Determinants of E-commerce Adoption and Performance of SMEs: Empirical Evidence from Majene Regency

Nurwazaila[1*], Muh Hirwansyah[2], Anis Anshari Mas'ud[3]

[1,2,3]Bisnis Digital, Faculty of Economics, Universitas Sulawesi Barat, Majene, Indonesia.

*Email:

nurwazaila@gmail.com

Abstract. This study investigates the determinants of e-commerce adoption and its impact on the performance of small and medium enterprises (SMEs) in Majene Regency. Using a structured questionnaire, data were collected from SMEs in the culinary and sales sectors and analyzed through empirical methods. The findings reveal that integrated information systems significantly enhance the business performance of SMEs by facilitating the use of e-commerce platforms for sales transactions and product promotion. Contrary to expectations, technological innovation does not show a significant effect on e-commerce adoption, highlighting the importance of organizational readiness and management support over the mere introduction of new technologies. Ease of use is positively correlated with improved SME performance, emphasizing that user-friendly e-commerce platforms significantly boost business operations. The study concludes that e-commerce adoption directly enhances SME productivity and revenue, proving crucial for accessing broader markets and achieving competitive advantage. These insights provide practical implications for SME owners and practitioners to develop strategies that foster e-commerce adoption and improve SME performance in the digital era.

Keywords: E-commerce adoption; SME performance; integrated information systems; technological innovation; ease of use; digital marketing.

Introduction

Small and medium-sized enterprises (SMEs) play a vital role in the modern economy, at the local, national and global levels. SMEs are often referred to as the backbone of the economy due to their significant contribution to job creation, economic development, and innovation. According to (Zhou, 2016), SMEs provide a large number of employment opportunities, which not only help reduce unemployment but also increase the income of local communities. In addition, (Cravo et al., 2012) emphasize that SMEs drive local economic growth through value-added creation and increased productivity. SMEs are also known to be more flexible and innovative compared to large enterprises, allowing them to adapt more quickly to changing market and consumer needs, as noted by (Drucker, 1985). In addition to their role in the economy, SMEs also make a significant social impact by empowering local communities. SMEs are often owned and operated by local individuals, so the profits generated tend to be returned to the local community, supporting the strengthening of community economies and creating a strong base for sustainable development. Storey (1994) points out that SMEs have a crucial role in the economic empowerment of communities. By understanding the importance of SMEs, it is expected that further policies and support from the government, private sector, and society will continue to be developed to support the sustainability and growth of SMEs. Literature such as Acs and Audretsch (2005), Drucker (1985), Smallbone et al. (1995), and Storey (1994) provide a comprehensive view of the significant contributions of SMEs in the economy and society.

The relationship between SMEs and technology is close and mutually beneficial. Technology provides tools and platforms that enable SMEs to improve operational efficiency, expand market reach, and increase competitiveness. By adopting digital technologies such as e-commerce, social media, and analytics tools, SMEs can reach new customers, personalize the shopping experience, and make better business decisions based on data. In addition, technology helps SMEs automate business processes, reduce operating costs, and increase productivity. According to a study by the (OECD, 2019), SMEs that adopt digital technologies tend to grow faster and have better access to global markets. Therefore, the integration of technology into SME operations is a key factor in achieving success and sustainable growth. The use of digital marketing by SMEs brings several significant benefits that can boost their growth and competitiveness. By using digital channels such as social media, SEO, email marketing, and paid advertising, SMEs can reach a wider audience at a lower cost compared to traditional marketing. Digital marketing allows SMBs to target customers more precisely based on demographics, interests, and purchasing behavior, increasing the effectiveness of marketing campaigns.

In addition, the analytics tools available in digital platforms help SMBs monitor and evaluate the performance of their campaigns in real time, enabling them to quickly adjust their strategy for better results. According to a report by (Figueiredo et al., 2021), SMBs that adopt digital marketing strategies experience higher revenues and faster business growth than those that still rely on traditional marketing methods. Therefore, digital marketing integration is key for SMBs to stay relevant and competitive in this digital age. Micro, Small and Medium Enterprises (SMEs) in Majene Regency, West Sulawesi Province have started to use digital marketing to improve their competitiveness. Through the digital marketing strategy training organized by the local government, SMEs in the fisheries and livestock sectors in Majene were able to learn how to use e-commerce and social media to market their superior products1. This is especially helpful in the midst of the COVID-19 pandemic, as it allows them to continue operations and reach new customers without relying too heavily on physical distribution. Thus, the use of digital technology by SMEs in Majene not only increases marketing efficiency and reach, but also supports the local economy as a whole. SMEs in Majene Regency face several challenges in adopting e-commerce, particularly with regard to the influence of integrated information systems and technological innovation.

