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# Integration of information technology capabilities in generating small and medium enterprise performance

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**A B S T R A C T**

The role of information technology (IT) during the Covid 19 pandemic has made everything in business easy. The role of technology in business during a pandemic also makes it easier for entrepreneurs to navigate buying and selling activities and services. Technology makes it easy to shorten time saving business costs, as in business financial records that make one financial report must record everything manually with technology done automatically with the help of accounting software. Research purposes to test resources-based view theory in relation to the implementation of IT to produce operational performance and financial performance of small and medium enterprises (SMEs). The research was conducted on SMEs in Bali. The research method used to answer the research objectives uses a quantitative test approach Partial Least Square. Based on data analysis, it was found that the development of SME IT Adoption had an effect positive on IT Assimilation, but directly IT Adoption is not able to improve operational performance and financial performance. IT assimilation can improve the operational performance and financial performance of SMEs. Operational performance is not able to mediate the effect of IT adoption on the financial performance of SMEs. IT assimilation is a fully mediating variable in the relationship between IT and the operational performance and financial performance of SMEs in Bali. The results of the study show that IT resource management through a technology-based business competency model can succeed in realizing Organizational Capability that can be used to build business competitiveness if the organization or business unit that adopts it pre-determines IT integration in accordance with the vision, mission, and goals of the organization. This is very important to implement in an effort to adapt to uncertain business world conditions, such as when Covid 19 occurred.

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## 1. Introduction

The economic impact of the Covid 19 pandemic has been felt by the Small and Medium Enterprises (SMEs) sector. This is because SMEs occupy a strategic position in the economy in general. SMEs generate employment between 50 percent to 95 percent and contribute between 30 percent and 50 percent of Gross Domestic Product (Zafar & Mustafa, 2017). SMEs are among the hardest hit by the Covid 19 crisis, many have temporarily closed their businesses, and furthermore face cash flow constraints (Baker & Judge, 2020). Even though the Covid 19 pandemic has raised several problems for SMEs, on the other hand it has provided other opportunities to do business. SME entrepreneurs can utilize information and communication technology through the internet network. Electronic trading transactions increased dramatically. Products whose sales have increased include health products which have increased 90 percent, hobby support products increased 70 percent, food has increased 350 percent, and herbal foods have increased 200 percent (Amri, 2020).

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The role of information technology (IT) is now making everything in business easy. The role of technology in business during a pandemic also makes it easier for entrepreneurs to navigate buying and selling activities and services. The existence of technology is used by companies and businesses according to their fields. From manufacturing to construction companies, technology is used to make their jobs easier. One of the most significant roles of technology has been the shift from manual to automatic. Currently, many jobs that were previously done manually can now be done automatically with the role of technology. Technology makes it easy to shorten time saving business costs, as in business financial records that make one financial report must record everything manually with technology done automatically with the help of accounting software.

Lerner, and Nanda research (2020), found that business owners a dominant role in the decision of how much to invest including meeting the needs of professionals for IT, so that the desire to get economic benefits cannot be achieved optimally. Furthermore, Kusmantini (2012) found that organizational readiness and technological competence as internal factors and business competition pressure as external factors that are dominant in influencing the company's decision to adopt e-business. This means that in addition to SMEs having limited resources in the IT adoption process, they also have some uniqueness that can be used as an advantage to support successful investment in IT (Yew Wong & Aspinwall, 2004). Many SMEs are not able to turn their IT assets into competitive advantages that can be maintained continuously in the long term. The cause is the inability to convert IT assets into IT capabilities in managerial processes. Many SMEs have failed in transferring the advantages of IT assets in management and decision-making systems. This shows that SMEs have not been able to use resource IT interactively (Hernita et al., 2021).

The research was conducted using a strategic approach Resource based View, which explains the stages of implementing IT in SMEs to be studied carefully in answering research questions, namely knowing the role or contribution of IT in achieving the performance of SMEs. The results of this study are expected to prevent wastage of IT investments made by SMEs during a pandemic.

This research explores IT capabilities as IT resources that are expected to be able to form sustainable competitiveness for business entities. The research was conducted on SMEs in the city of Bali, which is a city with fast development of small and medium industries. Research examines the role of IT adoption by SMEs in maintaining their business amid competition and exposure to the Covid 19 pandemic. Important research carried out to explain the relationship between IT adoption and operational performance, productivity and financial performance of SME businesses so that the problem in this research is how to model the IT adoption relationship that is able to build or improve SME performance during. In particular, this study aims to produce a capability development model that can explain and determine the role of IT capabilities (adoption and assimilation) in the formation of operational performance that can improve the financial performance of SME businesses in Bali.

## 2. Theory Basis and Hypothesis Development

### *2.1 Resource Based View of the Firms Theory*

Resource-based view or theory began to develop in the early 1980s as an answer to the many competitive strategy paradigms that were not yet able to answer the challenges of the competitive environment that occurred at that time. Research Grant (1991), Barney (1991), and Peteraf (1993) states that an organization is a collection of resources and capabilities in utilizing resources and developing strategies that can increase the efficiency and effectiveness of the utilization of its resources through 4 main attributes to create: significant value power for business entities (*valuable*), scarcity to obtain these resources (*rare*), not easy to imitate (*inimitability*), and is difficult to replace with other resources (*non-substitutability*). Management of resources owned by business entities must be able to have two main characteristics in order to produce business competitiveness.

