

Digitalization of Solutions to Improve the Performance of MSMEs in Pekanbaru City

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Abstract

Small and Medium Enterprises (MSMEs) play a pivotal role in the economic landscape, particularly in sectors such as frozen food production. This study investigates how entrepreneurial behaviour and digital adaptation influence SMEs' productivity and overall performance in the frozen food sector. Through a comprehensive review and empirical analysis, this research highlights the significant contribution of positive entrepreneurial behaviours such as skill enhancement, motivation, innovation, and digital technologies such as e-commerce and digital inventory management to enhance MSMEs productivity and business performance. The findings underscore the mediating role of productivity in linking entrepreneurial behaviours and digital adaptation to business outcomes, highlighting the importance of targeted policies to foster entrepreneurial skills and digital proficiency among MSMEs.

Keywords: MSMEs, Entrepreneurial Behaviour, Digital Adaptation, Productivity, Business Performance, Frozen Food Sector.

INTRODUCTION

In Indonesia, the development of micro, small and medium enterprises (MSMEs) is considered very good and an important pillar of this country's economy. MSMEs can be found in various locations, from rural to densely populated urban areas. The government is encouraging MSMEs players to reform their marketing techniques by utilizing existing technology in the current technological era. To increase productivity, MSMEs can use technology and social media tools such as Instagram, Facebook and Twitter to promote and sell products and as media for direct interaction between sellers and buyers (MSME Portal, 2020).

MSMEs are economic activities managed by individuals and institutions that play an important role in the country's economy. MSMEs in Indonesia are based on kinship, economic democracy, togetherness, fair efficiency, sustainability, independence, balanced progress and national economic unity. Based on these principles, MSMEs aim to grow and develop their businesses to build a just national economy. The COVID-19 pandemic that has hit the world often triggers an economic crisis, which also significantly impacts the MSMEs sector. Even so, MSMEs have always managed to survive and recover from the crises. As stated by Wiliandri (2020), the COVID-19 pandemic in Indonesia has had a massive impact on all business sectors, including MSMEs. MSMEs are expected to improve their conditions and encourage economic recovery during the crisis. The contribution of MSMEs to the economy is very important, especially in terms of employment, contribution to Gross Domestic Product (GDP), exports, and so (Awinja & Fatoki, 2021; Cant & Wiid, 2016; Singh & Kumar, 2017)

The actions of humans are now inextricably linked to technology and the Internet thanks to the Fourth Industrial Revolution. Individuals are accustomed to utilizing smartphones with internet access (Nadya, 2016). The business sector has also benefited from the advancement of technology, information, and the Internet, as businesses use it to spread the word about their goods and services. Businesspeople engaged in conventional business activity prior to the Internet. However, they began to trade online when the Internet emerged, which made it simpler for customers to complete transactions (Mane & Rao, 2024). Industrial

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practitioners are finding that using the Internet of Things (IoT) to tackle information management issues is becoming more and more effective. This technology increases market share, strengthens ties with partners and customers, and lowers operating and purchasing expenses (Tarmizi et al., 2019). Other benefits include increased productivity at minimum cost and innovation (Ulas, 2019)

The rise in internet users in Indonesia has brought about changes in people's habits and the growth of digital marketing. This is an opportunity for businesspeople to promote their goods and services. Instagram, Facebook, Twitter, and YouTube are among the social media platforms frequently utilized in digital marketing (Hasan & Sohail, 2021) Digital marketing is typically done through pages (websites), social media, and electronic markets (e-commerce). Digital marketing also frequently makes use of social media. Social media is also often used for digital marketing (Perumal et al., 2017). Using electronic wallets to complete transactions and make payments is a component of digital marketing. Digital wallets, or e-wallets, like Go-Pay, Ovo, Dana, M-Banking, and others, are crucial for MSMEs to grow their businesses since they facilitate transactions and increase the number of buyers and sales (S. M. Putri & Sumitra, 2020)

MSMEs are developed in all cities in Indonesia, including Pekanbaru City. The most dominant MSMEs operate in the food sector, especially processed food. The number of frozen food MSMEs in Pekanbaru City has reached 864. However, most MSMEs still need to gain knowledge and the ability to adapt to the Internet and technology. Even though several MSME players have placed their products online, the practice still needs to be improved. Implementing the right strategy is hoped that MSME sales results will be able to develop further and provide greater benefits to the Indonesian economy, especially in Riau Province. The number of MSMEs in Pekanbaru City is in first position compared to other cities or districts in Riau Province.