Research by (SW et al., 2022) shows that organizational willingness and technology have a positive effect on e-commerce adoption, but the external environment has an insignificant effect on improving the performance of SMEs1. In addition, inadequate technological infrastructure and limited financial resources are the main barriers to digital transformation of MSMEs. As a result, many SMEs still struggle to make the most of e-commerce, which hinders their competitiveness and economic growth. Previous research on e-commerce adoption by SMEs has highlighted various factors that influence this process. For example, research by Ayu Noviani Hanum and Andwiani (Samaloisa et al., 2023) highlighted factors such as technological, organizational, environmental, and individual readiness that influence e-commerce adoption and performance of SMEs in Semarang City. In addition, a study by (Gilmore, 2011) and (Harini et al., 2023) showed that organizational and technological readiness have a positive effect on improving the performance of SMEs in Medan City. However, there are still shortcomings in the research on e-commerce adoption by MSMEs in Majene Regency, which requires researchers to further explore the influence of integrated information systems and technological innovation on e-commerce adoption and business performance of MSMEs in the area. This research is expected to provide deeper insights and practical recommendations to improve the use of e-commerce by SMEs in Majene Regency.

Research Methodology

This research is explanatory research, that is, research that explains the influence between several variables by testing hypotheses. This study aims to provide an overview of the factors that influence the business performance of SMEs with independent variables consisting of integrated information systems and technological innovation, and ease of use. Furthermore, this study uses e-commerce adoption variables as intervening variables and SME performance as the dependent variable. The unit of analysis of this research

is SMEs in Majene Regency, West Sulawesi, Indonesia. SME actors who are the subject of research are business actors in culinary and sales. Data collection method is done by survey or self-administered survey is a method of collecting primary data by giving questionnaires to respondents (Jogiyanto, 2004). Questionnaires completed by respondents are collected and processed with the help of Partial Least Square (PLS) program version 4.1. In this study, purposive sampling is used, which is a technique for sampling by setting specific criteria (Panacek & Thompson, 2007).

The sample in this study consists of SMEs in the culinary field and sales in Majene district, which actively use e-commerce in sales transactions and product promotion. The data collection method in this study uses a questionnaire (questionnaire), which is done by giving written questions to the respondents and the questions will be answered based on the Likert scale technique. Descriptive statistical analysis is a statistic used in analyzing data by describing or describing the collected data as it is without the intention of making general conclusions or generalizations (Sugiyono, 2013). This data analysis is used to provide an overview of the effect of integrated information systems, technological innovation, and ease of use on the performance of SMEs through the adoption of e-commerce. Based on previous research and hypothesis formulation, the following variable relationships are obtained:

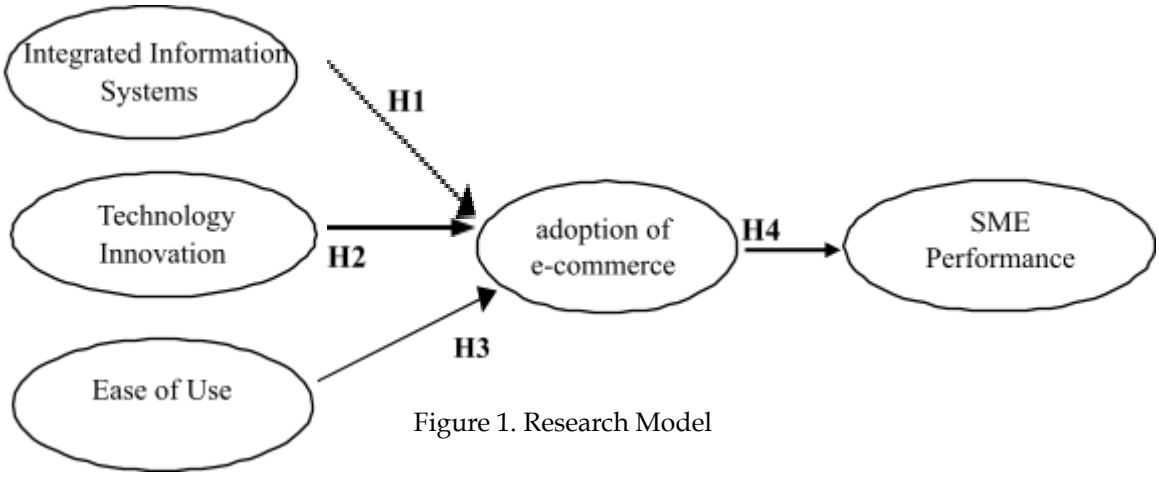

Figure 1. Research Model

In this study, researchers used a questionnaire as a research instrument that was distributed to respondents both manually and online through the Google site.The process of distributing questionnaires online begins with creating a questionnaire using an online form provided by the Google Form site. The link to the questionnaire form is sent to respondents via email or social media applications. Individual respondents are asked to select one of the responses by marking the response options provided in the questionnaire, which are then analyzed using Structural Equation Modeling (SEM) Partial Least Square (PLS) analysis on SmartPLS 4.1 software. Prior to testing in the form of data analysis and processing, it is necessary to first conduct a test of validity. Validity shows how well a test measures what it is supposed to measure. Reliability test shows the accuracy and precision of the measurement. Reliability test is needed to determine the level of reliability of the questionnaire in this study.

Results

Based on the respondents' data, information is obtained about the respondents' profile in terms of position, age, gender, experience in using applications, recent education, and features used in E-Commerce adoption. Below is a description of the respondent profile according to the data filled in on the distributed questionnaires. The number of questionnaires distributed was 220. The number of questionnaires returned and filled in was 152 copies, which means that 69 copies of the questionnaires were not returned. The characteristics of respondents for gender show that the number of male respondents is greater than the number of female respondents. The number of male respondents in this study was 98 people or 64.3% of the total respondents, while the number of female respondents was 54 people or 35.7% of the total respondents.

