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Projecting Experience of Technology-Based MSMEs in Indonesia: Role of Absorptive Capacity Matter in Strategic Alliances and Organizational Performance Relationship

Nanik Kustiningsih , Bambang Tjahjadi *  and Noorlailie Soewarno

Faculty of Economics and Business, Universitas Airlangga, Surabaya 60286, Indonesia

* Correspondence: bambang.tjahjadi@feb.unair.ac.id

Abstract: This paper investigates absorptive capacity's significance in mediating strategic alliance and organizational performance using the partial least square structural equation model (PLS-SEM) Warp PLS 7.0. The online and offline questionnaires were distributed to 308 Indonesian MSME owners/managers. The results suggest that strategic alliance directly influences the organizational performance of MSME's technology-based in Indonesia. Further analysis attests that absorptive capacity partially mediates strategic alliance and organizational performance relationships; this research is specific to MSMEs in Indonesia, and thus generalization to other countries needs further verification. MSME's owners or managers can use the knowledge on the relationship between the strategic alliance and organizational performance, including absorptive capacity in mediating the relationship, for policymaking and manifesting strategic alliances through collaboration with partners to achieve companies' common goals is also highly recommended.

Keywords: absorptive capacity; strategic alliances; organizational performance; technology-based MSMEs



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1. Introduction

Absorptive capacity is a catalyst for flexibility and innovation in an organization [1]. It is the ability of a firm to collate and apply valuable information for expansion and growth. Research has established that absorptive capacity plays a significant role in innovation and performance [2–6]; it has emerged as an essential element for improving the knowledge base of the firm [7].

In the current dynamic environment, it is very critical to manage the knowledge stock of a firm. Hence, it is a tendency among firms to enhance their absorptive capacity to maintain competitive advantage [8]. Such a competitive advantage will provide an opportunity for sustainable development in the long run [9], observe that “firms can acquire and assimilate knowledge but might not have the capability to transform and exploit the knowledge for profit generation.” Therefore, the attainments of new skills and wisdom (potential absorptive capacity) are rudiments to taking advantage of absorptive capacity [7,10].

Recently, MSMEs have shown their strong economic significance in Indonesia. According to the 2018 Statistics Indonesia (BPS), the Indonesian number of MSMEs reached 62.92 million domestic units and contributed to GDP by 60.34% and 116.73 million employment. Among others, technology-based MSMEs deserve special attention; this sector has increased by up to 500% in the last four years and hit a total of USD 27 billion (around IDR 391 trillion) this year alone (Google, in the e-Economy SEA 2018 report); this figure makes Indonesia's digital economic transactions ranked first for the Southeast Asia region, with contribution accounting for 49%. The fact mentioned leads [11] to believe that MSMEs can compete professionally as a leading sector more than small-scale businesses.

Since experiencing the economic crisis in 1998 and the fall of the New Order regime, Indonesia has experienced a protracted crisis without resolving the problem. Problems

in the production industry experienced a drastic reduction in the process; the value of the rupiah against the dollar fell and caused the price to increase drastically. MSMEs are present because they are one of the micro, small and medium industries that cover the space of Indonesian society. Even though MSMEs seem traditional, they have a big impact because they are able to increase the national gross domestic product. Through the production process for traditional products and there are cultural values from each region.

Mirroring the economic growth, research on MSME development has also shown significant growth, especially studies related to internal and external determinants. Many studies use this measure to see the relationship between organizational performance and performance level [12–14]. An essential factor in internal determinants, which is also a focus of this research, is the strategic alliance; this factor refers to the organizational belief to seek and build trust and credibility for effective collaboration [15], and this strategy is often opposed to individual performance [16]. The strategic alliance is believed to improve firms' performance and competitive advantage [17–20], including growing the business funding development activities [21].

These criteria eventually gave rise to micro-enterprises in Indonesia. Despite the mention of micro-enterprises, at any time, MSMEs can become big when capital is higher, and commodities expand. MSMEs in Indonesia are able to equate companies that seem to have mastered the macro market related to export–import.

In the process of using it, the government is now starting to focus on advancing the people's economy. One of the state's efforts to advance the people's economy is to regulate policies that encourage the progress of people's business activities with the principle of a people's economy. The principle of people's economy, which later became the basis of national development, was developed as an alternative effort by Indonesian economists to support Indonesia's growth rate to be higher. The application of the people's economy is the holding of the MSME movement in Indonesia as one of the business categories based on the concept of a people's economy. The concept of a people's economy, which is the basis of national development, it is emphasized that the main purpose of implementing a people's economic system is basically to realize the ideals of social justice for all Indonesian people by increasing the ability of the people to control the wheels of the economy.

The emergence of new issues with the emergence of new market shares and the urgency of the existence of E-Commerce makes local governments always try to increase their regional MSMEs because this will be able to make a decline in MSMEs that will exist in their area, considering that E-Commerce companies have opened branches in the regions/area. The organizational performance has been quoted from its website page, saying that "The potential of MSMEs in E-business performance has a characteristic in being used as an online platform only having 3% of MSMEs in E-Commerce".

