

## THE MEDIATING EFFECT OF INNOVATION ON INFORMATION TECHNOLOGY CAPABILITY AND SUSTAINABLE COMPETITIVE ADVANTAGE

(Survey on GALABO Shelter Culinary Business Managers in Surakarta, Central Java, Indonesia)

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### ABSTRACT

The goal of this study was to examine how innovation mediated the relationship between Information Technology Capability and Sustainable Competitive Advantage (Survey of Galabo Shelter Culinary Business Managers in Surakarta, Central Java, Indonesia). The 88 managers of the Galabo Shelter Culinary Business, registered with the city of Surakarta's Industry and Trade Office in 2021, make up the population of this study. The business is located in Surakarta, Central Java, Indonesia. The sample was chosen using a method called "purposive sampling" and the following criteria: 1) Managing the Galabo Shelter restaurant, which was licensed by Surakarta's Department of Industry and Commerce in 2021. 2) has already started using information technology to manage his company. 3) have operated their company for at least three (3) years.

Both qualitative (descriptive analysis) and quantitative methodologies were used in the data analysis for this study (regression and Sobel test). The study's findings indicate that although Information Technology capabilities have a large influence on innovation, they have no comparable impact on sustainable competitive advantage. The Sustainable Competitive Advantage is significantly impacted by innovation. Information Technology Capability influences sustainable competitive advantage through innovation. The benefit of this study is that it will be taken into account by the managers of the Galabo Shelter Culinary in Surakarta as they work to improve their ability to innovate and stay competitive. This study also aids the Surakarta City Industry and Trade Office in advising the managers of the Galabo Shelter's restaurant business so that they can have a sustainable competitive advantage.

**Keywords:** Information Technology Capability, Innovation, Sustainable Competitive Advantage

### 1.0 INTRODUCTION

The COVID-19 pandemic has an effect on a wide range of areas, including social, economic, educational, and health professions. The government's strategy on work from home (WFH) from a while back, the adoption of emergency public activity restriction, and social distancing had a significant impact on social conditions and changes in business. Business

people need to be cunning in order to survive in a hostile atmosphere. One important factor is the dynamically shifting nature of the business environment, which necessitates the creation of strategies that will set the corporation apart from rivals. Business players need to have a business strategy that can help clients distinguish between their items and those of competitors. In other words, commercial actors require a competitive advantage.

According to Porter [1], a company's ability to produce value for its customers that is greater than the cost of doing so gives it a competitive advantage. Porter's value is the price that customers are willing to pay, and superior value is achieved by charging less than competitors for comparable benefits or by delivering special advantages that more than make up for the higher price. The expense in question is the price of doing the tasks necessary to produce a good or service. According to Porter, Barney, and Hesterley's theories which states that when a company is able to create value beyond its competitors, it can be said that the company has a competitive advantage [2].

Business actors with information technology skills can gain a competitive advantage. According to Cepeda & Arias-Pérez [3], Information Technology Capability refers to a company's capacity to obtain, use, integrate, and reconfigure information technology resources in order to gain a competitive edge. The capabilities of information technology include proactive IT Capability, the capacity to align IT and business, and IT infrastructure capabilities. These three skills will produce a long-lasting competitive advantage. This is consistent with research findings Kakate [4] that show Information Technology Capability contribute significantly to long-term competitive advantage. According to the research findings reported by Bi et al. [5], process flexibility was not significantly correlated with either IT infrastructure capabilities or IT business span capabilities (an indicator of competitive advantage).

The ability to use information technology and business players' ideas both contribute to competitive advantage. Innovation is defined by Reaiche et al. [6] as something unique that has the potential to provide value and play a significant role in building a firm that is responsive to a dynamic business environment. Sulisty&Ayuni [7], Chiu & Yang [8], and Quaye & Mensah [9] did research on the subject, and the findings indicated that innovation had a favorable and significant impact on competitive advantage. Al Mamun et al. [10] presented various research findings that indicated the impact of microbusiness innovation on competitive advantage was insignificant and unfavorable.

This investigation focuses on Surakarta's Galabo restaurant industry. The restaurant was picked because Surakarta is a popular tourist destination and culinary hub in Indonesia. The Surakarta municipal administration developed 24 culinary shelters, including: Galabo, Mojosongo, Manahan, Kota Barat, Kerten, Sriwedari, and Solo Square, to enhance Surakarta as a tourist and culinary destination. Galabo as a research place because, according to the findings of interviews with researchers at the industry office, Galabo, along with Mahanan, Jln, Hasanudin, and Solo Square Shelters, is one of the four busiest shelters.