This indicates that e-commerce users in business actors in Majene Regency, namely SMEs, are dominated by men, this is because men have characters that are more adaptable and more active and careful in using e-commerce platforms. The characteristics of respondents based on gender can be seen in table 1 below:

Table 1. Respondents' characteristics

No	Gender	Total	Percentage (%)
1	Male	98	64,3%
2	Female	54	35,7%
Total		152	100%

Source: Processed data, 2024

Most respondents are male SMEs as many as 98 business actors or 54.6% of the total number of respondents, this is due to the ease of meeting directly with business actors in Majene district who transact offline at their place of business, because each business actor is directly related to routine operations related to promotion and marketing such as selling their products. Statistical descriptions are used to show the amount of data (N) used in this study and can show the average value (mean) of each variable. Descriptive statistical data of the variables used in this study using the help of the SPSS 29 program and the results are as follows:

Table 2. Results of Respondents' Statements for Each Research Variable

Descriptive Statistics

	N	Range	Mean	
	Statistic	Statistic	Statistic	Std. Error
SIT1	152	4	4.26	.064
SIT2	152	3	4.08	.062
SIT3	152	3	3.93	.061
SIT4	152	3	4.37	.055
SIT5	152	4	4.32	.074
SIT6	152	4	4.08	.070
Valid N (listwise)	152			
	N	Range	Mean	
	Statistic	Statistic	Statistic	Std. Error
IT1	152	3	4.03	.064
IT2	152	3	4.13	.063
IT3	152	3	4.21	.066
IT4	152	4	4.35	.063
IT5	152	4	4.10	.070
Valid N (listwise)	152			
	N	Range	Mean	
	Statistic	Statistic	Statistic	Std. Error
KP1	152	3	3.90	.062
KP2	152	4	4.29	.063
KP3	152	3	4.09	.063
KP4	152	3	4.21	.055
KP5	152	3	4.29	.057
Valid N (listwise)	152			
	N	Range	Mean	
	Statistic	Statistic	Statistic	Std. Error
ECOMMERCE1	152	4	4.16	.067
ECOMMERCE1	152	3	4.16	.068
ECOMMERCE1	152	2	4.23	.053
ECOMMERCE1	152	4	3.97	.073
ECOMMERCE1	152	4	3.93	.075
ECOMMERCE1	152	3	4.37	.055

Valid N (listwise)	152			

Source: Processed data, 2024

In this study using a validity test that measures how much accuracy and precision of a measuring instrument (variable) in performing its measuring function, so in testing variables used convergent validity and discriminant validity. In this study, validity refers to the level of accuracy achieved by an indicator in measuring something or the accuracy of measuring what should be measured. (Ferdinand, 2016) states that research using person correlation is known as product moment correlation. The statement is said to be valid if the factor loading is greater than 0.5. The convergent validity test in PLS is assessed based on the loading factor of the indicators that measure the construct, the rule of thumb used for initial research is the maximum factor if the value is ≥ 0.30 (minimum level of), for a loading factor of ± 0.40 it is better and if > 0.50 it is considered good. Or the T-statistic value is twice as large as the standard error values. The higher the factor loading value, the more important the loading role is in interpreting the factor matrix. Table 3 above shows that the integrated information system variable is measured by 6 indicators, with a loading value range of 0.376 - 0.000. Because the loading range of the two research indicators (X2.1 - X2.5) is greater than> 0.35, it means that it can be said that these indicators have convergent validity and are also able to interpret a factor / dimension (Kaplan & Depaoli, 2012). Then for the technological innovation variable which has 5 indicators with a loading range of 0.376 - 0.282 with a range of values greater than 0.35, it can be concluded that the two indicators for the adoption of new technology have convergent validity. and besides that, the t value of each indicator is greater than 0.01, meaning that all indicators already have accuracy in forming technological innovation variables. The following are the results of data processing Outer Loadings (Mean, STDEV, T-Values):