The RBV approach provides a framework for analyzing how to contribute resource IT is able to have an impact on organizational performance and at the same time can provide an explanation of how the causes of failure of business entities in managing IT resources so that they are unable to produce organizational performance that can form a sustainable competitive advantage in the long term. Beamish & Chakravarty (2021) provides directions for using the RBV paradigm in managing IT resources, namely: (a) RBV facilitates resource Specific IT required by the organization to be used exclusively and to the maximum extent possible in forming valuable IT assets and building organizational capabilities; (b) RBV provides the ability to compare resource IT and resources owned by the organization so that it can be integrated optimally; and (c) the RBV provides the necessary mechanisms for evaluating relationships resource IT with organizational capabilities in achieving competitive advantage, which provides an effective way to measure the strategic value of owning IT resources.

The RBV paradigm is expected to be able to answer at least two quite complex problems in managing IT resources in order to produce the goals desired by business entities, namely firstly IT resources should have the ability to provide efficiency in business entity operational activities, both internally and externally, particularly in providing higher value, lower costs, or the ability to achieve a higher competitive advantage than other organizations that do not use it. Both implementations of resource IT are supposed to provide a competitive advantage although the availability of IT resources can be easily imitated by other organizations because of their ease of purchase and acquisition.

### *2.2 Information Technology Capability*

Capability is a collection of resources capable of performing a job or activity (Wamba et al., 2017). This definition simultaneously shows that access to a resource lead to capability and capability arises because of the ownership of a resource, so that the use of a resource that is multi-purpose means that it is a resource with multiple capabilities.

Schilke (2014), the definition of IT capability is often associated with a description of how the role of resource IT in shaping competitiveness or competitive advantage for organizations. The definition of IT capabilities was first raised by (Azeem et al., 2021) as "*the ability to control IT-related costs, deliver system when needed and effect business objectives through IT implementations*", where the three main things that must exist to produce IT capabilities are: (a) the presence of competent IT staff in their fields; (b) the existence of a strong cooperative relationship between business and IT management; and (c) the process of use resource IT that generates capabilities. IT capability can be interpreted as the ability of business entities to use IT resources to support business strategy and provide added value to the business entity's activity chain.

### *2.3 Hypothesis Development*

Based on the approach *Resource Based View* (RBV), the organization is considered as a collection of resources that could utilize these resources in a strategy so that they can provide value, creating scarcity to obtain resources for other business entities; not easy to imitate, and difficult to replace with resources. The ability to master information technology which is a strategy in business management is an important resource and if this can be adopted and implemented properly by entrepreneurs to create an advantage and added value in winning the competition.

Many empirical studies have found the relationship between IT and organizational performance. Research by Mata and Barney (1997) analyze the managerial capacity of IT to be able to build competitive advantage for business entities through managing market risk and technology investment risk, expanding innovative ideas, and improving technical communication. Research by (Dibrell et al., 2014) found that the implementation of IT is able to shape market competitiveness through integration of resource IT with corporate strategic planning. The results of (Awa et al., 2014) found a positive relationship between IT managerial capabilities and the long-term sustainability of a business entity's competitive position based on physical capabilities and the adoption of IT infrastructure. IT capabilities built in anticipating market demand, and IT strategic analysis can have a major impact on the sustainability of business competitiveness (Schaltegger & Wagner, 2017) Research by (Paudel et al., 2022) and (Grolleau et al., 2012) found the benefits of IT adoption not only being able to increase productivity, profitability, market value, and market share, but also business entity process performance: efficiency, service quality, cost savings, organizational flexibility, and customer satisfaction. The above study shows that the role of IT in the transformation process in implementing organizations is very large, because it makes organizations able to process and use information into a decision. Initial research (Eid & El-Gohary, 2013) proves that implementation of e-marketing through marketplace conducted by SME entrepreneurs had a positive impact on the economic resilience of SMEs. Klein and Todesco, 2021) states that a simple way to adopt and deal with this pandemic is to use digital technology for SMEs to be able to improve business performance.

Brynjolfsson et al. (2018) conducted a literature study on many research studies explaining this Productivity Paradox on the theoretical and methodological side found that the causes of this were inaccuracies in measuring the impact of IT and difficulties in measuring productivity statistically, weaknesses in controlling other factors or variables that affect organizational performance that arise due to IT investments, the impact of IT investments cannot be felt immediately (time lag), the role of human resources in the successful implementation of IT is often forgotten and replaced only by looking at IT assets or infrastructure, IT resources are only seen as something that stands alone not as a system that is integrated with other resources. Based on the theory and results of previous studies, the hypotheses developed in this study are:

Hypothesis 1: IT Adoption can increase SME IT Assimilation.

Hypothesis 2: Adoption of IT can improve the operational performance.

Hypothesis 3: Adoption of IT can improve the financial performance.

Hypothesis 4: Assimilation of IT can improve the operational performance.

Hypothesis 5: IT assimilation can improve the financial performance.

Hypothesis 6: Operational performance can improve SME financial performance.

Hypothesis 7: IT Assimilation mediates the relationship between IT Adoption and operational performance.

Hypothesis 8: IT Assimilation mediates the relationship between IT Adoption and performance.

Hypothesis 9: Operational performance mediates the relationship between technology adoption and financial performance.

Hypothesis 10: Operational performance mediates the relationship between technological assimilation and financial performance.