The development of frozen food MSMEs is significant, from raw ingredients to finished food. The development of information technology also supports the progress of frozen food MSMEs in Pekanbaru City. Based on data from the Pekanbaru City Micro, Small and Medium Enterprises Cooperatives Service, the number of frozen food MSMEs applying for business permits increases yearly. However, several problems are faced by frozen food MSMEs in Pekanbaru, such as lack of experience, skills in product packaging, and digital adaptation for product marketing. According to previous research, the limitations of MSMEs cause their performance to decline.

The main focus of this research was the performance of frozen food MSMEs in Pekanbaru City, which have great opportunities to develop. MSMEs have a strategic role in business development but face several complex problems, such as fluctuating productivity, weak bargaining power, lack of business capital, and lack of understanding about digitalization. Frozen food MSMEs are often only used as a stepping stone for larger businesses. Although with competent human resources, MSME businesses may adjust and spread knowledge across the whole company to innovate, adjust to changing market conditions, and build new networks and problem-solving skills.

The knowledge implemented in and shared intensively in frozen food MSMEs will continue to increase. If managed effectively and efficiently, frozen food MSMEs can adapt to market competition conditions, innovate, and achieve the desired goals. Innovation supported by knowledge and technology will improve the performance of MSMEs. In this way, frozen food MSMEs in Pekanbaru City are expected to contribute more to the regional and national economies.

LITERATURE REVIEW

MSME Performance

Performance is the output that members of an organization can provide through their authority and accountability in order to accomplish organizational objectives. Performance is a measure of how well initiatives or programs are carried out in relation to the organization's vision, mission, goals, and objectives. For MSMEs to thrive, they must perform well in every area, including marketing, production, distribution, and financing. When they operate well, MSMEs have the potential to strengthen the foundation of a growing economy and contribute significantly to the national GDP. The government consistently gives MSMEs special consideration and attention.

According to (Hasibuan, 2016) MSMEs performance is the work result a person or organization achieves in carrying out assigned tasks based on skill, experience, seriousness and time. Meanwhile, (Aribawa, 2016) states that MSMEs performance is the work results achieved by individuals in completing their tasks in MSMEs in a certain period, linked to the value or standards of the MSMEs where the individual works. From the definition above, MSMEs performance is the work result achieved as a whole compared to the targets, targets or criteria determined and mutually agreed upon within an MSMEs. MSMEs performance indicators, according to (Munizu, 2010), include Formal Education Level, Leadership Spirit, Years of Entrepreneurship, Motivation, Skills

MSMEs Productivity

According to (McCann & Vorley, 2020), MSMEs productivity is the ability of a business to produce more output or services by using available resources efficiently. (Korinek & Stiglitz, 2020) emphasize that MSME productivity involves better use of available resources, including labour, capital, and technology, to achieve better results. (Wang et al., 2019) stated that MSMEs productivity is closely related to competitiveness. (Garbellini & Wirkierman, 2023) highlight that MSMEs productivity is often related to innovation. According to Brynjolfsson et al. (2020), MSMEs productivity is closely related to the use of technology. From these definitions, MSME productivity is related to the ability of MSMEs to produce more output or services by using available resources efficiently. MSMEs productivity indicators, according to Ariyanto in (Usman et al., 2016), consist of Mastering skills, Maintaining punctuality, Quality of work results, Work Quality, Work Results.