Table 3. Outer Loadings (Mean, STDEV, T-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
EC1 <- Adoption _E-Commerce	0.421	0.386	0.197	2.142	0.033
EC2 <- Adoption _E-Commerce	0.551	0.538	0.118	4.670	0.000
EC3 <- Adoption _E-Commerce	-0.245	-0.212	0.211	1.160	0.005
EC4 <- Adoption _E-Commerce	0.503	0.495	0.186	2.710	0.007
EC5 <- Adoption _E-Commerce	-0.751	-0.730	0.118	6.345	0.000
EC6 <- Adoption _E-Commerce	0.561	0.530	0.125	4.475	0.000
IT1 <-Technology Innovation	-0.311	-0.054	0.351	0.887	0.376
IT2 <-Technology Innovation	-0.633	-0.119	0.588	1.077	0.282
IT3 <-Technology Innovation	0.350	0.107	0.365	0.960	0.338
IT4 <-Technology Innovation	0.565	0.151	0.548	1.032	0.303
IT5 <-Technology Innovation	-0.665	-0.158	0.625	1.065	0.288
SP1 <- SME Performance	0.069	0.082	0.263	0.261	0.025
SP 2 <- SME Performance	-0.812	-0.634	0.431	1.884	0.001
SP 3 <- SME Performance	0.516	0.422	0.312	1.655	0.012
SP 4 <- SME Performance	-0.104	-0.093	0.177	0.589	0.001
SP 5 <- SME Performance	0.241	0.202	0.252	0.957	0.015
EOU1 <- Ease of use	-0.586	-0.549	0.137	4.272	0.000
EOU 2 <- Ease of use	0.519	0.436	0.255	2.031	0.043
EOU 3 <- Ease of use	0.625	0.611	0.151	4.149	0.000
EOU 4 <- Ease of use	-0.176	-0.132	0.271	0.649	0.023
EOU 5 <- Ease of use	0.350	0.327	0.196	1.790	0.000
SIT1 <- Integrated Information Systems	0.367	0.316	0.245	1.497	0.135

SIT2 <- Integrated Information Systems	0.524	0.507	0.130	4.022	**0.000**
SIT3 <- Integrated Information Systems	-0.059	-0.040	0.215	0.275	**0.003**
SIT4 <- Integrated Information Systems	0.378	0.362	0.159	2.377	**0.018**
SIT5 <- Integrated Information Systems	-0.747	-0.722	0.135	5.532	**0.000**
SIT6 <- Integrated Information Systems	0.528	0.482	0.182	2.904	**0.004**

Source: Processed data results, 2024

Based on the results of the convergent validity test, it can be concluded that all research indicators except the technological innovation variable on e-commerce adoption used in hypothesis testing have met the requirements of convergent validity, because judging from the loading value for each indicator, it meets the rule of thumb required for partial least square analysis. Discrimination validity test is assessed by cross loading. Cross loading aims to determine whether the construct has adequate discrimination, namely by building an indicator questionnaire with the construct must be greater than the correlation between indicators and other constructs. If the correlation of the construct indicator has a higher value than the correlation of the indicator to other constructs, it is said that the construct has high discrimination validity. The following table presents the results of cross loading based on the indicators of the research variables:

Table 4. Cross Loadings (Mean, STDEV, T-Values)

Case ID	Adoption E-Commerce	Technology Innovation	Ease of Use	SME Performance	Integrated Information Systems
1	-0.404	0.801	-0.852	0.538	0.049
2	-0.857	0.343	-0300	0.138	-0.714
3	0.110	0.458	-0.015	-0.064	-0.289
4	-0032	0.258	0.457	-0.657	-0.031
5	-0.465	0.801	-0.565	-0.064	0.184
6	-0.908	0323	-0159	0.329	0507
7	-0.590	0.530	0.853	-0.082	0082
8	-0611	-0.012	0.118	-0.073	0.184
9	0.084	-0.247	0723	-0.351	-0443
10	-0150	0.238	-0.054	-0791	-0185
11	-0.272	0.754	0.554	-0.989	0.488
12	-0.540	-0.085	-0.118	0.021	0.186
13	-0.715	-0258	0.209	0.165	0.049
14	-0.857	0.593	0640	-0.798	-0.545
15	-0.733	-0916	0.618	0.212	-0352
16	-0.868	0.431	-0.118	-0.396	-0.287
17	0.490	0.078	-0.220	-0.255	-0.075
18	-0.715	0.078	-0.526	-0.854	1.249
19	0.611	0.735	0.803	-0.989	0.230
20	0.044	0.573	-0.278	0.225	-0.456
21	-0.653	0.077	0.803	-0.854	0.063
22	-0.409	0.077	0.068	-0.587	0.063
23	0.250	-0.581	0.433	0.118	0.445
24	0.969	-0.220	0.803	-0.387	0.351
25	0.278	-0.878	-0.974	-0.949	-0.497