Against this background, this research applies the theoretical viewpoints of the resources-based view (RBV) and knowledge-based theory (KBT) to avoid the same unclarity. RBV investigates organization heterogeneities with individual competitive advantages and unique resource configuration [22,23], while KBT sees increased knowledge opportunities when an organization forms alliances that affect its future [24]. Otherwise said, in MSMEs, RBV urges activation, acquisition, and resource management and emphasizes sustainable competitive advantage [22].

This paper argues for three theses regarding the positive relationship between strategic alliance, absorptive capacity, and organizational performance in technology-based MSMEs. First, technology-based MSMEs with more effective strategic alliances and absorptive capacity impact company performance positively. Second, the technology-based MSMEs' strategic alliances have a positive effect on absorptive capacity. Finally, with AC as mediation, technology-based MSMEs positively influence their SA and organizational performance.

The paper is organized into five parts. Section 2 examines the relevant literature review and hypotheses development before the research methodology is elaborated in Section 3. Section 4 presents empirical results and discussion, while Section 5 concludes the paper.

2. Literature Review

Four theories were used in this study: the RBV as the main theory, Knowledge-Based View as the secondary theory, Conservative Theory as the third theory for the adequate and limitations on Absorptive Capacity, and Transaction Cost of Theory as the fourth theory for strategic alliances' conceptualizing.

2.1. Resource-Based View (RBV)

The resource-based view (RBV) in a business organization or company focuses on its internal strengths and weaknesses [25,26]. Firms in the RBV perspective should provide heterogeneity with a unique competitive advantage rooted in their unique resource configuration [22,23]. RBV is often used in MSME analysis by focusing on acquisition, activation, and resource management that offer a sustainable competitive advantage [27]. These resources have the core characteristics of value, scarcity, inexplicability, and appropriation. The resources are supposed to be the company's property or control [22,23,28,29]. For [30], RBV consists of an internal and external perspective.

From the internal perspective, RBV explains the existence of a structural characteristic that compensates for internal limitations in resources and experience through trends in innovation, risk-taking, and experimentation [31]; this factor shapes the behavior and performance of small and medium enterprises (SME) [32] and company performance [33]. Along with these characteristics, a set of internal assets (acquisition and embedding of organizational resources, such as finance, intellectual property, and human capital), as described by [34], shape the growth and capability-based factor described by [35]; this factor will also create characteristics for utilization by MSMEs [36].

2.2. Knowledge-Based Theory

Knowledge-based theory (KBT) focuses on strategic resources developed within the company. For example, knowledge in business allocation helps influence material and service savings by reducing costs, and this kind of expertise forms a strategy for appropriate resource engagement [37,38]. KBT has a similar view regarding resources with RBV. For this theory, knowledge is a tool to create value in a unique, non-replicable, and non-transferable way [23,28]. Consequently, as emphasized by [15,39,40], knowledge derives from forming an alliance and learning development. Ref. [41] argue that this process of business partnerships can also link to the future. Knowledge-based theory [39,42,43] considers strategic alliances the most capable resource for achieving a sustainable competitive advantage. Strategic alliances enhance learning and knowledge sharing [15]; this theory identifies mutual trust and commitment to success [44].

2.3. Transaction Cost of Theory

In the theory of transaction costs in relation to alliance formation, it is important to understand the occurrence of transaction costs in environments that can promote alliance formation. Tight markets, in which companies depend on individual suppliers of niche products, can force actors to make a significant commitment due to the high conversion costs [45]. Transaction cost of theory calls this asset specificity, meaning that assets can be too specific for a transaction, resulting in higher costs. Distribution agreements can create a similar situation, with some industries associated with large economies of scale resulting in fewer potential distributors. The knowledge trade can also be influenced by transaction costs, because of buyer uncertainty about the nature of knowledge. All of these examples require companies to monitor and trust each other, forcing them to sign contracts to prevent fraud and expediency [46].

According to [47], uncertainty about their respective performance is fundamental when choosing an alliance. The theory argues that transaction cost theory can be extended to explain alliances, even if it is not the only applicable explanation. When looking at alliances from a transaction cost perspective, there is a special focus on one type of alliance:

the equity alliance. Equity alliances can be seen as a limited form of internalization of market functions, also known as quasi-internalization.

These alliances may, under certain conditions and as a result of structural arrangements, contain the opportunity to address consistency in reciprocal arrangements [25]. While equity alliances are closer to the end of the hierarchy, non-equity alliances are more flexible arrangements and are more like market transactions. In addition to classifying alliances based on whether or not they include stocks, the diversity of alliances is explained in terms of association and scope alliances.

Khodaei et al. [48], suggest that domain alliances are alliances made up of actors in the same industry, while link alliances are cross-industry alliances. Despite the great emphasis on equity alliances, the logic of lowering total transaction and production costs can be extended to explain non-equity alliances. Indeed, maintaining alliances without equity can lead to transaction costs lower than their own production costs, suggesting that such alliances are formed to essentially lower production costs; however, the theory argues that transaction cost theory provides a poorly illustrative model for non-equity alliances, as most of the literature on transaction cost theory argues almost exclusively for the reduction of transaction costs through alliances. As mentioned earlier, transaction cost theory assumes that private absorption is a preferred way to reduce transaction costs. Co-absorption may also be a viable alternative, especially if the transaction costs of a moderate level do not justify internalization.