## 3. Research methods

### *3.1 Location and Research Sample*

This research was conducted on SMEs that have used information technology in their operational activities. Based on data from the Bali Cooperatives and UMKM Office in 2020 there were as many as 5,000 Small and Medium Enterprises (SMEs) operating in various business sectors (Sari et al., 2020). The total population of 5,000 SMEs does not all use Information Technology in their activities. So, the number of SME population that uses information systems is uncertain, due to information from the Department of Cooperatives and SMEs in Bali, and other information is not sufficient. This causes researchers to determine a research sample by determining that the total population is not known with certainty. Based on these conditions, the researcher determined a sample of at least 10 times the number of variables studied, this is in accordance with (Ittaqullah et al., 2020). The number of variables is 4, so the minimum sample size is 40 SMEs. The sampling technique uses incidental sampling.

### *3.2 Variable Identification*

The variables identified in this study consist of exogenous and endogenous variables. Exogenous Variables which have an influence on other variables in this study is IT Adoption. Endogenous Variables which are influenced by other variables in the study are IT Assimilation, Operational Performance and Financial Performance. Variable measurement study described in Table 1 and the research model images as shown in Fig. 1, which explains the relationship between research variables.

**Table 1**
Measurement of Research Variables

| Variable | Definition | Measurement Dimensions |
|---|---|---|
| IT adoption | technology-based competencies owned by business entities as a manifestation of capabilities formed from the integration and accuracy of utilization resource | 1. IT Infrastructure<br>2. IT Architecture |
| IT Assimilation | IT capabilities owned by business entities in using IT resources to provide support in routine work on business entity administration systems, process activities and decision making, including activities to simplify business processes and organizational performance and disseminate or integrate information and knowledge needed to all existing sections to respond to existing challenges | 1. Business Administration System<br>2. Knowledge and Capability of HR |
| Operational Performance | Competence that shows organizational excellence formed from a series of best practices for decisions taken by organizations in forming competitive advantage and at the same time being able to create expectations standards that attract customer attention | 1. Quality<br>2. Speed<br>3. Accuracy Promise Fulfilment<br>4. Flexibility<br>5. Fees |
| Finance Performance | The ability of SMEs to generate profits based on their assets and capital | 1. Sales Growth<br>2. Profit growth |

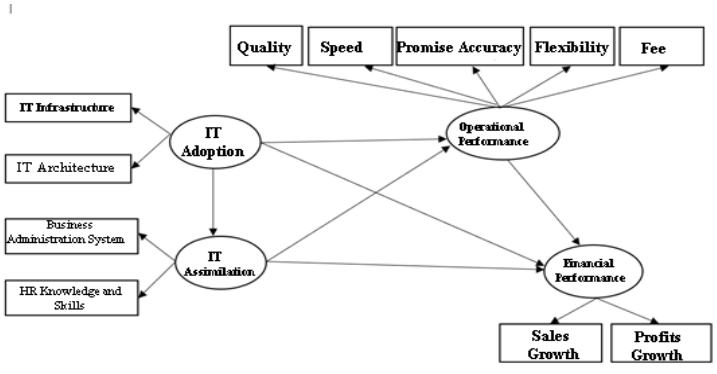


**Fig. 1.** Research Model

*3.3 Data analysis technique*

Test instrument research was conducted by testing the validity and reliability of the questionnaire. Research questionnaire is valid if the questions on the questionnaire are able to reveal something that will be measured by the questionnaire. The validity test in this study was carried out by calculating the correlation between each indicator to the total score construct and showed significant results (<0.05). The questionnaire is said to be reliable if one's answers to statements are consistent or stable from time to time. To measure the reliability used a statistical test the research variable is reliable if the value Cronbach Alpha> 0.7. Analysis inference in this study using analytical tools Structural Equation Modeling (SEM) with approach Partial Least Square (PLS). Hypothesis testing was carried out on Inner model which shows the strength of the estimation of the relationship between latent variables (structural model). Outer model which shows latent variables represented by their indicators or manifest variables (measurement model), as well as weight relation where is the case value of the latent variable that can be estimated.

## 4. Results and Discussion

Researchers carry out research on Small and Medium Enterprises (SMEs) that implement IT in their operational activities. The sampling method uses the incidental sampling method, namely sampling by chance and matching criteria researcher. The number of samples obtained was 40 Small and Medium Enterprises that use information technology in Bali. This research uses a data collection instrument in the form of a list of questions in the questionnaire. Instrument testing is carried out to obtain results of instrument valid and reliable research. Testing the validity and reliability of the instrument is an absolute requirement to get results that are relevant.

*4.1 Validity test*

Validity test is used to measure the validity or validity of a questionnaire. A questionnaire is said to be valid if the questions in the questionnaire can reveal something that the questionnaire will measure (Ghozali, 2018: 52). To measure the validity of this research is done by correlation bivariate between each indicator score with the total construct score (Correlation Coefficients Pearson) through the SPSS program (Statistical Product and Service Solution). If the correlation between each indicator to the total construct score shows significant results, it can be concluded that each question indicator is valid (Ghozali, 2018: 54).

*4.2 Reliability Test*

Reliability is a tool for measuring a questionnaire which is an indicator of a variable or construct. A questionnaire is reliable if one's answer to a question is consistent or stable from time to time (Ghozali, 2018:47). To measure the reliability used statistical tests Cronbach Alpha (α). Ghozali (2018: 48) states that a construct or variable is said to be reliable if it provides value Cronbach Alpha >0.7. The following are the results of testing the validity and reliability.