26	-0.261	0.639	-0.628	0.225	-0.499
27	0.287	0.123	-0.424	0.720	0.186
28	-0.046	0.431	0.433	-0.205	0.959
29	-0.277	-0.716	0.394	0.379	0.867
30	0.056	0.535	-0.628	0.514	0.609
31	-0.664	0.374	0.024	0.771	0.442
32	0.145	0.916	-0.219	0.466	-0.364
33	-0.353	-0.419	-0.118	-0.817	0.486
34	-0.323	0.296	0.516	-0.864	0.106
35	0.723	-0.743	0.178	0.620	1.082
36	0.258	0.639	0.261	0.456	0.184
37	-0.455	0.639	-0.405	-0.255	0.868
38	0.157	0.458	-0.628	0.018	0.035
39	0.472	0.076	0.115	0.802	-0.545
40	0.544	0.781	0.153	0.409	-0.239
41	-0.637	0.076	0.012	0.583	1.384
42	0.112	0.123	-0.424	0.347	-0.166
43	0.394	-0.561	0.363	0.200	0.352
44	0.592	0.238	-3.972	0.058	0.179
45	-0.057	-0.581	-0.015	-0.587	1.126
46	1.258	0.238	0.720	-0.255	1.766
47	-0.379	-0.065	0.657	0.265	0.870
48	-0.181	-0.065	-0.852	1.558	-0.074
49	0.669	-0.181	-0.711	0.529	0.230
50	0.057	0.077	-0.118	0.432	0.486
51	0.476	-0.581	1.168	1.603	0.490
52	-0.396	-0.220	-0.200	-0.170	-0.149
53	0.112	-0.878	0.239	-0.493	0.111
54	0.096	-0.716	-0.833	0.008	-0.149
55	-0.024	0.123	-0.239	1.138	0.106
56	-0.330	-0.561	-0.789	1.403	-0.835
57	-0.879	0.593	-0.750	-0.387	0.486
58	-0.130	0.457	0.413	0.225	-0.074
59	0.003	0.279	-0.955	-0.711	-0.714
60	0.095	0.096	0.190	0.956	0.014
61	1.240	0.258	0.253	1.564	-0.118
62	0.487	1.458	0.842	1.147	0.488
63	-0.981	0.076	0.485	-0.246	0.731
64	0.780	1.296	0.236	1.452	0.137
65	1.185	-0.065	0.516	0.432	0.566
66	0.045	1.343	0.076	-0.626	0.014
67	-0.386	1.181	-0.769	-0.396	0.016
68	0.980	0.227	0.209	-0.807	0.488
69	-0.379	1.181	0.657	-0.663	0.870
70	-0.521	-0.181	0.005	-0.616	-0.712
71	0.474	-0.858	-0.852	1.138	0.731
72	0.405	-0.065	0.037	0.432	0.349
73	-0.024	0.076	-0.258	1.367	0.395

74	-0.272	-0.085	-0.015	-0.616	-0.451
75	-0.266	0.103	-0.711	-0.902	0.230
76	0.681	0.097	-0.405	0.720	0.228
77	-0.521	0.639	-0.628	-0.807	-0.712
78	0.867	0.342	0.944	1.185	1.128
79	0.095	0.374	0.383	-0.390	0.091
80	0.301	0.238	0.107	0.583	0.072
81	-0.404	0.103	-0.993	0.021	0.035
82	2.737	-0.601	1.986	0.574	0.766
83	1.341	0.639	1.129	1.367	0.746
84	3.047	1.458	1.640	1.975	0.024
85	0.181	0.619	-0.565	0.356	0.184
86	0.816	0.342	1.353	0.300	1.766
87	0.374	1.161	0.068	0.203	0.230
88	0.067	-0.716	1.290	0.711	0.959
89	0.177	0.665	0.988	-0.538	0.824
90	0.867	1.296	1.577	-0.064	-0.364
91	0.351	0.592	0.701	-0.626	-0.287
92	0.623	0.619	1.250	0.432	0.703
93	0.871	0.801	0.963	0.363	0.227
94	0.918	0.504	1.474	0.545	0.916
95	0.742	0.781	0.248	1.785	0.867
96	0.725	-0.878	0.262	1.138	1.766
97	0.692	0.258	0.005	0.623	0.230
98	1.309	-0.181	-0.136	1.176	1.249
99	1.864	0.238	0.944	-0.246	-0.289
100	0.177	0.665	0.988	-0.538	0.824
101	0.867	1.296	1.577	-0.064	-0.364
102	0.351	0.592	0.701	-0.626	-0.287
103	0.623	0.619	1.250	0.432	0.703
104	0.871	0.801	0.963	0.363	0.227
105	0.918	0.504	1.474	0.545	0.916
106	0.742	0.781	0.248	1.785	0.867
107	0.725	-0.878	0.262	1.138	1.766
108	0.692	0.258	0.005	0.623	0.230
109	1.309	-0.181	-0.136	1.176	1.249
110	1.864	0.238	0.944	-0.246	-0.289
111	0.474	-0.858	-0.852	1.138	0.731
112	0.405	-0.065	0.037	0.432	0.349
113	-0.024	0.076	-0.258	1.367	0.395
114	-0.272	-0.085	-0.015	-0.616	-0.451
115	-0.266	0.103	-0.711	-0.902	0.230
116	0.681	0.097	-0.405	0.720	0.228
117	-0.521	0.639	-0.628	-0.807	-0.712
118	0.867	0.342	0.944	1.185	1.128
119	0.095	0.374	0.383	-0.390	0.091
120	0.301	0.238	0.107	0.583	-0.072
121	-0.404	0.103	-0.993	0.021	0.035