2.4. Strategic Alliance

The resource-based view (RBV) is used as a conceptual basis to explain the formation of strategic alliances; this theory explains that resources are the primary key to a company's success [49]. A strategic alliance is a collaboration between two or more business organizations not limited to the same business field [50]. According to [17,18] strategic alliance could improve a company's performance and competitive advantage, even if it combines two different business organizations; this collaboration will open the possibility for their business uniqueness, strengthening trust and credibility of each other [51], and allows it to become a unique attraction for investors in developing their business [21].

In business to businesses, a strategic alliance is described as a solution in dealing with social challenges and improving performance [52] and is believed to overcome various shortages of resources in a broader competition by maximizing the cooperative relationship agreed upon between equivalent MSMEs [18,47,53–55]. Besides, cooperative relationships, which facilitate practical development activities among MSMEs [56], also feature strategic alliances [57]; it can intensify interactions and thus reduce the distance between businesses [18].

2.5. Absorptive Capacity

Absorptive capacity refers to companies' capacity to develop, expand, and use existing routines, competencies, and technologies to create something new based on changing knowledge [3,9,58,59]. MSMEs use the absorptive capacity to increase their capabilities, at least to a minimum degree [3,14,60–62]; this is usually called the ability of in-house technology involved in managerial practices [63]. Supporting what was explained earlier, AC significantly develops when MSMEs apply high technology and invest much time [64]. Refs. [65–68] state that this can make MSMEs learn and adapt to foreign markets or internationalization as early as possible [69–71].

Absorptive capacity is a dynamic skill that affects the nature and sustainability of a company's competitive advantage [4,10,72,73]. Absorptive capacity supports innovation activities and provides opportunities for knowledge, sustainable change, and strategic reform in an organization [6,9,48,74–77]. For example, in previous research, ref. [74] stated in detail that absorptive capacity enables organizations to determine, collect and include the ability to change, adapt, and combine external information with internally generated information.

2.6. Organizational Performance

The resource-based view (RBV) explains that resources are the primary key to a company's success [49]. The company's performance describes the condition of the company within a certain period. The company's performance also explains the successes and achievements that the company has achieved through operational activities carried out by utilizing the available resources. Company performance is a measure to see how far the company makes achievements at a particular time [78]. On the other hand, the company's performance could describe the achievements that the company has achieved, thus, gaining the third parties' trust [79]; indeed, the positive growth in the company's sustainable performance could positively impact the company's performance [80]. Research on improving MSMEs performance is challenging yet interesting, especially during the COVID-19 pandemic, which is full of uncertainty. With all the limitations, MSMEs are required to survive and perform well.

2.7. Strategic Alliances and Organizational Performance

Strategic alliance describes the basis for strategic collaboration among MSMEs to overcome complex resources and knowledge in the market. Ref. [81] stated that this is the primary key for MSMEs in achieving their success and growth and a way to overcome the uncertainties [14,50,82,83]. For some scholars, such as [84–87], the implementation of the strategic alliance has a positive impact on improving company performance even though this process is not comfortable enough and relatively complicated. By contrast, Refs. [88,89] explain that strategic alliance also has a high failure side and dissatisfaction with its success. For example, Ref. [90] found an inverse U relationship between absorptive capacity and financial performance. Consequently, absorptive capacity will only increase financial performance to a certain extent and turn negative afterward.

With their impact on company performance, strategic alliances bring significant advantages that provide greater access to knowledge integration and knowledge transfer itself [18,43,55,91]. Indeed, if technical support is involved, the MSMEs' conditions in a new competition can be connected to the environment through the basis of implementing a strategic alliance which can get more competitive alternatives and the advantages of access to products, services, technology, and markets [92–94]. Therefore, based on the support of previous research, the first hypothesis is:

Hypothesis 1 (H1). *Strategic alliances have a positive relationship with organizational performance in technology-based MSMEs.*

2.8. Strategic Alliance and Absorptive Capacity

The resource-based view assumes that companies must apply superior capacity to obtain heterogeneous productivity resources [95,96]; this capacity will produce the most appropriate and better expectation of the future value of the resource. Technology-based MSMEs build their capacity by using their external and internal knowledge through the support provided by their alliance relationships [59]. As Ref. [97] expressed, a maintainable organization could be a knowledge-based and knowledge-creating unit. In arranging to attain sustainability-oriented objectives, pioneers must become development managers [98,99].

For business organizations on the MSME scale, strategic alliance implementation can provide space for obtaining experience in the future [51]. In other words, the relationship among these organizations can increase the source of knowledge they need [100].