**Table 2**
Results of Testing the Validity and Reliability

| No | Indicator | Item | Validity | | | Reliability | |
|---|---|---|---|---|---|---|---|
| | | | *Pearson Correlation* | *Sig* | Description | *Cronbach's Alpha* | Description |
| 1 | IT Adoption | AD.1 | 0.882 | 0.000 | Valid | 0.770 | Reliable |
| | | AD.2 | 0.882 | 0.000 | Valid | | |
| | | AD.3 | 0.681 | 0.000 | Valid | | |
| | | AD.4 | 0.494 | 0.001 | Valid | | |
| | | AD.5 | 0.343 | 0.030 | Valid | | |
| | | AD.6 | 0.515 | 0.001 | Valid | | |
| | | AD.7 | 0.731 | 0.000 | Valid | | |
| | | AD.8 | 0.731 | 0.000 | Valid | | |
| 2 | IT Assimilation | AS.1 | 0.459 | 0.003 | Valid | 0.783 | Reliable |
| | | AS.2 | 0.512 | 0.001 | Valid | | |
| | | AS.3 | 0.704 | 0.000 | Valid | | |
| | | AS.4 | 0.330 | 0.037 | Valid | | |
| | | AS.5 | 0.538 | 0.000 | Valid | | |
| | | AS.6 | 0.644 | 0.000 | Valid | | |
| | | AS.7 | 0.668 | 0.000 | Valid | | |
| | | AS.8 | 0.627 | 0.000 | Valid | | |
| | | AS.9 | 0.517 | 0.001 | Valid | | |
| | | AS.10 | 0.619 | 0.000 | Valid | | |
| 3 | Operational Performance | KO.1 | 0.508 | 0.001 | Valid | 0.830 | Reliable |
| | | KO.2 | 0.546 | 0.000 | Valid | | |
| | | KO.3 | 0.530 | 0.000 | Valid | | |
| | | KO.4 | 0.516 | 0.001 | Valid | | |
| | | KO.5 | 0.557 | 0.000 | Valid | | |
| 4 | Finance | KK.1 | 0.803 | 0.000 | Valid | 0.760 | Reliable |
| | | KK.2 | 0.723 | 0.000 | Valid | | |
| | | KK.3 | 0.814 | 0.000 | Valid | | |

Source: Results of data processing (Attachment)

Based on Table 2 it can be explained that all correlation values between each indicator to the total construct score have a value above 0.3 and a significance value less than 0.05. This value indicates that the items used as indicator questions to measure the variables IT Adoption, IT Assimilation, Operational Performance and Financial Performance are valid. Reliability testing using the calculation of the coefficients of Cronbach's alpha. Based on Table 2, all statement items have a coefficient value cronbach's alpha above 0.70 which means that all statement items are categorized as reliable for the variables IT Adoption, IT Assimilation, Operational Performance and Financial Performance.

*4.1 Data Analysis Test Results*

*Evaluation Outer Model*

Outer model assessment is carried out to determine the validity and reliability of research indicators and latent variables. Validity is known by using value convergent validity and discriminant validity. While the reliability is known by using the value of the reliability indicators and internal values consistency reliability.

*Validity Test*

Validity test can be known from the results convergent validity and discriminant validity calculated using PLS.

*Convergent Validity Test*

The value of convergent validity model is known from the loading factor value and the AVE value (average variance extracted). Table 3 below shows that the value loading factor is between 0.526 and 0.734 which means more than 0.50 according to the recommendations of Fornell and Larcker (1981) and the AVE value of all variables is above 0.50. This figure shows that all measurement indicators meet the requirements convergent validity and each of these indicators is valid in measuring the variable concerned.

**Table 3**
Convergent Validity

| No | Variable | Item | *Outer Loading* | Average Variance Extracted (AVE) |
|---|---|---|---|---|
| 1 | IT Adoption | AD.1 | 0,821 | 0,665 |
| | | AD.2 | 0,807 | |
| | | AD.3 | 0,600 | |
| | | AD.4 | 0,521 | |
| | | AD.5 | 0,733 | |
| | | AD.6 | 0,704 | |
| | | AD.7 | 0,594 | |
| | | AD.8 | 0,741 | |
| 2 | IT Assimilation | AS.1 | 0,875 | 0,745 |
| | | AS.2 | 0,783 | |
| | | A.S3 | 0,881 | |
| | | AS.4 | 0,789 | |
| | | AS.5 | 0,914 | |
| | | AS.6 | 0,882 | |
| | | AS.7 | 0,895 | |
| | | AS.8 | 0,888 | |
| | | AS.9 | 0.815 | |
| 3 | Operational Performance | KO.1 | 0,876 | 0,833 |
| | | KO.2 | 0,907 | |
| | | KO.3 | 0,910 | |
| | | KO.4 | 0,902 | |
| | | KO.5 | 0,914 | |
| 4 | Finance Performanc | KK.1 | 0,893 | 0,814 |
| | | KK.2 | 0,908 | |
| | | KK.3 | 0,936 | |

Source: processed data, 2022

**Reliability Test**

Testing *reliability* calculated using PLS via *internal consistency reliability*. For *internal consistency reliability*, *composite reliability* and *Cronbach's alpha* value must be higher or equal to 0.7. Table 4 below shows that the results *composite reliability* and *Cronbach's alpha* greater than 0.7 which means that the five variables have consistent and reliable results.