122	2.737	-0.601	1.986	0.574	1.766
123	1.341	0.639	1.129	1.367	0.746
124	3.047	1.458	1.640	1.975	0.024
125	0.181	0.619	-0.565	0.356	0.184
126	0.816	0.342	1.353	0.300	1.766
127	0.374	1.161	0.068	0.203	0.230
128	0.067	-0.716	1.290	0.711	0.959
129	0.177	0.665	0.988	-0.538	0.824
130	0.867	1.296	1.577	-0.064	-0.364
131	0.351	0.592	0.701	-0.626	-0.287
132	0.095	0.096	0.190	0.956	0.014
133	1.240	0.258	0.253	1.564	-0.118
134	0.487	1.458	0.842	1.147	0.488
135	-0.981	0.076	0.485	-0.246	0.731
136	0.780	1.296	0.236	1.452	0.137
137	1.185	-0.065	0.516	0.432	0.566
138	0.045	1.343	0.076	-0.626	0.014
139	-0.386	1.181	-0.769	-0.396	0.016
140	0.980	0.227	0.209	-0.807	0.488
141	-0.379	1.181	0.657	-0.663	0.870
142	0.374	1.161	0.068	0.203	0.230
143	0.067	-0.716	1.290	0.711	0.959
144	0.177	0.665	0.988	-0.538	0.824
145	0.867	1.296	1.577	-0.064	-0.364
146	0.351	0.592	0.701	-0.626	-0.287
147	0.095	0.096	0.190	0.956	0.014
148	1.240	0.258	0.253	1.564	-0.118
149	0.487	1.458	0.842	1.147	0.488
150	-0.981	0.076	0.485	-0.246	0.731
151	0.980	0.227	0.209	-0.807	0.488

Source: Processed data results, 2024

Based on the results of hypothesis testing and after data processing, the results of path coefficient data processed with Smart PLS 4.1 can be presented as follows, the following table 5 Path Coefficients based on Bootstrapping results:

Table 5. Path Coefficients (Mean, STDEV, T-Values)

Hypotheses	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Description
Integrated Information Systems > SME Performance > Adoption ECommerce (H1)	0.445	0.369	0.229	0.443	**0.000**	**Accepted**
Technology Innovation > SME Performance > Adoption ECommerce (H2)	-0.100	-0.023	0.117	3.853	**0.594**	**Rejected**

Ease of Use > SME Performance > Adoption ECommerce (H3)	0.386	0.383	0.083	0.336	**0.000**	**Accepted**
Adoption ECommerce > SME Performance (H4)	0.534	0.461	0.088	1.855	**0.007**	**Accepted**

Source: Processed data results, 2024

Discussion

Integrated information system and e-commerce adoption

The results of this study found that the integrated information system variable affects the business performance of SME actors in the adoption and implementation of e-commerce. This means that the first hypothesis, which states that integrated information systems have a positive and significant effect on the performance of SMEs in Majene Regency and are strengthened by the use of e-commerce platforms, can be empirically tested. The significance of this research result shows that integrated information systems can better influence the process of using e-commerce in sales transactions and product promotion for SME business actors, especially in the culinary and sales sectors. These results are evidence that the integrated information system on the e-commerce platform also makes it easier for users, namely business owners and potential customers, to carry out the transaction process on digital services, so that using digital marketing since the e-commerce framework system can increase the productivity of their business operations. This is reinforced by extensive research that provides evidence of the significant effect that perceived usefulness has on the use of e-commerce platforms, such as research conducted by (Babenko et al., 2021) and (Gu et al., 2021), which concluded the importance of designing an integrated e-commerce information system, that integrated information systems have a positive and significant effect on the level of adoption of e-commerce and are the most important part of supporting business performance maximally and effectively. Thus, to achieve the performance of business actors in Majene Regency, it is important to implement an integrated trade information system that considers business processes that can improve operational efficiency.

Technological innovation and e-commerce adoption

The test results show that the second hypothesis proposed is rejected. This means that empirically technological innovation does not have a positive effect on the adoption of the use of e-commerce platforms as evidenced by the test results which do not show a significant value. The findings of this study indicate that innovation does not significantly affect e-commerce adoption for SME businesses in Majene Regency, especially the culinary and sales sectors. The meaning of this research finding shows that technological innovation cannot influence business actors and potential consumers towards the process of using e-commerce in conducting digital-based sales transactions. These results are evidence that introducing a new thing as one of the indicators of innovation owned by electronic commerce is no longer a new thing, but has been implemented for a long time, from the perception of SME actors in Majene Regency, the quality of service on the e-commerce platform cannot be effective by adapting new technologies such as electronic transaction features in making sales and promotions, disseminating product information, and utilizing technology-based tools, but there must also be development of other platforms that have been adopted previously, such as the use of social media and other marketing media that are still conventional.

The results of this study are in line with research conducted by (Setiyani & Yeny Rostiani, 2021) which examines SMEs in Karawang, the results of this study show that overall, the technological innovation aspect does not have a significant influence on e-commerce adoption intentions compared to organizational and environmental aspects. This means that although technological innovation is important, other factors such as organizational readiness, management support, government support, and competitive pressure play a more dominant role in driving e-commerce adoption by SMEs in Karawang. On the other hand, this research is not in line with research conducted by (Octavia et al., 2020) and (Achmad, 2023) which states that technological innovation has a positive effect on business performance in using or implementing a system,

innovation is the act or process of introducing something new such as the adoption of new technology. The results of this study can be used by SMEs in Majene Regency to formulate strategies to increase the productivity and performance of SMEs. Development of business readiness and adopting relevant new technologies to remain competitive.