Behaviour of MSMEs Actors

Behaviour results from various experiences and human interactions with the environment manifested through knowledge, attitudes and actions. According to (Siahaan et al., 2023) behaviour is a function of the interaction between individuals and their environment. These interactions produce individual behaviour in the organization. There are several approaches to understanding behaviour, including cognitive, reinforcement, and psychoanalytic approaches. MSME players must increase productivity by approaching consumers without meeting them directly so that MSMEs can continue to operate smoothly without violating government regulations (Hardilawati, 2020). An innovative attitude and the courage to take risks are needed to increase the competitiveness of MSMEs in terms of cost and concentration advantages (Aprileny et al., 2022). (Safitri & Setiaji, 2018) emphasize that business actors need enthusiasm and hard work to operate their businesses. (Vijaya & Irwansyah, 2017) added that the more business actors there are, the higher the competition they face. According to (Febriyantoro et al., 2019), the behavioural indicators of MSME actors are Skill, Courage to Bear Risks, High Creativity, Strong Confidence, Experience, and Hope.

Digital Adaptation

Digital adaptation is the ability to adapt to operating increasingly developing technology. According to (D. A. Putri, 2024), adaptation is a human effort to adapt to a certain environment in facing urgent problems. (Apriliani & Wijaya, 2021) states that technology is the practical application of science to make work easier. Based on the opinions above, digital adaptation is adjusting to certain situations to face problems practically using digital science. Indicators of digital adaptation include Perceived Ease of Use, Perceived Usefulness, Perceived Credibility, Perceived Self-Efficacy, and Attitudes.

RESEARCH METHODS

This research was conducted at all MSMEs operating in the frozen food sector in Pekanbaru City. Data collection was carried out by distributing questionnaires to predetermined research samples. The research took place from January to March 2024. This research was explanatory research, which aims to explain the relationship between variables using hypotheses. To test the hypothesis, inferential statistics are used. Explanatory research is more credible than descriptive in measuring and testing causal relationships between variables. This research was also qualitative, emphasizing the natural study of phenomena that occur in a complex manner. The data collected was primarily from the first source, individuals and groups. Data was

collected using survey and observation methods, where the survey involved interviews with frozen food business owners and observation involved observing certain activities. Questionnaires were used to collect data from specified samples. This questionnaire uses an ordinal scale with five levels: strongly agree, agree, neutral, disagree, and strongly disagree. Each answer was given a weighted score from 1 to 5, which allows respondents to provide a subjective assessment of the variable indicators in the questionnaire statement. The research population was all frozen food MSMEs in Pekanbaru City, totalling 864. Samples were taken using the Slovin formula with an error tolerance of 4%, resulting in 363 MSMEs as research samples. Acquaintances would assist researchers at the target location in distributing questionnaires to respondents. Data analysis uses Partial Least Squares Structural Equation Modeling (PLS-SEM), which allows for testing the relationship between variables.

RESULTS

Respondent Characteristics

This research aims to see the influence of digitalization solutions in improving the performance of MSMEs in Pekanbaru City. Data was collected through questionnaires distributed to 363 frozen food MSMEs. The following were the characteristics of respondents based on several categories:

Table 1 Characteristics of respondents

No	Category	Number of people)	Percentage (%)
1	Age		
	25-30 years	166	45.7%
	31-36 years old	119	32.8%
	37-40 years old	78	21.5%
	Amount	363	100%
2	Gender		
	Man	205	56%
	Woman	158	44%
	Amount	363	100.0%
3	Education		
	elementary school	2	0.6%
	Junior High School	29	8.0%
	Senior High School	177	48.8%
	Bachelor	148	40.8%
	Postgraduate	7	1.9%
Amount	363	100.00	
4	Long time trying		
	< 1 Year	35	9.6%
	2 years	108	29.8%
	3 years	97	26.7%
	4 years	83	22.9%
	≥ 5 Years	40	11.0%
	Amount	363	100.0%