**Table 4**
Reliability Test

| | Cronbach's Alpha | Composite Reliability |
|---|---|---|
| AD | 0.848 | 0.881 |
| AS | 0.962 | 0.967 |
| KK | 0.899 | 0.937 |
| IS | 0.943 | 0.956 |

*Inner Model Evaluation* (Structural Model)

This evaluation step is carried out to confirm the theoretical model as outlined in the structural research model, Chin (1998). Here, the evaluation of the structural model through three indicators: $R^2$, *Predictive Relevance* ($Q^2$) and *Goodness of Fit* (GoF).

*$R^2$ Value*

The $R^2$ value in this PLS calculation represents the amount of variance contained in the model. $R^2$ value in this study is listed in Table 5 below:

**Table 5**
R Square ($R^2$)

| | *R Square* | *R Square Adjusted* |
|---|---|---|
| AS | 0.593 | 0.589 |
| KK | 0.773 | 0.766 |
| KO | 0.833 | 0.829 |

Source: processed data, 2022

Based on Table 5 above it can be seen that:

1. The diversity (variance) of the IT assimilation variable can be explained by the IT Adoption variable of 59.3 percent and the remaining 40.3 percent is explained by other variables outside the research model.
2. Variation (variance) of the Operational Performance variable of 83.3 percent can be explained by the IT Adoption and IT Assimilation variables. While the remaining 16.7 percent is the contribution of other variables outside the research model.
3. The variance (variance) of the Financial Performance variable of 77.3 percent can be explained by the variables Operational Performance, IT Adoption and IT Assimilation. While the remaining 22.7 percent is the contribution of other variables outside the research model.

***Predictive Relevance* ($Q^2$)**

$Q^2$ Value *predictive relevance* in a structural model is used to measure how well the observed values produced by the model and also the parameter estimates. $Q^2$ value in this study is calculated by the following formula:

$$Q^2= 1- (1 – R_1^2) (1 – R_2^2) (1 – R_3^2) = 1-(1-0.\ 5932) (1-0.\ 8332) (1 – 0.\ 7732) = 1- (0.080)=0.920$$

This value means that the magnitude of the contribution of the variables of Operational Performance, IT Adoption and IT Assimilation as a whole to the Financial Performance of SMEs is 92.00 percent. While the remaining 8.00 percent is the contribution of other variables not included in this research model.

*Goodness of Fit (GoF)*

GoF is divided into small (0.1), medium (0.25) and large (0.36) (34). This study has a GoF of 0.748. Because the GoF value of this study is > 0.36, this research model is very good and capable represent data according to the theory used. Table 6 shows the value calculation *Goodness of Fit* (GoF).

**Table 6**
Calculation of Goodness of Fit (GOF) Value

| Konstruct | AVE | $R^2$ |
|---|---|---|
| | 0.665 | |
| | 0.745 | |
| | 0.833 | |
| | 0.814 | |
| | | 0.593 |
| | | 0.773 |
| | | 0.833 |
| Average | 0.764 | 0.733 |
| GoF =√0.764 x 0.733 = 0.748 | | |

Source: Appendix 3 (data processed, 2022)

**Hypothesis test**

Hypothesis testing is done to evaluate the relationship between latent variables whether it is significant or not. Hypothesis testing can be calculated based on the value of the T-statistic and *p-value*. The relationship between the two variables can be categorized as significant if the T-statistic value is greater than 1.96 and *p-value* smaller than the significance level of 5 percent (0.05). Relationships between research variables are shown in Fig. 1, Fig. 2 and Table 7 below.

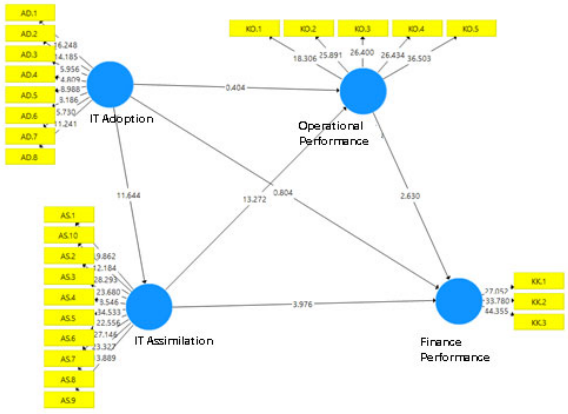


**Fig. 2.** Bootstrapping Results

**Table 7**
Statistical Test Results for Relations between Variables (*Path Coefficient*)

| | *Original Sample (O)* | *Sample Mean (M)* | *Standard Deviation (STDEV)* | *T Statistics (\|O/STDEV\|)* | *P Values* |
|---|---|---|---|---|---|
| AD → AS | 0.770 | 0.762 | 0.066 | 11.644 | 0.000 |
| AD → KK | 0.071 | 0.086 | 0.089 | 0.804 | 0.422 |
| AD → KO | 0.029 | 0.025 | 0.072 | 0.404 | 0.687 |
| AS → KK | 0.523 | 0.526 | 0.132 | 3.976 | 0.000 |
| AS → KO | 0.890 | 0.886 | 0.067 | 13.272 | 0.000 |
| KO → KK | 0.318 | 0.300 | 0.121 | 2.630 | 0.009 |

Source: processed data for 2022

Based on Table 6 it can be concluded that:

1. IT Adoption (AD) has a P value of 0.000 against IT Assimilation (AS) with a coefficient value of 0.770. These results indicate that IT Adoption has a positive effect on IT Assimilation. It means that the first hypothesis in this study is accepted.

2. IT adoption has a P value of 0.687 on operational performance (KO) with a coefficient of 0.029. These results indicate that IT Adoption has no effect on operational performance. It means that the second hypothesis in this study was rejected.