Ease of use and e-commerce adoption

The results of this study indicate that the ease of use variable has a positive and significant effect on the performance of SMEs through the use of e-commerce platforms. This means that the third hypothesis which states that ease of use affects the performance of SMEs through e-commerce adoption can be empirically tested, so it can be accepted. That is, the findings of this study indicate that ease of use significantly affects the use of e-commerce in Majene Regency for SMEs that implement e-commerce platforms in their business operations. Most respondents tend to feel that the use of e-commerce has changed the boundaries of services in business activities and increased the speed of product sales services for business actors, especially SMEs in the culinary sector. Thus, on the basis of perceived convenience, SMEs can directly continue to use e-commerce in the process of business activities and sales transactions as well as digital promotional media because it is considered efficient. The perception of SMEs in Majene Regency in using online sales systems, such as marketplaces and marketing websites, feels easy to use compared to coming directly to this place can improve the quality of service and performance of SMEs themselves. In general, the results of testing the hypothesis of this study are supported by (Shah Alam et al., 2011) which explains that the ease of use factor has a significant influence on e-commerce adoption. SMEs that see e-commerce as something that is easy to use and useful are more likely to adopt it. As well as research by (Li et al., 2020) explains that the ease of use indicators of three e-commerce applications are evaluated based on behavioral patterns of running an online business for business people. The results explain how easy the application is used by business people to get information and make purchases. This research provides important insights for SMEs in Majene Regency, to help them choose the e-commerce platform that best suits the needs and preferences of potential customers based on ease of use.

E-commerce adoption and SME performance

Referring to the results of the research analysis, the e-commerce adoption variable has a positive and significant effect on the performance of SMEs, especially in the sales and culinary sectors. This means that the fourth hypothesis which states that the adoption of e-commerce platforms has a direct effect on the performance of SME performance in Majene Regency can be empirically tested, so it can be accepted. The meaning of this study explains that there is a positive influence between e-commerce adoption and SME performance on culinary and sales businesses in Majene Regency. E-commerce adoption in this study is defined as an electronic trading system that provides sales and promotion services through virtual means, not the traditional approach that relies on direct sales, but through digital marketing channels. So e-commerce involves the provision of transactions or business operational services to businesses as well as consumers and business partners via the internet. Marketing channels from e-commerce that have been applied to SMEs in Majene Regency, such as: Utilization of marketplaces (Tokopedia, Shopee, Lazada, and Bukalapak), social media, with the application of the Business-To Consumer (B2C) concept which is the development of digital technology that transacts with a sales model in the form of goods or services involving businesses and consumers directly (Visser & Lanzendorf, 2004). The results of this test indicate that the adoption of e-commerce platforms in the business activities of SMEs online in Majene Regency can increase revenue and productivity for SME performance as a fulfillment of the needs of business people in utilizing digital channels as a marketing medium. The results of this study are in line with research conducted (Octavia et al., 2020; Hussain et al., 2022; SW et al., 2022) the study shows there is a significant positive relationship between the use of e-commerce and company performance. This means that SMEs that adopt e-commerce tend to have better performance. With e-commerce, businesses can reach a wider market, even to a global level. This allows businesses to gain new customers that were previously impossible to

reach through physical stores (Sheikh et al., 2018). The results of this study provide useful theoretical and practical implications for practitioners and SMEs, especially in Majene Regency, to understand the underlying factors that support successful e-commerce implementation in improving business performance in the SME sector.

Conclusion

This study highlights the determinants of e-commerce adoption and SME performance in Majene Regency. The results show that integrated information systems have a positive and significant impact on SME business performance, especially in the culinary and sales sectors. This is because the use of integrated information systems can improve the sales transaction process and product promotion, as well as provide convenience for business owners and customers in conducting digital transactions. In addition, the ease of use of e-commerce has also been shown to have a significant impact on SME performance through the adoption of e-commerce platforms. Most respondents felt that e-commerce facilitates business operations and speeds up sales services, thereby improving service quality and SME performance.

However, the study also found that technological innovation does not have a significant impact on e-commerce adoption, suggesting that other factors such as organizational readiness and management support are more important in driving e-commerce adoption. Nevertheless, overall e-commerce adoption still has a positive and significant impact on SME performance, with the ability to reach a wider market and increase revenues and productivity. The results of this study provide useful practical and theoretical implications for SMEs in Majene Regency, helping them to understand the key factors for successful e-commerce adoption to improve business performance in the SME sector.

Acknowledgments

As a research team, we would like to express our heartfelt gratitude to Universitas Sulawesi Barat, especially the Digital Business Study Program, for their invaluable support and guidance throughout this research. Your resources and encouragement have been instrumental in the success of this study. We also extend our deepest thanks to all the SME owners and operators in Kabupaten Majene who participated as respondents in this research.