Source: 2024 research

Data Quality Test (Outer Model)

Validity Test

The results of the concurrent validity test by looking at the loading indicator value or loading factor for each indicator on each variable construct in this research can be seen as follows:

Table 2 Convergent Validity Test Results

Variable	Indicator	Loading Factor	AVE	Decision
Behaviour of MSME Actors	PP1	0.834	0.669	Valid
	PP2	0.822		Valid
	PP3	0.811		Valid
	PP4	0.832		Valid
	PP5	0.818		Valid
	PP6	0.792		Valid
Digital Adaptation	AD1	0.846	0.734	Valid
	AD2	0.847		Valid
	AD3	0.875		Valid
	AD4	0.853		Valid
	AD5	0.863		Valid
MSME productivity	P1	0.791	0.713	Valid
	P2	0.795		Valid
	P3	0.928		Valid
	P4	0.826		Valid
	P5	0.875		Valid
MSME performance	K1	0.900	0.715	Valid
	K2	0.832		Valid
	K3	0.817		Valid
	K4	0.803		Valid
	K5	0.873		Valid

Source: Processed Data, 2024

It was known that all of the indicators in Table 2 above have loading factor values greater than 0.7. Additionally, we found that all of the reflective indicators above had a correlation with the construct variables, as shown by an average variance extracted (AVE) value greater than 0.50. This clarifies why every indication in the variable construct satisfies the convergent validity criterion.

Reliability Test

Reliability Indicators

Reliability indicators were a big variance of indicators/items to explain latent constructs (Ghozali & Latan, 2014). The results of the reliability test with reliability indicator criteria can be seen in the following Cronbach's alpha table:

Table 3 Results of Cronbach's Alpha Test

Variable	Cronbach's Alpha	Size	Decision
Behaviour of MSME Actors	0.901	0.7	Reliable
Digital Adaptation	0.910	0.7	Reliable
MSME productivity	0.899	0.7	Reliable
MSME performance	0.900	0.7	Reliable

Source: Processed Data, 2024

In Table 3, you can see all the values of Cronbach's alpha for the research construct variables above 0.70. This explains that all construct variables meet the reliability requirements.

Internal Consistency Reliability

An estimate of reliability based on the average correlation between test items was known as internal consistency reliability (Ghozali & Latan, 2020) The following composite reliability table displays the reliability test results with internal consistency reliability criteria:

Table 4 Test C Results Composite Reliability

Variable	Composite Reliability	Size	Decision
Behaviour of MSME Actors	0.924	0.7	Reliable
Digital Adaptation	0.932	0.7	Reliable
MSME productivity	0.925	0.7	Reliable
MSME performance	0.926	0.7	Reliable

Source: processed data, 2024

In Table 4, you can see all the values of the composite reliability of the construct variables of the research variables above 0.70. This explains that all construct variables meet the reliability requirements

Structural Model Testing (Inner Model)

To determine the relationship between constructs, significant values, and the research model's R-square, the inner or structural model in SmarPLS 4.0 was tested. R-square for the dependent construct, the t-test, and the significance of the structural path parameter coefficients were used to assess the structural model.

Coefficient of Determination

Adjusted R-squared was used as the coefficient of determination; it displays the percentage of variance that the exogenous/predictor construct, which was predicted to influence the endogenous construct/criterion, can explain. Only endogenous factors have adjusted R-squared (Sholihin & Ratmono, 2013). The following were the Adjusted R-squared value results:

Table 5 Coefficient of Determination Test Results

Structural Models	R-square	R-square adjusted
MSME productivity	0.509	0.506
MSME performance	0.668	0.665

Source: Processed Data, 2024

From Table 5 above, the adjusted R2 value for MSMEs productivity can be obtained at 0.506. This means that MSMEs actors' behaviour and digital adaptation influence 50.6% of MSME productivity. Then, the adjusted R2 value for MSMEs performance was obtained at 0.665. This means that the behaviour of MSMEs players, digital adaptation and MSMEs productivity influences 66.5% of MSMEs performance.

