorded a significant increase in sales, while 15 respondents (around 42%) reported a moderate increase. Only 5 respondents (around 14%) admitted that they did not see a significant increase in their sales after implementing product innovation. Qualitative data from in-depth interviews also supports these findings, with a number of SMEs indicating that product innovation helps them to attract more customers, increase customer retention and open new market opportunities. These findings confirm that product innovation strategies not only impact the competitiveness of SMEs, but also directly improve their sales performance in an increasingly competitive market.

Table 1.8 . Increasing Sales through Product Innovation

No	Increased Sales	Percentage (%)
1.	No improvement	14%
2.	Moderate improvement	42%
3.	Significant improvement	29%
4.	Not given	14%

Source: processed primary data, 2024

3. Customer Response to Product Innovation

This research shows that product innovation strategies have a significant influence on the response of food and beverage SME customers in the city of Kendari. Based on the findings, almost 80% of survey respondents said that their customers responded well to new products thanks to innovation. Of these, 40% of participants said that their customers were very satisfied with the product design, while 40% stated that customer feedback was generally positive. Only 15% stated that customer responses were neutral regarding product innovation, while only 5% stated that customer responses were negative. Qualitative data from in-depth interviews with several informants shows that innovation helps SMEs meet increasing customer demand for more diverse and better products. Customers value innovation as a way for SMEs to adapt to changing needs and customers, increasing customer loyalty and brand image.

Table 1.9. Customer Response to Product Innovation

No	Customer Response	Percentage (%)
1.	Very satisfied	40%
2.	Satisfied	40%
3.	Neutral	15%
4.	Not satisfied	5%

Source: processed primary data, 2024

D. Support and Resources

1. External Support

The results of the analysis show the important role of financial assistance in helping SMEs in the food and beverage sector in Kendari city in implementing product innovation strategies. Statistics show that almost 60% of respondents agree to receive external support such as educational programs, innovation training and financial support from government agencies or private organizations. Of this number, 25% of respondents stated that this support really helped them improve their abilities in developing new products or improving existing products. Additionally, 35% of survey respondents found this support very helpful; however implementation is still challenging. Only 5% of respondents thought that external funding had no significant impact. A qualitative approach through in-depth

interviews with several participants revealed that external support programs not only provide knowledge and resources to individuals, but also expand their networks in the industry and increase their confidence when facing product development challenges.

Table 1.10. External Support for SMEs in the Implementation of Product Innovation

No	External Support	Percentage (%)
1.	Very helpful	25%
2.	Quite helpful	35%
3.	Not very helpful	25%
4.	Doesn't help at all	15%

Source: processed primary data, 2024

2. Source of Support for SMEs in Implementing Product Innovation

The results of the analysis show the various sources of support used by food and beverage SMEs in Kendari City in implementing product innovation strategies. Quantitative data shows that respondents' main source of support is local government organizations, which provide training programs and financial support to small and medium-sized businesses. As many as 55% of respondents admitted to receiving significant support from local government organizations in the form of training programs and workshops related to innovation. In addition, 30% of respondents also stated that they received support from research institutions and universities, which helped them, access the latest relevant knowledge and technology. A qualitative approach through in-depth interviews with several sources shows that collaboration with educational and research institutions not only increases the technical and innovation capacity of SMEs, but also opens up opportunities for wider collaboration in developing new products and improving quality. These results highlight the importance of collaboration between the public, academic and private sectors to support innovation ecosystems at the local level.

Table 1.12. Source of Support for SMEs in Implementing Product Innovation

No	Support Resources	Percentage (%)
1.	Local government institutions	55%
2.	Research institutions/universities	30%
3.	Private Institution	15%

Source: processed primary data, 2024

E. Innovation Development in SMEs in the Food and Beverage Sector

1. Innovation Development

This research shows that SMEs in the food and beverage sector in the city of Kendari show a strong desire to develop product innovation. Total statistics show that 75% of respondents are actively involved in new development activities such as research and development of new products, technological innovation, and new marketing strategies. Of this number, 40% regularly research and develop new products and 35% allocate resources to technological innovation. Qualitative methods obtained through in-depth interviews with various respondents show that SMEs that focus on innovation generally have employees who are competent and willing to take risks when facing "new" challenges. As a result, SMEs can adapt to rapid market changes and increase their competitiveness with various products and services.

Table 1.13. Innovation Development in SMEs in the Food and Beverage Sector

No	Innovation Development Activities	Percentage (%)
1.	New product research and development	40%
2.	Production technology update	35%
3.	Innovative marketing strategy	25%

Source: processed primary data, 2024

2. SME Needs to Support Product Innovation

The results of the analysis show the various needs of SMEs in the food and beverage industry in Kendari City to support the implementation of innovation. the results of the statistical analysis showed that financial support was a top priority for the majority of participants; 50% said this was most needed. This reflects the difficulties faced in obtaining sufficient capital for research and development of new products and in increasing appropriate capacity to increase production. In addition, 40% of respondents stated the need for education and training, which indicates the need for relevant knowledge and skills in relation to increasing global competition. The availability of new technology is also an important factor; 35% of respondents emphasized the need to invest in technology to increase efficiency and innovation. 30% of respondents also think that collaboration with other parties such as research institutions, universities and other companies is important to obtain additional resources and support the development of more innovative products.

Only a small portion of respondents, namely around 10%, mentioned other needs that were not included in the main categories above.

Table 1.14. SME Needs to Support Product Innovation

No	Need	Percentage of Respondents (%)
1.	Training and education	40%
2.	Financial support	50%
3.	New technology	35%
4.	Collaboration with other parties	30%
5.	Other	10%

Source: processed primary data, 2024

4. Conclusions and recommendations

This study has revealed the importance of product innovation strategies in increasing the competitiveness of SMEs in the food and beverage sector in Kendari City in facing the challenges of the digital economy. Second, external support from government and other institutions has a positive impact in facilitating access to necessary resources, including employee training, funding, and market access. Policy measures that support the development of SME innovation capacity, such as the provision of consulting services and tax incentives, need to be increased to strengthen the local business ecosystem. Third, human resources who are skilled and knowledgeable about the industry are valuable assets in the product innovation process. Investment in employee training and development is considered crucial to increase SMEs' adaptability to rapid technological changes and market dynamics. This effort will help strengthen the competitiveness of SMEs in the ever-growing digital economy era. Thus, joint efforts from the government, educational institutions and industry players are needed to create an environment that supports sustainable growth and innovation for SMEs in Kendari City.

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