## 2.0 THEORITICAL REVIEW DAN HIPOTESIS

### 2.1 The Influence of Information Technology Capability towards Innovation

The management of the GALABO Surakarta culinary company owns information technology capabilities, including infrastructure capabilities, the ability to align information technology with their business, and the ability to be proactive in the development of information technology. These capabilities strongly support the occurrence of innovation in the company. Research findings Mauerhoefer et al.[11] indicating that Information Technology Capability have a major impact on new product development performance are in line with this.

**H1:** Information Technology Capability has a significant influence towards innovation in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia

## 2.2 The Influence of IT Capability towards Sustainable Competitive Advantage

Three dimensions make up the construct or concept of IT capability: a. the level of an organization's understanding of current and emerging IT Capability, or the organization's awareness of the potential of IT, is referred to as IT knowledge. b. IT operations assist a company's use of IT to increase business effectiveness or its adoption of IT-related practices. c. IT infrastructure consists of the technology, software, employees, and resources that assist in the gathering, processing, storing, and using of information. Information technology will enable firms to gain a competitive advantage through the creation of valuable resources that are distinct from others and the combination of IT operations, IT infrastructure, and IT knowledge. IT infrastructure is one of the human competence variables that will impact the company's competitive advantage, according to Turban et al. [12]. The findings of the research are used to support this opinion. According to Bayer, Haug, and Hvam's research [13], 1) IT can help improve productivity, quality, innovation, and customer response. 2) In terms of competitive position, IT might have a moderating function. According to Ngobe, Emmanuel Kakate's research [4], information technology significantly contributes to sustainable competitive advantage. Therefore, it can be said that information technology is essential to an organization's ability to run its systems and has a significant impact on its capacity for cost leadership and organizational responsiveness. According to research by [5], IT Capability (IT infrastructure, IT business partnerships, and external IT relationships) and top management involvement have a favorable impact on process alignment and process flexibility. The IT Capability of entrepreneurs, which are a collection of resources devoted to the integration of entrepreneur information technology knowledge, the use of information in company operations, and the availability of information technology facilities in MSMEs, can significantly affect the company's competitive advantage, according to research done by Ong & Ismail [14].

**H2:** Information Technology Capability has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia

## 2.3 The effect of innovation towards sustainable competitive advantage

Innovation is described as the idea of being open to new ideas as a component of corporate culture by Hurley & Hult [15]. The ability of a business to create novel aspects in products, processes, technology, or management—or novel combinations of existing elements—is referred to as innovation capability. According to Drucker [16], innovation is a specific instrument used by business owners to seize opportunities presented by change and set their

products or services apart from those of competitors. According to Kmiecziak, Michana, and Meczynska [17], innovation is ultimately the only viable strategy for remaining competitive; hence gaining a competitive edge and enhancing organizational performance are the primary reasons why businesses innovate.

Ahlam Otaibi Alghanm's research [18] demonstrates that the implementation of innovation strategies by MSMEs in the Kingdom of Saudi Arabia, such as product innovation strategies, market innovation strategies, process innovation strategies, and organizational innovation strategies, significantly and positively affects the competitiveness of MSMEs. / The outcomes demonstrate that the process of innovation capability has a considerable and advantageous impact on the competitiveness of manufacturing MSMEs, according to Hailekiros Sibhato Gebremichael and Eklay Gebremariam Tekle[19]. The study's findings, according to Heru Sulistyono and Sri Ayuni [7], demonstrate that MSMEs' ability to innovate significantly affects their performance and competitive advantage. Research findings by Prodromos Chatzoglou and Dimitrios Chatzoudes[20] indicate that innovation drives competitive advantage. Research by Daniel Quaye and Isaac Mensah [9] demonstrates that marketing innovation only slightly improves competitive advantage. According to Rosa Eidizadeh, Reza Salehzadeh, and Ali Chitsaz Esfahani's research [21] gaining a competitive edge is positively and significantly impacted by organizational innovation. As well as Bentolhoda Abdollahbeigi, Farhang Salehi [22]. According to the study's findings, product technological innovation and competitive advantage are significantly related.

**H3:** Innovation has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia

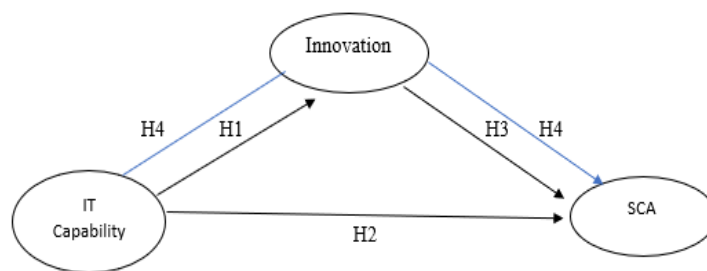
## **2.4 The Mediating Effect Of Innovation On Information Technology Capability On Sustainable Competitive Advantage AT The Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia**

According to the findings of their study, Information Technology Capability does not significantly influence sustainable competitive advantage directly, but the effect can be considerable if it is mediated by other variables. [5]. Therefore, the innovation variable was attempted to be included as mediation in this study.