Table 6 Q square Relevance Test Results

Dependent Variable	Q ² Predict
MSME productivity	0.502
MSME performance	0.556

Source: processed data, 2024

According to Table 6 above, MSME performance was 0.556 > 0 and productivity is 0.502 for the Q2 period. This indicates that the observation value of this research model was good. As a result, it can be said that the research model has a relevant predictive value, meaning that it can account for 55.6% of the information found in the study data. If a study's Q square value was greater than 0 (zero), it was considered to have good observation value.

F2 Analysis

F2 Analysis To assess the magnitude of the influence between variables with Effect Size or f-square. The f square value was 0.02 as small, 0.15 as medium, and 0.35 as large. Values less than 0.02 can be ignored or considered to have no effect (Sarstedt et al., 2017)

Table 7 F2 Analysis Test Results

Influence	F2	Strength
The behaviour of MSME Actors -> MSME Productivity	0.187	Currently
Digital Adaptation -> MSME Productivity	0.246	Currently
The behaviour of MSME Actors -> MSME Performance	0.074	Small
Digital Adaptation -> MSME Performance	0.108	Small
MSME Productivity -> MSME Performance	0.317	Currently

Source: processed results, 2024

Table 7 shows that the strength between dimensions of exogenous and endogenous variables or variables can be seen from the f2 value. An f2 value of 0.02 was categorized as a weak influence of predictor latent variables (exogenous latent variables) at the structural level. At the structural level, an f2 value of 0.15 was categorized as sufficient influence of the predictor latent variable (exogenous latent variable). An f2 value of 0.35 was categorized as a strong influence of latent predictor variables (exogenous latent variables) at the structural level.

Asumi Model Fit

To evaluate model fit and quality index, several indicators can be determined, the results of which can be seen in Table 8 below.

Table 8 Asumi Model Fit test results

Criteria	Saturated models
SRMR	0.051
d_ULS	0.605
d_G	0.285
Chi-square	611,599
NFI	0.894

Source: processed results, 2024

The model fit value can be seen from the NFI and SRMR values. The NFI value was close to 1, and the SRMR was less than 0.8, indicating that the model formed was good and acceptable. From the results above, an NFI value of 0.894 was obtained, close to 1 and an SRMR value of 0.051 <0.08. Thus, it can be interpreted that the model formed was good and acceptable.

Hypothesis Testing

Hypothesis testing using Partial Least Square (PLS) will show seven hypotheses. This test was carried out using the t test (t-test) for the influence between variables. From the test results, the SmartPLS Structural Diagram image model was obtained as follows:

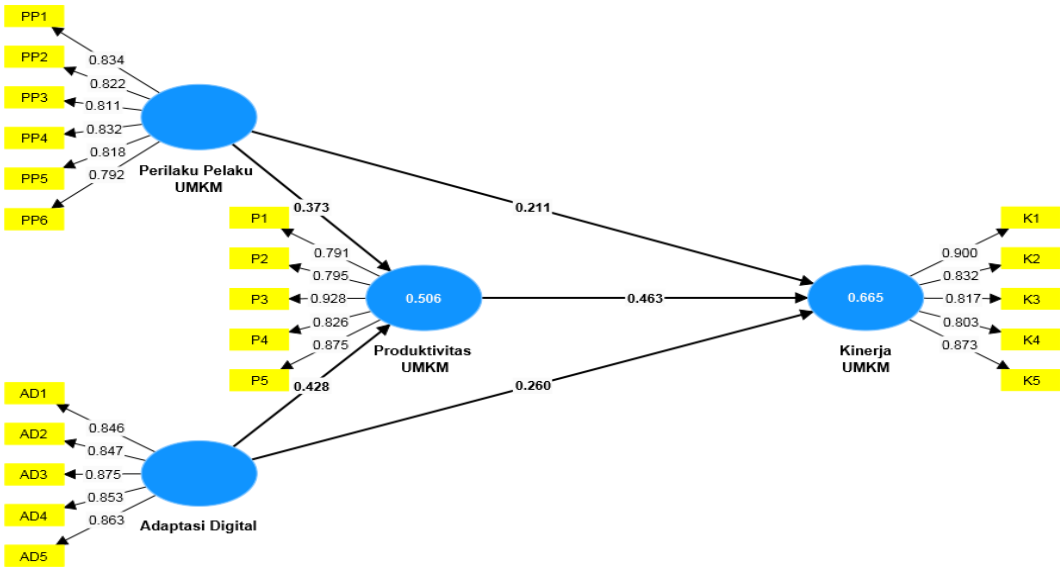


Figure 1: Structural Diagram Model PLS

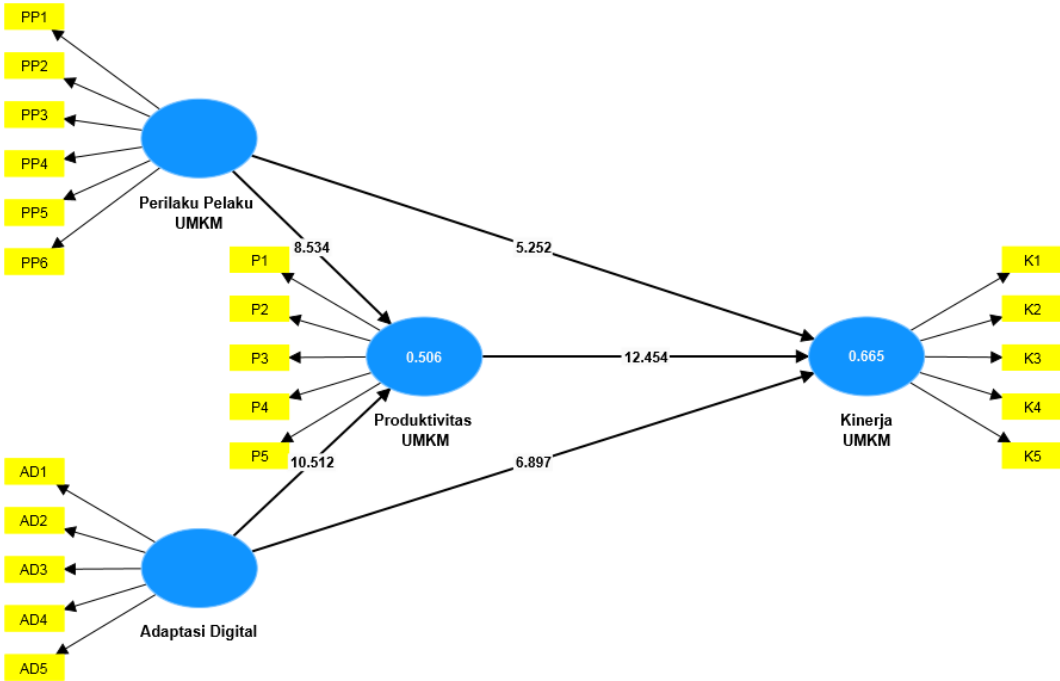


Figure 2: Bootstrapping

Test results using bootstrapping from PLS analysis can be seen as follows:

Table 9 : Hypothesis Testing Results

Hypothesis	Path Coefficients	T Statistics	P Values
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<i>DIRECT</i>			
The behaviour of MSME Actors -> MSME Productivity	0.373	8,534	0,000
Digital Adaptation -> MSME Productivity	0.428	10,512	0,000
The behaviour of MSME Actors -> MSME Performance	0.211	5,252	0,000
Digital Adaptation -> MSME Performance	0.260	6,897	0,000
MSME Productivity -> MSME Performance	0.463	12,454	0,000
<i>INDIRECT</i>			
The behaviour of MSME Actors -> MSME Productivity -> MSME Performance	0.173	7,349	0,000
Digital Adaptation -> MSME Productivity -> MSME Performance	0.198	7,711	0,000

Source: Processed Data, 2024

PLS uses simulation to carry out statistical testing of each proposed link. The bootstrapping technique was used to the sample in this instance. Bootstrapping testing was also meant to reduce issues with the study data.