Technology-based MSMEs strive to recognize knowledge and potential that can provide benefits for their business. Strategies to take advantage of this kind of organizational relationship are widely chosen and used by many companies in China [101] as knowledge exchange cooperation. With the strategic alliance, MSMEs can increase the internal information flow and help reduce the gap between the potential and absorption capacity [74]; however, the leakage of internal information and knowledge may not be halted from their business unit [21]; it is likely for MSMEs with strategic alliances to lose data and cause

failure in their absorptive capacity. Thus, the positive relationship between strategic alliance and absorptive capacity should be demonstrated, and it forms the second hypothesis:

Hypothesis 2 (H2). *Strategic alliances have a positive relationship with absorptive capacity in technology-based MSMEs.*

2.9. Absorptive Capacity And organizational Performance

According to [102], a knowledge-based view shows that companies can utilize various sources to accumulate external knowledge when interacting with stakeholders. MSMEs with absorptive capacity are based on the belief in the greater use of their internal and external knowledge absorption. Ref. [74] state that absorptive capacity enables organizations to determine, collect, modify, adapt, and combine external information with internally generated information. As a result, MSMEs with this capability will be more responsive to various changes that occur.

Thus, an effect of absorptive capacity is to increase their organizational growth and performance [103–106]; this matter will increase investment, financial position [107], and the level of profit, and market share [108], indicating a relationship between absorptive capacity and organizational performance, which would be proven by the third hypothesis:

Hypothesis 3 (H3). *Absorptive capacity has a positive relationship with organizational performance in technology-based MSMEs.*

2.10. Absorptive Capacity Mediating Effects between Strategic Alliances and Organizational Performance

As a source of competitive advantage, absorptive capacity relies on information managed by the organization or MSMEs. Therefore, MSMEs that are highly technology-based can easily decrease the gap and make them more efficient. Refs. [74,109] develop the concept of absorptive capacity effect on company performance, while [103,106] contend that SA also utilizes external knowledge and increases the sources of experience they need [101] this performance will bring them to the success of their organizational performance [84–87]. Therefore, an interesting result is expected between the strategic alliance's influence on organizational performance through the mediating role of absorptive capacity. Several studies on MSMEs have also found that absorptive capacity improves firm performance [103,106]. According to [110] absorptive capacity can affect the realization of absorptive capacity and organizational performance. Ref. [111] found that various absorptive capacity and organizational innovation conditions lead to better organizational performance. A study of 24 business units in petrochemicals and 36 business units in food companies found that absorptive capacity significantly and positively influences business unit innovation and company performance. In the context of technology-based MSME research in Indonesia, there are many variations in identifying, recognizing, understanding and utilizing information from outside; this is because the level of education, company size, and length of business are different. Hence, the company's ability to apply information or knowledge from outside depends on the business owner's perception; this study argues that MSMEs in Indonesia who collaborate with digital platforms or e-commerce by utilizing external knowledge sources that are applied to MSMEs will be able to maximize profits by improving company performance; this brings the study to the next hypothesis:

Hypothesis 4 (H4). *The effect of absorptive capacity mediation on the relationship between strategic alliance and organizational performance on technology-based MSMEs.*

3. Methods

This study used a component or variant-based structural equation model (SEM) as a data analysis technique. The method was processed by Wrap PLS software version 6.0; this method accords to the research objectives and capability of simultaneously assessing measurement models. The method was expected to show the relationship between theory (latent constructs), data, and the relationship between each construct with a formative to formative perspective.

3.1. Research Design

As described in the hypothesis development, Figure 1 depicts the conceptual framework of this research. It shows the mediating role of AC on SA–OP relationship.

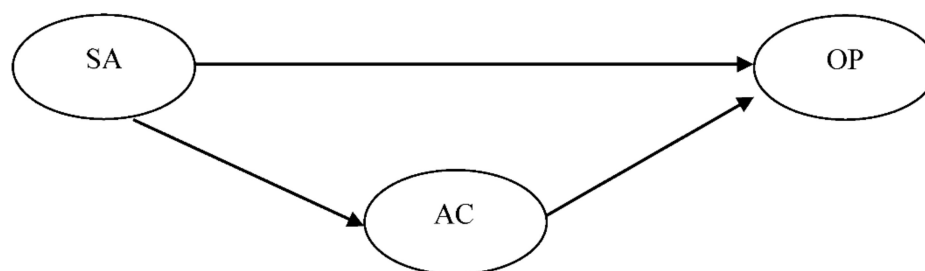


Figure 1. Conceptual Framework. Note: SA = Strategic Alliance; OP = Organizational Performance; AC = Absorptive Capacity.

3.2. Data Collection

The researcher distributed questionnaires to many technology-based MSMEs across Indonesian regions, which were classified into several criteria and analyzed by the structural equation model (SEM). The SEM was processed using Warp PLS software version 6.0. The choice of this method was adjusted to the objectives of our research. The data analysis technique in this study used SEM-PLS for the following reasons:

- This research is exploratory, which is an extension of an existing theory to identify, predict, and explain the constructs or latent variables studied [112];
- The assumption of data in SEM is looser in the sense that it does not require the variables to meet the criteria of parametric analysis, such as multivariate normality [113];
- The structural model of this research is complex because it has many indicators. SEM-PLS can analyze the model, testing complex research models (dependent, independent, and mediating variables) to estimate the model simultaneously and more accurately in theory testing;
- Able to measure unobserved variables, namely variables that cannot be measured directly;
- Researchers in various fields of science have used SEM-PLS. The development of SEM-PLS users has increased significantly in the last eight years, as seen in international journal publications [113].