**H4:** Innovation mediates the influence of Information Technology Capability on sustainable competitive advantage in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia

## **3.0 RESEARCH FRAMEWORK**

This study, which takes the form of explanatory research, examines the mediating role that innovation plays in the relationship between the influence of Information Technology Capability and sustainable competitive advantage (Survey of Galabo Shelter Culinary Business Actor in Surakarta, Central Java, Indonesia). Information Technology Capability, a dependent variable, sustainable competitive advantage, and a mediating variable make up the three research variables (Innovation). Figure 1 show the conceptual framework used in this investigation.



**Figure 1. Conceptual Framework**

## 4.0 METHODOLOGY

### 4.1 Population and sample

The 88 managers of the Galabo Shelter Culinary Business in Surakarta, Central Java, Indonesia, which was registered with the city of Surakarta's Industry and Commerce Office in 2021, make up the population of this study. The following criteria are used to identify the sample: 1) is the manager of the Galabo Shelter restaurant, which is scheduled to open in 2021 and is officially registered with the Surakarta City Industry and Commerce Office. 2) Already manages his business with information technology. 3) Have been in operation for at least three years. It turned out that all responders from a population of 88 people satisfied the sample criteria; hence all populations were used as samples.

### 4.2 Data collection technique

The manager of the Galabo Shelter culinary business, which is registered with the Industry and Commerce Office of Surakarta City, was one of 88 respondents who received questionnaires that were directly provided to study participants. Following that, the respondents' responses were scored on a Likert scale using the following criteria: SA = Strongly Agree, score = 5, A = Agree, score = 4, N = Neutral, score = 3, DA = Disagree, score = 2, and SD = Strongly Disagree, score = 1.

The Surakarta City Industry and Commerce Office, which is in charge of managing the Galabo shelter in Surakarta, and the business managers of the Galabo Shelter restaurant in Surakarta were both directly interviewed by the researchers as part of their effort to gather research data in addition to using questionnaires. during the questionnaire distribution.

### 4.3 Variable Measurement

#### a. Information Technology (IT) Capabilities

IT infrastructure capabilities, the capacity to integrate IT and business, and proactive IT Capability are among the IT Capability owned by the culinary business manager of Galabo Shelter. Indicators of Information Technology Capability include the following studies (Cepeda & Arias-Pérez, 2019):

- 1) IT infrastructure capabilities,

- 2) Ability to align IT and business,
- 3) Proactive IT Capability.

## **b. Innovation**

The ability of the culinary business manager at Galabo Shelter to think creatively is known as innovation. The new approach can add value and enable the organization to adapt to changes in the marketplace. The study's innovation indicators focus on research (Alghanm (2020)). According to this study, innovation includes:

### **1) Product Innovation**

The culinary business manager of the Galabo Shelter in Surakarta innovates products by modifying their original designs, improving upon existing products, or introducing new materials into the manufacturing process.

### **2) Process Innovation**

The culinary business manager of the Galabo Shelter in Surakarta engages in process innovation, which involves putting into practice entirely new or vastly better production or delivery methods.

### **3) Market Innovation**

The culinary business managers of Galabo Shelter in Surakarta demonstrate market innovation by identifying and responding to market possibilities and dangers faster than the competition.

## **c. Sustainable Competitive Advantage (SCA)**

An asset, characteristic, or organizational competence that belongs to the culinary business manager of Galabo Shelter in Surakarta that is challenging to match or surpass gives them a superior or favorable long-term position over rivals. The SCA indication corresponds to Heizer and Render's (2017) assessment as follows:

- 1) Compete at low cost,
- 2) Compete on differentiation,
- 3) Compete on response/flexibility.

The researcher adds one more indicator, efficiency, to the Sustainable Competitive Advantage (SCA) indicator.

## **4.4 Data analysis technique**

Regression analysis and the Sobel test were used to examine the mediating role of innovation in the relationship between Information Technology Capability and sustainable competitive advantage (Survey of Galabo Shelter Culinary Business Managers in Surakarta, Central Java, Indonesia). To examine how Information Technology Capability affects Innovation, the first regression analysis is used. The impact of Information Technology Capability and innovation



on sustainable competitive advantage was examined using a second regression analysis. The Sobel test was then used to assess the mediating influence of innovation on the effect of Information Technology Capability on sustainable competitive advantage in the Galabo Shelter Culinary Business Manager in Surakarta after the first and second regression analyses were completed. SPSS is the program used for data analysis.