Hypothesis 1

The coefficient value obtained was 0.373, with a t-statistic of 8.534 and a P value of 0.000. These results indicated that the t statistic (8.534) surpassed the critical value (1.96) and the P value (0.000) was below 0.05. Therefore, the behavior of MSME actors significantly impacted MSME productivity.

Hypothesis 2

The coefficient value found was 0.428, with t-statistics of 10.512 and a P value of 0.000. These results demonstrated that the t statistic (10.512) exceeded the critical value (1.96) and the P value (0.000) was less than 0.05. Thus, digital adaptation considerably influenced the productivity of MSMEs.

Hypothesis 3

The coefficient value recorded was 0.211, with t-statistics of 5.252 and a P value of 0.000. These results showed that the t statistic (5.252) was greater than the critical value (1.96) and the P value (0.000) was below 0.05. Therefore, the behavior of MSME actors significantly affected the performance of MSMEs.

Hypothesis 4

The coefficient value was 0.260, with t-statistics of 6.897 and a P value of 0.000. These results indicated that the t statistic (6.897) was higher than the critical value (1.96) and the P value (0.000) was under 0.05. Hence, digital adaptation significantly impacted the performance of MSMEs.

Hypothesis 5

The coefficient value was 0.463, with t-statistics of 12.454 and a P value of 0.000. These results showed that the t statistic (12.454) surpassed the critical value (1.96) and the P value (0.000) was less than 0.05. Consequently, MSME productivity significantly influenced their performance.

Hypothesis 6

The coefficient value obtained was 0.173, with t-statistics of 7.349 and a P value of 0.000. These results demonstrated that the t statistic (7.349) was greater than the critical value (1.96) and the P value (0.000) was below 0.05. Therefore, the behavior of MSME actors had a significant effect on MSME performance through MSME productivity.

Hypothesis 7

The coefficient value recorded was 0.198, with t-statistics of 7.711 and a P value of 0.000. These results indicated that the t statistic (7.711) surpassed the critical value (1.96) and the P value (0.000) was under 0.05. Thus, digital adaptation significantly affected MSME performance through MSME productivity.

FINDINGS

The empirical findings indicate that positive entrepreneurial behaviours such as commitment to quality, process optimization, and customer relationship management directly enhance SME productivity in the frozen food sector. Similarly, the adoption of digital technologies, particularly e-commerce platforms, social media marketing, and digital inventory management systems, significantly improves operational efficiency and market competitiveness among SMEs. Productivity was a critical mediator linking entrepreneurial behaviours and digital adaptation to overall business performance, including profitability and market responsiveness.

DISCUSSION

The discussion underscores the transformative potential of fostering entrepreneurial behaviours and promoting digital adaptation strategies among SMEs in the frozen food sector. By enhancing skills, fostering innovation, and embracing digital tools, SMEs can not only optimize their internal operations but also more effectively capitalize on external market opportunities. The study advocates for tailored policy interventions to support SMEs acquiring entrepreneurial competencies and integrating digital technologies into their business strategies to sustain long-term growth and competitiveness.

CONCLUSION

In conclusion, this study illuminates the inter connectedness between entrepreneurial behaviour, digital adaptation, productivity, and business performance within the frozen food sector SMEs. By elucidating these dynamics, the research underscores the imperative for policymakers, industry stakeholders, and SMEs to prioritize investments in entrepreneurial skill development and digital proficiency. Such initiatives were crucial for navigating complexities in the marketplace, enhancing productivity, and achieving sustainable business success in the evolving landscape of frozen food production.

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