3. IT adoption has a P value of 0.422 on financial performance (KK) with a coefficient of 0.071. These results indicate that IT Adoption has no effect on operational performance. It means that the third hypothesis in this study was rejected.

4. IT assimilation has a P value of 0.000 on operational performance with a coefficient of 0.890. These results indicate that IT assimilation has a positive effect on operational performance. It means that the fourth hypothesis in this study is accepted.

5. IT assimilation has a P value of 0.000 on financial performance with a coefficient of 0.523. These results indicate that IT assimilation has a positive effect on financial performance. It means that the fifth hypothesis in this study is accepted.

6. Operational performance has a P value of 0.000 on financial performance with a coefficient of 0.318. These results indicate that operational performance has an effect positive on Financial Performance. It means that the sixth hypothesis in this study is accepted. Testing this hypothesis also wants to know the relationship between two variables influenced by mediation. The relationship between IT Adoption and Financial Performance mediated by IT Assimilation and Operational Performance is shown in the test results in Table 7 below:

**Table 7**
Specific Indirect Effects

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|---|---|
| AD → AS → KK | 0.403 | 0.403 | 0.113 | 3.551 | 0.000 |
| AD → KO → KK | 0.009 | 0.011 | 0.024 | 0.384 | 0.701 |
| AS → KO → KK | 0.283 | 0.263 | 0.103 | 2.745 | 0.006 |
| AD → AS → KO | 0.685 | 0.676 | 0.086 | 7.997 | 0.000 |

Source: processed data for 2022

Based on Table 7 it can be concluded as follows:

1. The results of testing the effect of IT Adoption on Operational Performance with IT Assimilation as a mediating variable show the result that Assimilation is able to mediate the relationship between IT Adoption and Operational Performance with a P Value of 0.000 which is less than 0.05. It means that the seventh hypothesis in this study is accepted.

2. The results of testing the effect of IT Adoption on Financial Performance with IT Assimilation as a mediating variable show the result that Assimilation is able to mediate the relationship between IT Adoption and Financial Performance with a P Value of 0.000 which is less than 0.05. It means that the eighth hypothesis in this study is accepted.

3. The mediating effect of operational performance on the relationship between IT adoption and financial performance has a P value of 0.701 greater than 0.05. It shows that operational performance is not able to mediate the relationship between IT adoption and financial performance, so the ninth hypothesis is rejected.

4. The mediating effect of operational performance on the relationship between IT assimilation and financial performance has a P value of 0.000 which is less than 0.05. It shows that operational performance is able to mediate the relationship. IT assimilation with financial performance, so that the tenth hypothesis is accepted.5. The results of testing the effect of IT Adoption on Financial Performance with IT Assimilation and Operational Performance as mediating variables show the result that Assimilation and Operational Performance are able to mediate the relationship between IT Adoption and Financial Performance with a P Value of 0.000 which is less than 0.05. This means that the eleventh hypothesis in this study is accepted. The results of testing the hypothesis above are summarized in Table 8 below.

**Table 8**
Summary of Hypothesis Testing Results

| Hypothesis | Path | Path Coefficient | P Value | Description |
|---|---|---|---|---|
| H1 | AD → AS | 0.770 | 0.000 | Accepted |
| H2 | AD → KO | 0.029 | 0.687 | Rejected |
| H3 | AD → KK | 0.071 | 0.422 | Rejected |
| H4 | AS → KO | 0.890 | 0.000 | Accepted |
| H5 | AS → KK | 0.523 | 0.000 | Accepted |
| H6 | KO → KK | 0.318 | 0.009 | Accepted |
| H7 | AD → AS → KO | 0.685 | 0.000 | Accepted |
| H8 | AD → AS → KK | 0.403 | 0.000 | Accepted |
| H9 | AD → KO → KK | 0.009 | 0.701 | Rejected |
| H10 | AS → KO → KK | 0.283 | 0.006 | Accepted |

Source: processed data for 2022

## 5. Discussion

### *5.1 Effect of IT Adoption on IT Assimilation*

The results showed that the role of IT adoption had a positive effect on IT assimilation in small and medium enterprises (SMEs) in Bali. IT adoption is important for SMEs to make decisions to adopt IT resources. These findings indicate that the higher the ability of IT Adoption will further increase the Assimilation of IT owned by small and medium enterprises. It means that the business entity is successfully using IT resources to support the routine operational work of the business entity. IT development developed by SMEs is built on adequate IT infrastructure and IT architecture to support IT Assimilation. Assimilation of IT as an IT capability owned by business entities in using IT resources to provide support in routine work on business entity administration systems and process activities and decision making, including business process simplification activities needed for all existing sections to respond to existing challenges. IT adoption carried out by SMEs in Bali, occurred was able to support business processes so as to provide support for operational activity processes and decision-making strategies. Adoption of well-developed IT by SMEs is able to support operational activities and support HR development through employee knowledge and expertise in using information technology.

### *5.2 Effect of IT Adoption on Operational Performance and Financial Performance*

The results of the study show that IT Adoption has no effect on the Operational Performance and Financial Performance of SMEs in Bali. The results of these findings indicate that IT development by SMEs in Bali has not been able to improve the operational performance and financial performance of SME businesses. The results of the study show that IT Adoption has not been able to improve the performance of SMEs in Bali, operationally well nor financially. The results of these findings indicate that the IT Adoption developed by SMEs in terms of infrastructure and architecture IT has not been able to improve business performance. Adoption of IT infrastructure and architecture by SMEs demonstrates the ability to use the selection and development of IT resources in a planned manner according to the direction of changing organizational needs and changes in development time (adaptive). The ability to select and develop IT infrastructure carried out by SMEs in Bali is good, but

in a short time frame and in the midst of an uncertain business, this has not been able to improve operational and financial performance.