## 5.0 RESULTS OF DATA ANALYSIS AND DISCUSSION

### 5.1 Research instrument test

Before conducting data analysis, a test will be conducted on the research instrument.

#### a. Validity Test

With a significance level of 5%, Pearson Product Moment Correlation analysis is used in this study's validity test. The instrument item is valid at a significance level of 5% if the calculation of each item results in a p value 5%. On the other hand, it might be said that the instrument item is invalid at the 5% significance level if the computation of each item results in a p value of 5%.

The Information Technology Capability variable was determined to be valid based on the validity test results (up to 11 question items), with a p-value of 0.05. The innovation variable was determined to be valid based on the validity test results (up to 12 question items), with a p-value of 0.05. The Sustainable Competitive Advantage variable was determined to be valid based on the validity test results (up to 12 question items), with a p-value of 0.05.

#### b. Reliability Test

The Cronbach Alpha formula is used in this study's reliability test calculation, which follows Nunnally's recommended standard that "a construct or variable is deemed to be reliable if it produces a Cronbach Alpha value  $> 0.70$ " (Nunnally, 1994)[23].

It is obvious from the reliability test findings that all of the question items related to the variables for Information Technology Capability (X), innovation (Z), and sustainable competitive advantage (Y) are reliable because the Cronbach's alpha value is greater than 0.70.

### 5.2 Classic assumption test

#### a. Multicollinearity test

The Information Technology Capability variable has a tolerance value of 0.254, and the Innovation variable (Z) has a value of  $0.254 > 0.10$ , according to the results of the Multicollinearity test. The Information Technology Capability variable's VIF value is 3.397, and its value for Innovation is 3.397 10. In either case, the regression model has either passed the multicollinearity test or there isn't any multicollinearity.

#### b. Autocorrelation Test

A p-value of  $0.284 > 0.05$  in the autocorrelation test results indicates that there is no association between the residuals.

**c. Heteroscedasticity test**

The IT Capability variable's p-value (X) = 0.494 and Innovation (Z) = 0.216 > 0.05 (no significance) in the results of the heteroscedasticity test indicate that there is no heteroscedasticity (passing the heteroscedasticity test). This demonstrates that the residuals' variances are not similar.

**d. Normality Test**

The residuals are normally distributed, and the p-value  $0.589 > 0.05$  indicates an insignificant condition according to the normality test using the Kolmogorov Smirnov Test (passed the normality test). Given that the situation is significant, the residual data must be regularly distributed.

**5.3 Data Analysis**

**a. Quantitative Analysis I**

**1) Examine the impact of Information Technology Capability on the ability to innovate in the culinary business manager of Surakarta's Galabo Shelter.**

The influence of the independent variable (X) on the dependent variable was examined using multiple linear regressions (Y). In relation to this research, the independent variable is IT Ability (X), while the dependent variable is Sustainable Competitive Advantage (Y). Table 1 below is the results of the regression test

**Table 1 Regression Test Results I**

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	7.981	2.725		2.928	.004
IT Capability	.936	.059	.864	15.892	.000

a. Dependent Variable: Innovation

From the Table 1 regression test results, the following equation can be derived:

$$Y = 7,981+0,936X$$



a = a constant of +7,981, indicating that the Galabo Shelter Kulimer managers' capacity for innovation is +7,981 without the use of information technology,

b = the relationship between Information Technology Capability and innovation is positive, as indicated by the regression coefficient of the Information Technology Capability variable, which is +0.936. If the Information Technology Capability of culinary managers in Galabo increases, this will also increase their capacity for innovation.

Y = Innovation

**2) t Test**

Table 1 also includes the findings of the t-test, which demonstrate the degree of importance of the relationship between Information Technology Capability and innovation as shown by the p-value. The t-test on the relationship between information technology competence and innovation produced a p value of 0.000 0.05, indicating that there is a significant relationship between the two. Thus, conclusion 1 is supported, according to which “Information Technology Capability has a significant influence towards innovation in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia”.

**b. Quantitative Analysis II**

1) Examine the influence of Information Technology Capability and Innovation on Sustainable Competitive Advantage for the Galabo Shelter culinary business actors in Surakarta.