Technology-based MSMEs in industrial sectors were chosen due to their high reliance on absorptive capacity; this study's initial criteria were (1) companies located in Indonesia (2) joined/partnered with e-commerce companies. Besides, the study also considered (3) industrial MSMEs.

The questionnaires distributed covered three topics: strategic alliances, absorptive capacity, and organizational performance. Of the MSMEs, 38 of 322 were picked to be the pilot respondent to determine whether the questionnaires could be appropriately understood. The questionnaires were distributed using google forms, email, and manual sharing. Although 322 questionnaires were returned to the researchers, only 308 were qualified to be processed. The excluded 14 questionnaires were incomplete and not processed.

3.3. Construct Definition and Measurement

The measurement scale for tree constructs (strategic alliance, absorptive capacity, and organizational performance) has been validated and used by previous researchers. Thus, a new measuring instrument scale is not essential. For the scaling responses, a 1–5 Likert scale, with (1) as strongly disagree and (5) as strongly agree, was adopted.

3.3.1. Strategic Alliances (SA)

The definition of strategic alliance follows the measurement scale validated by [114–116]. The strategic alliance consists of 3 dimensions (knowledge/learning, market, and efficiency) and 15 variables, specified as follows:

Knowledge/learning dimension

Indicator:

- Increasing innovation;
- Improving quality;
- Performing technology transfer;
- Promoting the learning process;
- Sharing resources and competencies;
- Obtaining knowledge transfer.

Market dimensions

Indicator:

- Entering new markets;
- Increasing market share;
- Consolidating market positions.

Efficiency dimension

Indicator:

- Increasing scale economy;
- Reducing transaction costs;
- Sharing the risk;
- Increased delivery times;
- Taking advantage of and creating synergies;
- Achieving a competitive advantage.

3.3.2. Absorptive Capacity (AC)

The concept of absorptive capacity used in this study adopts the idea expressed by [7], while the measurement of absorptive capacity consists of 4 dimensions (acquisition, assimilation, transformation, exploitation) and 13 variables, specified as follows:

Acquisition dimensions refers to the ability of an organization to recognize and obtain information from external sources that are critical to the operations of an organization

Indicator:

- Scope of search;
- Perspectual schema;
- New connections;
- Speed of learning;
- Quality of learning.

Assimilation dimensions refers to the organizational ability to interpret and process the acquired knowledge.

Indicator:

- Interpretation;
- Comprehension;
- Learning.

Transformation dimensions refers to the company's ability to change and apply external knowledge as measured by the number of new initiatives taken.

Indicator:

- Synergy;
- Recodification;
- Bisociation.

Exploitation dimension refers to the result of a transformation based on the application of information. Such as introducing a new service and or product or the result of modifying and improving existing products and services

Indicator:

- Core Competencies;
- Harvesting resources.

3.3.3. Organizational Performance (OP)

The constructs for organizational performance are based on [116], adopted by [117]. Dimensions and variables of organizational performance consist of 3 dimensions (relational performance, strategic/management performance, financial/operational performance) and 20 variables, specified as follows:

Relational performance dimension

Indicator:

- Developing trust;
- Motivating partners;
- Creating friendly relationships;
- Degree of partner commitment;
- Attaining cooperation objectives;
- Open communication;
- Knowledge market;
- Partners' image;
- Past of the cooperation relationship.

Strategic/management performance dimension:

- Compatibility of strategies;
- Solving conflicts;
- Balance of power and management in the cooperation;
- Compatibility of business cultures;
- Stability of the cooperation;
- Partners' influence in decision-making;
- Partners' adaptation to the cooperation process;
- Planning future activities.

Financial/operational performance dimension

Indicator:

- Collaboration results showed there was an increase in sales;
- Cooperation results showed there was an increase in profit;
- Increased customer satisfaction from the results of cooperation.

The characteristics of the respondents are shown in Table 1 below.

Table 1. Respondent characteristic.

	Criteria	Frequency (n = 317)	Percentage (100%)
1. Size of the firms			
a.	Micro/<300	246	78%
b.	Small/300 jt—2.5 m	69	22%
c.	Medium/2.5 m—50 m	2	1%

Table 1. Cont.

Criteria		Frequency (n = 317)	Percentage (100%)
2. Age of firms			
a.	0–1	192	61%
b.	2–5	75	24%
c.	6–10	24	8%
d.	>10	26	8%
3. Respondent's Last Education Identification			
a.	Senior High School	221	70%
b.	Diploma 3	22	7%
c.	Bachelor	56	18%
d.	Master/Magister	18	6%
4. Type of Firms			
a.	Basic chemical industry sector	5	2%
b.	Consumer goods sector	173	55%
c.	Infrastructure/utility and transportation sector	12	4%
d.	Export/Import Sector	2	1%
e.	Miscellaneous sectors (Handicraft, Fashion, Distributors, etc.)	100	32%
f.	Property/real estate sector and building construction	3	1%
g.	Exchange/services and investment sector	22	7%
5. Gender			
a.	Male	194	61%
b.	Female	123	39%
6. Informant			
a.	Owner	187	59%
b.	Director/Manager	24	8%
c.	Assistant	106	33%
7. Data source location			
a.	Surabaya	99	31%
b.	Sidoarjo	125	39%
c.	Gresik	6	2%
d.	Pasuruan	3	1%
e.	Jember	54	17%
f.	Banyuwangi	11	3%
g.	Lombok	11	3%
h.	Semarang	1	0%
i.	Mojokerto	2	1%
j.	Malang	2	1%
k.	Outer Java	3	1%

3.4. Descriptive Analysis Results

Table 2 shows the results of descriptive statistics represented by the maximum value, minimum value, average value, standard deviation, and bias. Each variable's minimum and maximum values are on a scale of 1 to 5, as previously confirmed measurements; however, the difference is still visible in the mean and standard deviation of each variable.