Reference

Achmad, W. (2023). MSMEs Empowerment through Digital Innovation: The Key to Success of E-Commerce in Indonesia. *Daengku: Journal of Humanities and Social Sciences Innovation*, *3*(3), 469–475. https://doi.org/10.35877/454RI.daengku1742

Babenko, V., Buiak, L., Pursky, O., Lutsenko, I., Perevozova, I., & Pokhodenko, B. (2021). The General Concept of Building Integrated Information Web-Systems of E-Commerce. *2021 11th International Conference on Advanced Computer Information Technologies (ACIT)*, 441–444. https://doi.org/10.1109/ACIT52158.2021.9548337

Cravo, T. A., Gourlay, A., & Becker, B. (2012). SMEs and regional economic growth in Brazil. *Small Business Economics*, *38*(2), 217–230. https://doi.org/10.1007/s11187-010-9261-z

Drucker, P. F. (1985). Entrepreneurial Strategies. *California Management Review*, *27*(2), 9–25. https://doi.org/10.2307/41165126

Figueiredo, F., Gonçalves, M. J. A., & Teixeira, S. (2021). Information Technology Adoption on Digital Marketing: A Literature Review. *Informatics*, *8*(4), 74. https://doi.org/10.3390/informatics8040074

Gilmore, A. (2011). Entrepreneurial and SME marketing. *Journal of Research in Marketing and Entrepreneurship*, *13*(2), 137–145. https://doi.org/10.1108/14715201111176426

Gu, M., Yang, L., & Huo, B. (2021). The impact of information technology usage on supply chain resilience and performance: An ambidexterous view. *International Journal of Production Economics*, *232*, 107956. https://doi.org/10.1016/j.ijpe.2020.107956

Harini, S., Pranitasari, D., Said, M., & Endri, E. (2023). Determinants of SME performance: Evidence from Indonesia. *Problems and Perspectives in Management*, *21*(1), 471–481.

https://doi.org/10.21511/ppm.21(1).2023.40
Hussain, A., Akbar, M., Shahzad, A., Poulova, P., Akbar, A., & Hassan, R. (2022). E-Commerce and SME Performance: The Moderating Influence of Entrepreneurial Competencies. *Administrative Sciences*, *12*(1), 13. https://doi.org/10.3390/admsci12010013
Kaplan, D., & Depaoli, S. (2012). Bayesian structural equation modeling. In *Handbook of structural equation modeling.* (pp. 650–673). The Guilford Press.
Li, X., Zhao, X., Xu, W. (Ato), & Pu, W. (2020). Measuring ease of use of mobile applications in e-commerce retailing from the perspective of consumer online shopping behaviour patterns. *Journal of Retailing and Consumer Services*, *55*, 102093. https://doi.org/10.1016/j.jretconser.2020.102093
Octavia, A., Indrawijaya, S., Sriayudha, Y., . H., Hasbullah, H., & . A. (2020). Impact on E-Commerce Adoption on Entrepreneurial Orientation and Market Orientation in Business Performance of SMEs. *Asian Economic and Financial Review*, *10*(5), 516–525. https://doi.org/10.18488/journal.aefr.2020.105.516.525
OECD. (2019). *Measuring Distance to the SDG Targets 2019*. OECD. https://doi.org/10.1787/a8caf3fa-en
Panacek, E. A., & Thompson, C. B. (2007). Sampling methods: Selecting your subjects. *Air Medical Journal*, *26*(2), 75–78. https://doi.org/10.1016/j.amj.2007.01.001
Samaloisa, A., Yustiana, D., & Detman, D. (2023). Pemanfaatan Teknologi Informasi dan Pengaruhnya Terhadap Kinerja Pelaku Usaha Kecil Menengah di Kota Padang. *Jurnal Ilmiah Pendidikan Scholastic*, *7*(1), 26–35. https://doi.org/10.36057/jips.v7i1.569
Setiyani, L., & Yeny Rostiani. (2021). Analysis of E-Commerce Adoption by SMEs Using the Technology - Organization - Environment (TOE) Model: A Case Study in Karawang, Indonesia. *International Journal of Science, Technology & Management*, *2*(4), 1113–1132. https://doi.org/10.46729/ijstm.v2i4.246
Shah Alam, S., Ali, M. Y., & Mohd. Jani, M. F. (2011). An Empirical Study of Factors Affecting Electronic Commerce Adoption among SMEs in Malaysia. *Journal of Business Economics and Management*, *12*(2), 375–399. https://doi.org/10.3846/16111699.2011.576749
Sheikh, A. A., Rana, N. A., Inam, A., Shahzad, A., & Awan, H. M. (2018). Is e-marketing a source of sustainable business performance? Predicting the role of top management support with various interaction factors. *Cogent Business & Management*, *5*(1), 1516487. https://doi.org/10.1080/23311975.2018.1516487
SW, S., Susanti, R., & Ilmi, N. (2022). E-Commerce and Environmental Uncertainty Adoption in Strengthening Financial Literature on the Performance of MSMEs in the Culinary Sector in Solo. *International Journal of Current Science Research and Review*, *05*(12). https://doi.org/10.47191/ijcsrr/V5-i12-07
Visser, E., & Lanzendorf, M. (2004). MOBILITY AND ACCESSIBILITY EFFECTS OF B2C E‐COMMERCE: A LITERATURE REVIEW. *Tijdschrift Voor Economische En Sociale Geografie*, *95*(2), 189–205. https://doi.org/10.1111/j.0040-747X.2004.00300.x
Zhou, B. (2016). Lean principles, practices, and impacts: a study on small and medium-sized enterprises (SMEs). *Annals of Operations Research*, *241*(1), 457–474. https://doi.org/10.1007/s10479-012-1177-3