**Table 2 Regression Test Results II**

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	15.686	3.624		4.328	.000
IT Capability	.294	.148	.285	1.985	.050
Innovation	.462	.137	.485	3.378	.001

a. Dependent Variable: SCA

From the Table 2 regression test results, the following equation can be derived:

Y = Sustainable Competitive Advantage

a = constant of +15,686, it means that without Information Technology Capability and innovation, the Galabo Shelter Culinary MSME's Sustainable Competitive Advantage is equal to a constant of +15,686.

b1 = The regression coefficient for the variable Information Technology Capability is +0.294, showing a positive influence on the Sustainable Competitive Advantage of the Galabo Shelter Culinary Business manager's Information Technology Capability. This demonstrates that if the Information Technology Capability of the Culinary Business Managers at the Galabo Shelter rises, so will their Sustainable Competitive Advantage, assuming innovation is equal to zero.

b2 = Innovation has a significant influence on the management of the Galabo Shelter Culinary Business, as indicated by the Innovation regression coefficient of +0.462. This demonstrates that if the innovation capability of the management of the Culinary Business in the Galabo Shelter rises, the Sustainable Competitive Advantage of the Culinary Business in the Galabo Shelter will also increase, given that the technology capability is equal to zero.

## 2) t Test

Table 2 further demonstrates the significance of the influence of Information Technology Capability and Innovation on Sustainable Competitive Advantage on the Surakarta Galabo Shelter's culinary business manager. If the p-value of the t-test evaluating the influence of Information Technology Capability on Sustainable Competitive Advantage is equal to 0.05, then the effect of Information Technology Capability on Sustainable Competitive Advantage is insignificant. Therefore, it has not been demonstrated that "Information Technology Capability has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia" This research confirms the findings of [5] that IT infrastructure capabilities and IT business span capabilities do not significantly influence competitive advantage (especially on process flexibility).

The t-test evaluating the effect of Innovation on Sustainable Competitive Advantage showed a p-value of  $0.001 < 0.05$ , indicating that Innovation significantly affected Sustainable Competitive Advantage. Thus, the third hypothesis that "Innovation has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia" has been confirmed.

## c. Third Quantitative Analysis: Sobel test

In this Sobel test, the effect of mediation, specifically innovation, on the impact of information technology skills on Sustainable Competitive Advantage is determined.

$$\begin{aligned} Sab &= \sqrt{b^2sa^2 + a^2sb^2 + sa^2sb^2} \\ &= \sqrt{(0,462)^2(0,059)^2 + (0,936)^2(0,137)^2 + (0,059)^2(0,137)^2} \\ &= \sqrt{(0,213)(0,003) + (0,876)(0,019) + (0,003)(0,019)} \\ &= \sqrt{0,00064 + 0,017 + 0,000057} \\ &= \sqrt{0,01797} \\ &= 0,134 \end{aligned}$$

$$t = \frac{ab}{Sab}$$

$$t = \frac{(0,936)(0,462)}{0,134}$$

$$t = \frac{0,432}{0,134}$$

$$t = 3,23$$

The t-count value resulting from the Sobel test was 3.23. t table (0.25, 88-3) = 1.988. When comparing the t-count value to the t-table value, if the t-count value is more than the t-table value, it can be determined that the mediation effect is statistically significant. The value of tcount (3.23) >ttable (1.988), then significant innovation mediates the effect of Innovation Capability on Sustainable Competitive Advantage Thus, Hypothesis 4, which claims “Innovation mediates the influence of Information Technology Capability on sustainable competitive advantage in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia” has been demonstrated to be accurate.

## 6.0 CONCLUSION

The results of the data analysis lead to the following conclusions: 1) The first hypothesis, “Information Technology Capability has a significant influence towards innovation in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia” is confirmed to be accurate. 2) It has not been demonstrated that the second hypothesis, “Information Technology Capability has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, and Indonesia” is accurate. 3) The third hypothesis, “Innovation has a significant influence towards sustainable competitive advantage at the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia” was confirmed to be accurate. 4) The validity of Hypothesis 4, which states: “Innovation mediates the influence of Information Technology Capability on sustainable competitive advantage in the Galabo Shelter Culinary Business Manager in Surakarta, Central Java, Indonesia”

In an effort to establish a competitive advantage, the manager of the Galabo Shelter Culinary Business in Surakarta will find this study's findings valuable. By enhancing its information technology capabilities, the management of the Galabo shelter's culinary business will be able to support or enhance its innovative capabilities, thereby improving its sustainable competitive edge. The results of this study are also useful for the Department of Trade and Industry in providing guidance to the culinary business managers of the Galabo Shelter in Surakarta so that they can achieve a Sustainable Competitive Advantage, specifically by enhancing their capacity to create or improve innovation capabilities.

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