Table 2. Descriptive Analysis Results.

Variable	Mean	Standard Deviation
Strategic Alliances	4.31	0.60
Absorptive capacity	4.14	0.56
Organizational Performance	4.39	0.58

3.5. Measurement Model Analysis

The result of the indicator being a good fit is shown below:

Average path coefficient (APC) = 0.460, $p < 0.001$;

Average R-squared (ARS) = 0.464, $p < 0.001$;

Average adjusted R-squared (AARS) = 0.462, $p < 0.001$;

Average block VIF (AVIF) = 2.062, acceptable if ≤ 5 , ideally ≤ 3.3 ;

Average full collinearity VIF (AFVIF) = 1.941, acceptable if ≤ 5 , ideally ≤ 3.3 ;

Tenenhaus GoF (GoF) = 0.502, small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36 .

Before testing the structural model, the reliability and validity were measured using model analysis, and this is reflected in Table 3. According to the reliability and validity standard, three criteria need to be met: loading value, composite reliability (CR), and average variance extracted (AVE). Specifically, the standards are (1) the loading value must be above 0.7 [112,118], (2) the composite reliability value must be >0.7 , and (3) average variance extracted (AVE) for measuring convergent validity must be >0.5 [119]. The study passed all the criteria above. As shown in Table 3, the loading factor values met the criteria of more than 0.7; the composite reliability showed a value of more than 0.7; the AVE was above 0.5. PLS was used to test the hypotheses of this study.

Table 3. Results for Reliability and Convergent Validity.

Indicator	AS	AC	OP	SE	p -Value
CR: 0.842		AVE: 0.641			
AS7	0.784	−0.017	0.041	Reflect 0.051	<0.001
AS8	0.822	−0.018	0.008	Reflect 0.051	<0.001
AS9	0.795	0.035	−0.049	Reflect 0.051	<0.001
CR: 0.882		AVE: 0.519			
AC4	−0.102	0.647	0.089	Reflect 0.052	<0.001
AC6	0.191	0.689	−0.120	Reflect 0.052	<0.001
AC7	0.097	0.782	−0.084	Reflect 0.051	<0.001
AC8	−0.109	0.786	0.034	Reflect 0.051	<0.001
AC9	−0.069	0.686	0.077	Reflect 0.052	<0.001
AC12	−0.005	0.751	−0.007	Reflect 0.051	<0.001
AC13	−0.008	0.688	0.023	Reflect 0.052	<0.001
CR: 0.905		AVE: 0.544			
OP6	0.164	−0.074	0.638	Reflect 0.052	<0.001
OP9	0.117	−0.048	0.664	Reflect 0.052	<0.001
OP11	−0.126	0.149	0.733	Reflect 0.052	<0.001
OP12	−0.143	0.018	0.756	Reflect 0.051	<0.001
OP13	0.02	0.032	0.822	Reflect 0.051	<0.001
OP14	0.018	−0.043	0.769	Reflect 0.051	<0.001
OP15	0.032	0.002	0.757	Reflect 0.051	<0.001
OP16	−0.049	−0.052	0.744	Reflect 0.052	<0.001

3.6. Structural Model Analysis

The structural analysis model was used to test hypotheses and examine whether SA has a direct or indirect relationship with OP mediated by AC. The gradual approach was carried out in this structural model analysis [120]. The first step was processing data through the PLS wrap to test the direct relationship between SA and OP in H1, while the second step used absorptive capacity as a mediating variable to test the indirect relationship between SA and OP.

As shown in Figure 2, SA is positively related to OP (coefficient $\beta = 0.22$; $p < 0.01$, $R^2 = 0.05$), proving H1 that SA has a positive relationship with OP; this result marks the similarity with research conducted by [84–87] in which SA positively impacts company performance improvement even though this process is demanding and complicated. Technology-based MSMEs will benefit from increasing connections with the environment and obtaining more competitive alternatives.

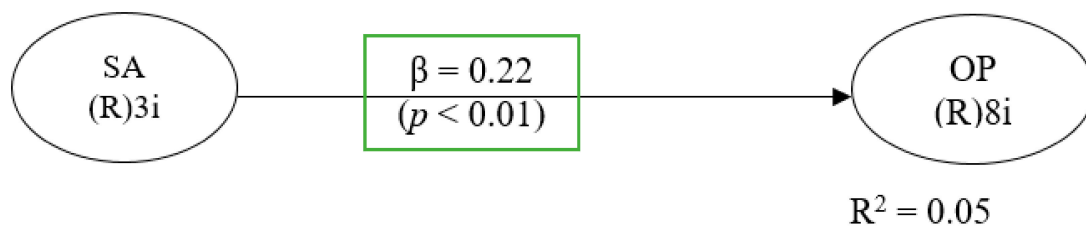


Figure 2. Direct effect.