*5.2 The Effect of IT Assimilation on Operational Performance and Financial Performance*

The results of the study found that IT Assimilation was able to improve the operational performance and financial performance of SMEs in Bali. The ability of IT Assimilation is able to build the Operational Performance of SMEs. IT Assimilation Capability is able to produce Human Resource Capabilities related to mastery of IT resources, i.e. IT Engineering Capabilities that can be used in solving routine management problems in business entities or produce IT Managerial Capabilities that are able to develop and exploit IT functions in supporting the success of the organization's operational activities. The Organizational Cycle which shows the ability of SMEs in changing Static Efficiency to Dynamic Efficiency can be perfectly built by IT Assimilation Capabilities. Static Efficiency that is well built by IT Assimilation is able to carry out Operational Learning Cycles and Learning Capability Cycles that rely on Strengthening HR Capabilities in mastering IT Technical Capabilities and IT Managerial Capabilities. IT Assimilation Capability builds IT Organizational Capability that is able to build competency as a business entity in coordinating resource IT owned effectively to achieve company performance. The IT Assimilation Capabilities owned by SMEs in Bali were able to shape their existence in industrial market competition, especially in winning the competition. Dynamic efficiency that produces core competencies to excel in the areas of quality, speed, reliability, flexibility and price can be maintained in the long term. Long-term competitive advantage is only possible to achieve if business entities are able to build competencies that are built in two ways simultaneously, namely competence improvement (*refinement competency*) to generate continuous improvement of activity routines and renewal competency to make creative leap and organizational transformation towards being more productive and abandoning old competency patterns that are considered outdated. With such development, SMEs in Bali City have succeeded in increasing operational performance and improving business financial performance.

*5.3 The mediating role of IT Assimilation to the relationship between IT Adoption and Operational Performance and Financial Performance*

The results of the study show that IT Assimilation is able to fully mediate the relationship between IT Adoption and Operational Performance and Financial Performance. Partially the adoption of IT by SMEs is not able to improve Operational Performance and Financial Performance, but with the development of good assimilation carried out by SME entrepreneurs it causes an increase in Operational Performance and also Financial Performance also increases. IT assimilation causes an internal competence that is formed from the accumulated results of routine activities and is able to produce decisions that lead to increased operational performance, and form a competitive advantage based on market reactions to products and services resulting from the strategic decisions of its operations. The Effect of IT Assimilation on Operational Performance indicates the formation of an isolation mechanism so that IT assets and resources are utilized differently and are difficult to imitate by other business units. SMEs in Bali City use IT assets and resource development that have a well-integrated IT system so that they are able to exchange data with their suppliers. SMEs also use IT to communicate between departments or use the development of business systems in a network. This condition shows that SMEs are able to create barriers to entry so that it is not easy to imitate and mobility barriers to prevent the transfer of its unique resources to other similar businesses. Such IT Assimilation Management makes IT Adoption influential in efforts to improve the Operational Performance and Financial Performance of SMEs in Bali.

*5.4 The mediating role of Operational Performance on the relationship between IT Adoption and Financial Performance*

The results of the study show that Operational Performance is not able to mediate the relationship between IT Adoption and Financial Performance. This is caused by the adoption of IT which is not able to affect the Operational Performance of SMEs in Bali. Development of IT Adoption through the development of IT infrastructure and architecture that has been planned and implemented by SMEs in Bali partially has not been able to improve the operational performance of SMEs. Development of IT Adoption is still in a short stage and tends to be sudden to meet the business needs of SMEs in an effort to maintain the performance and survival of SMEs. Implementation of newly built IT Adoption has not been able to improve performance operations and this also has an impact on the financial performance of SMEs which does not increase.

*5.5 The mediating role of Operational Performance on the relationship between IT Assimilation and Financial Performance*

The results of the study show that Operational Performance is a mediating variable in the relationship between IT Assimilation and Financial Performance. IT Assimilation developed by SMEs in Bali is an IT implementation program implemented to support operational activities and capabilities in developing systems on an ongoing basis. In terms of HR, IT assimilation is supported by human resources who have IT knowledge and expertise adequate. This is able to create added value for SMEs in reaching markets that were very difficult. IT Assimilation plays an important role in building Operational Performance because the capabilities built in IT Assimilation make SMEs able to gain resources IT is rare and much needed by SMEs in an effort to maintain performance operations. IT assimilation has an impact on efficiency-based performance increase, and at the same time to generate innovation that is able to build the ability to issue a product or service. Improving the operational performance of SMEs has an impact on the image of the business in society so that old customers are able to be maintained

and also able to find new customers. The increased operational performance of SMEs has an impact on increasing sales and is followed by cost efficiencies.

## 6. Conclusion

This study aims to produce a capability development model that can explain and determine the role of IT capabilities (Adoption and Assimilation) in the formation of operational performance that can improve the financial performance of SME businesses in Bali. Selection of samples based on SMEs criteria that implement information technology in running its business activities. Based on the results of data analysis and discussion above, it can be concluded as follows:

1. IT Adoption has a positive effect on IT Assimilation in SMEs in Bali. The development of IT Adoption by SMEs is able to create effectiveness in operational activities and increase HR knowledge and expertise in IT.