Furthermore, analysis by processing absorptive capacity data as an independent variable can be seen in Figure 3; it demonstrates that SA positively affects AC (coefficient $\beta = 0.30$; $p < 0.01$, $R^2 = 0.09$), proving H2 that SA has a positive relationship with AC. Particularly, it indicates the potential of SA to assist MSMEs in increasing the flow of internal information, reducing the distance between the realized potential and AC [74]. Further analysis examined the indirect relationship between SA and OP mediated by AC; it showed that after being mediated by AC, the results showed a decrease (coefficient $\beta = 0.09$; $p = 0.05$) from (coefficient $\beta = 0.22$; $p < 0.01$) without mediation, meaning that it was partially mediated.

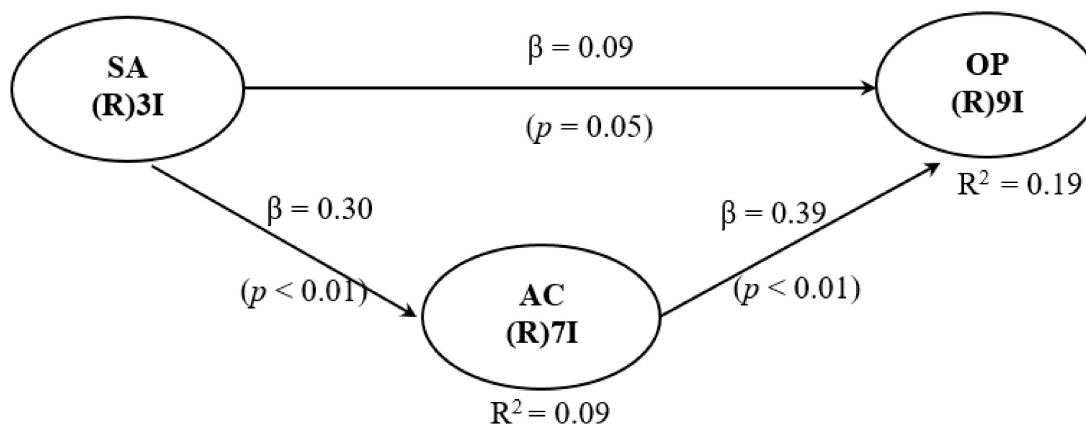


Figure 3. Indirect effect.

Meanwhile, Table 4 shows that SA has a positive and significant correlation with AC ($r = 0.251$; $p < 0.001$) and OP ($r = 0.214$; $p < 0.001$); this suggests that SA is important variables in the relationship with OP and AC. Similarly, AC also has a positive and significant relationship with OP ($r = 0.397$; $p < 0.001$) or indicates that AC can affect OP.

Table 4. Result of Discriminant Validity.

	Strategic Alliances	Absorptive Capacity	Organizational Performance
Strategic Alliances	0.8	0.251	0.214
Absorptive Capacity	0.251	0.72	0.397
Org. Performance	0.214	0.397	0.737

Table 5 reflects the result of structure model analysis on the direct and indirect effects of the variables (for the direct effect, it is also represented in Figure 2). The table depicts in more detail the H3 and shows (coefficient $\beta = 0.39$; $p < 0.1$, $R^2 = 0.19$) H3 was supported. AC has a positive relationship with OP. Similarly, H4 was supported. H4 shows that AC can partially mediate between SA to OP; this mediation was indicated by a decrease (coefficient $\beta = 0.09$; $p = 0.05$), proving that AC can judge partially; this not-full mediation supports H4.

Table 5. Results PLS-SEM (Path Coefficient dan R^2).

Panel A (direct)		
Hypotheses	Coefficient	Decision
SA > OP	0.22 ***	Supported
Panel B (indirect)		
Hypotheses	Coefficient	Decision
SA > OP	0.09 ***	Supported
SA > AC	0.30 ***	Supported
AC > OP	0.39 ***	Supported
Hypotheses	VAF	Decision
SA > AC > OP	34.72 percent	Partial Mediation, Supported

Note: *** $p < 0.01$.

4. Discussion

Given the existence of E-Commerce, the challenges faced by the cooperative and MSME offices are currently in terms of marketing, where marketing is currently very broad and fast; however, some investments through Strategic Alliances to MSMEs in developed more widely. Based on the Absorptive Capacity, many factors were then improved by the SMEs considering the existence of superior products in MSMEs Indonesia. The development of an Absorptive Capacity currently makes an alternative for the SMEs action in maintaining growth capacity given the increasingly easy global economic competition, including the post-pandemic condition. The existence of this absorptive capacity and strategic alliances encourages associations to always create creativity and skills to be able to produce new productions. The existence of E-Commerce in Indonesia are under the auspices of the Cooperatives and MSMEs service, but if the MSMEs can be produced in large quantities and can go international, the MSMEs will move to the trade department and make a worse condition.

The term E-Commerce is currently common in people's conversations in various countries, especially in Indonesia. E-Commerce as a place for selling and buying online. E-Commerce as a supply of online shopping in general; they will offer a product for what he sells as a broker or service provider that accommodates sellers and opens their stalls or wants to buy one of the items in the online shopping. E-Commerce as one of the actors that will accommodate entrepreneurs, and businessmen on a small or large scale. The E-Commerce business industry is growing very rapidly in Indonesia because internet users in Indonesian society are also comparable in number.

Based on the website of the ministry of communication, as many as 56% of MSMEs in all regions in Indonesia have provided Gross Domestic Product to the economy of Indonesia. Malang is one of the fastest-growing cities in Indonesia. Malang has many types of MSMEs that are favored by the local government to be highlighted and recognized by the national community and the international community. In the current era, supported by the existence of several E-Commerce companies that also exist in the city of Malang, the Malang city government encourages the Malang city government to take various ways to improve the regional economy in real terms through the program *UMKM go Online: from elaboration to E-Commerce*. The Malang city government has also set a slogan related to its MSMEs, namely 'UMKM Go Online to One Million' which must be able to compete with E-Commerce in Indonesia.

When it comes to understanding the results of the strategic alliance–absorptive capacity–organization performance, there are similarities in the scope described by digital ecosystems are created by the appearance of similarities in a system or the same target; this is related to the rise of e-commerce, which differs in industry and use of interconnected and alliance networks. In the world of digitization, the economy is also divided into traditional markets and non-traditional markets, although they will later remain connected but still elusive. Networks in this digital ecosystem remain in the form of competition based on absorptive capacity between owners of goods or companies and friction with each other. The disruption as one of the renewed problems in the MSMEs, intended as a result of new innovations that have arisen, will lead to losses for other competitors in the industry that remain in the same market.

Strategic alliances also occur when using traditional markets also a benchmark for how the terms and usage of these indicators are implemented. In the context of absorptive capacity, these are created by the appearance of similarities in a system or the same target; this is related to the rise of e-commerce, which differs in industry and the use of interconnected networks. According to strategic alliance–absorptive capacity–organization performance will eventually become a new ecosystem of MSMEs in Indonesia.

In the terms of organizational performance, the government is also involved in dealing with the process of attending to and entering the domestic market. Performance and absorptive capacity are also being issued to protect the avoidance of excessive capital due to the free market as an indicator of world trade. In general, the policies that have been enacted, whether ratified or in the process of being implemented, have emphasized the development of MSMEs in e-commerce. One of the topics discussed by the Ministry of Economic Affairs Coordination is the form of actors and local products that are still missing; it has been determined that they are only able to generate sales as a product with a total of 5–7% in the market and sales in e-commerce are only capable of about 2–8%. In addition, the largest goods sold in e-commerce are in the electronics sector at 38.9% and textiles at 36.4%. Including MSME products, MSMEs generally mainly produce textile products and need to be strengthened and improved. In general, this problem is a carryover that has been the focus of MSMEs and local products earlier in the 14th economic policy package.

5. Conclusions, Contribution, Implication and Limitation

5.1. Conclusions

This study has examined the relationship between strategic alliance, absorptive capacity, and organizational performance. Specifically, it shows that absorptive capacity mediates the relationship between strategic alliances and organizational performance in technology-based MSMEs in Indonesia. Without a strong absorptive capacity, strategic alliance implementation will not produce optimal organizational performance. Thus, the mechanism and role of absorptive capacity in linking strategic alliance to organizational performance becomes essential.

5.2. Contribution

This study provided empirical evidence for the strategic alliances and absorptive capacity theoretical development and necessity throughout Indonesia's MSMEs. Absorptive capacity mediation strengthens the strategic alliance's organizational performance, and, subsequently, the latter influences strategic alliances, rendering companies' competitive advantage and theories about absorptive capacity more apparent. The MSME owners can use this result for policymaking in collaborating with partners to achieve common goals of the organization; the government can use this result to regulate the laws related to the category of MSMEs, start-up industries, and their mechanisms for increasing competitiveness in Indonesia.

5.3. Implication

First, in terms of theoretical contribution, this research provides a more comprehensive understanding by showing a mediation research model which states the important role of absorptive capacity in mediating the effect of strategic alliances on organizational performance. Other than that, this research also supports the development theory of resources-based view and theory of knowledge-based view, specifically in the MSME sector, by showing the critical role of strategic alliances and absorptive capacity in improving company performance and achieving sustainable competitive advantage. Second, regarding practical contribution, this research model can be used for technology-based MSME owners' decision-making in collaborating and developing appropriate tools, systems, and environments to exploit external knowledge through digital or e-commerce platforms that lead to better business performance.

Third, based on the results and the discussion, this study is expected to be used for consideration or policy recommendations by regulators in the MSME law regarding the development of technology-based MSMEs in Indonesia.

5.4. Limitation and Future Research

However, it is worth mentioning that this research is specific to MSMEs in Indonesia. The generalization to other countries should be carefully designed. Other tests can be an option to get products following existing conditions and phenomena. Finally, the merging method can be used to measure each variable, namely, by using data triangulation.

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