2. IT Adoption had no effect on the Operational Performance and Financial Performance of SMEs in Bali. The development of IT Adoption which was still short during the Covid 19 pandemic has not been able to improve the operational and financial performance of SMEs.

3. IT Assimilation was able to improve the Operational Performance and Financial Performance of SMEs in Bali. Assimilation is the use of resource IT functionally for solving problems arising from routine operational work that was able to increase the operational performance and financial performance of SMEs.

4. Operational Performance was unable to mediate the relationship between IT Adoption and Financial Performance of SMEs in Bali. IT Adoption by SMEs in Bali was unable to improve operational performance and the impact on the financial performance of SMEs also did not increase.

5. Operational Performance was able to mediate the relationship between IT Assimilation and UKM Financial Performance in Bali. IT Assimilation had an impact on efficiency-based performance increasing, and at the same time to generate innovation that is able to build the ability to issue a product or service.

## References


Awa, H. O., Ojiabo, O. U., & Emecheta, B. C. (2015). Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science & Technology Policy Management*, *6*(1), 76-94.

Azeem, M., Ahmed, M., Haider, S., & Sajjad, M. (2021). Expanding competitive advantage through organizational culture, knowledge sharing and organizational innovation. *Technology in Society*, *66*, 101635.

Amri, A. (2020). The Impact of Covid-19 n MSMEs in Indonesia. *BRAND Jurnal Ilmiah Manajemen Pemasaran*, *2*(1), 123-131.

Barney, J. B. ( 1991). Firm Resources and Sustained Competitive Advantage, *Journal of Management*, 17(1), 99-120.

Beamish, P. W., & Chakravarty, D. (2021). Using the resource-based view in multinational enterprise research. *Journal of Management*, *47*(7), 1861-1877.

Brynjolfsson, E., Rock, D., & Syverson, C. (2018). Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics. In *The economics of artificial intelligence: An agenda* (pp. 23-57). University of Chicago Press.

Dibrell, C., Craig, J. B., & Neubaum, D. O. (2014). Linking the formal strategic planning process, planning flexibility, and innovativeness to firm performance. *Journal of Business Research*, *67*(9), 2000-2007.

Eid, R., & El-Gohary, H. (2013). The impact of E-marketing use on small business enterprises' marketing success. *The Service Industries Journal*, *33*(1), 31-50.

Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California management review*, *33*(3), 114-135.

Ghozali, I. (2018). Aplikasi Analisis Multivariate dengan Program IBM SPSS. Yogyakarta: Universitas Diponegoro. *Edisi 9). Semarang: Badan Penerbit Universitas Diponegoro*, *490*.

Grolleau, G., Mzoughi, N., & Pekovic, S. (2012). Green not (only) for profit: An empirical examination of the effect of environmental-related standards on employees' recruitment. *Resource and Energy Economics*, *34*(1), 74-92.

Hernita, H., Surya, B., Perwira, I., Abubakar, H., & Idris, M. (2021). Economic business sustainability and strengthening human resource capacity based on increasing the productivity of small and medium enterprises (SMES) in Makassar city, Indonesia. *Sustainability*, *13*(6), 3177.

Ittaqullah, N., Madjid, R., & Suleman, N. R. (2020). The effects of mobile marketing, discount, and lifestyle on consumers' impulse buying behavior in online marketplace. *International Journal of Scientific and Technology Research*, *9*(3), 1569-1577.

Kusmantini, T. (2012). Analisis Pengaruh E-Readiness Factors terhadap Intensi UKM Adopsi e-Business. *Manajemen dan Bisnis*, *11*(1).

Klein, V. B., & Todesco, J. L. (2021). COVID-19 crisis and SMEs responses: The role of digital transformation. *Knowledge and Process Management*, *28*(2), 117-133.

Lerner, J., & Nanda, R. (2020). Venture capital's role in financing innovation: What we know and how much we still need to learn. *Journal of Economic Perspectives*, *34*(3), 237-61.

Mata, F. J., Fuerst, W. L., & Barney, J. B. (1995). Information technology and sustained competitive advantage: A resource-based analysis. *MIS Quarterly*, 19(4), 487–505

Peteraf, M. A. The cornerstones of competitive advantage: A resource- based view. *Strategic Management Journal*, 1993. 14(3), 179–191.

Sari, M., Irfan, I., Jufrizen, J., & Deli, L. (2020). The Testing Model of Financial Management Ability of Small and Medium Enterprises (SMEs). *Jurnal Reviu Akuntansi dan Keuangan*, *10*(3), 584-601.

Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic management journal*, *35*(2), 179-203.

Schaltegger, S., & Wagner, M. (2017). Managing and measuring the business case for sustainability: Capturing the relationship between sustainability performance, business competitiveness and economic performance. In *Managing the business case for sustainability* (pp. 1-27). Routledge.

Wamba, S. F., Gunasekaran, A., Akter, S., Ren, S. J. F., Dubey, R., & Childe, S. J. (2017). Big data analytics and firm performance: Effects of dynamic capabilities. *Journal of Business Research*, *70*, 356-365.

Yew Wong, K., & Aspinwall, E. (2004). Characterizing knowledge management in the small business environment, *Journal of Knowledge Management*, *8*(3), 44-61. https://doi.org/10.1108/13673270410541033

Zafar, A., & Mustafa, S. (2017). SMEs and its role in economic and socio-economic development of Pakistan. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6*(4).