Indonesian SMEs' Competitive Advantage Through Organizational Agility: The Role of Information and Communication Technologies (ICT) To Small Business

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Abstract

The research objective analyzes competitive advantage through small business organizational agility through Information and Communication Technology (ICT) capabilities as an effort to increase competitive advantage. This study uses purposive sampling as a data collection technique; meanwhile, Structural Equation Modeling (SEM) with smartPLS software was employed as the data analysis technique. The data collection method is carried out through survey techniques by distributing questionnaires to respondents with random sampling. The number of 388 small business actors were treated as research respondents. Results showed that ICT capabilities contributed significantly to competitive advantage either directly or through the moderating variable of organizational agility. By integrating ICT as an antecedent variable, further research can focus on the factors determining the transformation of small businesses into medium and large businesses. Additionally, while ICT capability directly affects competitive advantage, its indirect impact, specifically via the business agility variable, is usually smaller. Therefore, business agility strengthens the indirect relationship between ICT capabilities and competitive advantage.

Keywords: Competitive Advantage Through Organizational Agility, Role of Information and Communication Technologies.

Introduction

The agility implementation can provide competitiveness for companies to face dynamic global competition and is the company's strategy to be agile in innovating in the era of disruption. The ability to adjust the company's internal resources and behavior in the market can be achieved by applying the agility principle. Power et al. describe agility as being more than just functional and tactical; it is also strategic and holistic (Power et al., 2001). This notion is supported by Goldman et al. and Tsourveloudis et al. which states that agility is the ability of the company's business activities in broad which includes the organization ability to manage internal factors such as structural adjustment, utilization of information systems, managing company logistics, and creating employee culture to be more agile in handling competition in the market) (Goldman et al., 1994a; Tsourveloudis & Valavanis, 1999a).

The main characteristic of agility is having a flexible operation to respond quickly to environmental changes (Lu & Ramamurthy, 2011a). Lu & Ramamurthy stated that companies with agility would undoubtedly be able to change their operating flow or organizational arrangements in response to market conditions to remain competitive. It is a form of the attributes of the organization's agility in adjusting its operations. In addition, to take market opportunities, companies must be agile in making decisions with actions that benefit the company. This attribute is called organizational agility in market utilization (Goldman et al., 1994b; Lu & Ramamurthy, 2011b; Tsourveloudis & Valavanis, 1999b).

Industrial revolution 4.0 has required companies, both large-scale companies and small businesses, to carry out digital transformation quickly. The concept of agility is appropriate for companies to adopt in the current economic era. The attention to small businesses in traditional markets in Indonesia is currently

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essential as a form of siding with the people's economy. In general, small businesses in traditional markets are concerned about internal and external constraints and weak resources, management, bargaining power, and legality. In the face of globalization, external constraints include competition challenges, including the development of new technologies, commodity prices fluctuating, and changes to consumer behavior, such as people not wanting to go to stores due to online stores.

Responding to these phenomena, the Jakarta Provincial Government revitalizes the traditional market through two events through the Regional Owned Enterprises PD Pasar Jaya. First is physical revitalization, which collaborates with the provincial government, specifically by repairing damaged infrastructure, stalls, and new market infrastructure. This new market building will act as a place for trading. Previously, the traders sold their products in kiosks that were not equipped with adequate infrastructure. The second is technological revitalization, which collaborates with the Indonesian Market Management Association (Asparindo). It encourages traditional market players to increase their involvement in e-commerce. It is done by holding e-commerce training, launching the "oyes" application, introducing financial technology (fintech) called Jak-Mikro, intensifying education and mentoring the sellers on the importance of adopting a digital ecosystem, and inviting traders to use electronic money in every transaction.

As a result of increased competition, the traditional markets for clothes sellers in Jakarta have relatively good competitive power due to collectively achieved competitive advantages. In order to keep up with the industry, it is important to improve ICT capability. Information and Communication Technology (ICT) capabilities can increase competitive advantage, agility in using digital systems as an effort to identify business opportunities, good and effective customer relations.

For instance, PD Pasar Jaya's clothes seller centers compete with similar businesses, modern shopping centers, and online retailers. According to the current trend, small traditional market businesses in clothes seller centers in Jakarta are joining e-commerce with famous brands like Shopee, Lazada, Tokopedia, Bukalapak, and others. Consequently, traditional SMEs have recognized ICT's value in gaining a competitive advantage in their business management.

As Jakarta's manager of revitalizing technology on small businesses, PD. Pasar Jaya has been responsive to small businesses' needs to utilize technology capabilities, small businesses possess the agility to adapt to new circumstances (Bagheri et al., 2013; Roberts & Grover, 2012a; Sambamurthy et al., 2003a; Singh et al., 2007; Yaghoobi et al., 2014a). The ability of a company to respond effectively and quickly to changes in the environment is known as agility. Agility in the organization is interpreted as the ability of company personnel to think and understand situations quickly.

Communication and information technology have also contributed to the agility of various companies in the operation of clothes SMEs in Jakarta's traditional market. As well as Jakarta's local market, international markets are also utilized for transactions. For example, clothing traders at Blok M Square, Tanah Abang, Cipulir, Jatinegara, and Mayestik market have suppliers who source their goods from China, India, Singapore, Korea, and Thailand. The Fashion SMEs in Jakarta's traditional markets are also found to have managed relationships with customers in other cities such as Tangerang, Depok, Bogor, Bekasi, even Surabaya, Bandung, Medan, Yogyakarta, Makassar, etc. Many of these companies also have managed relationships with customers in neighboring countries, including Malaysia, Singapore, Brunei, India, and Saudi Arabia.

However, based on field observations, it is found that is facing competition, small businesses in clothes seller centers tend to have a better competitive position than small businesses that sell vegetables, fruit, and groceries. Consumer behavior changes with online shopping where consumers do not need to visit the store location. The government's attention to e-commerce is stipulated in Law Number 19 of 2016 concerning electronic information and transactions. The law protects not only consumers but also traders. Thus, it will attract the wider community's online buying and selling activities. Finally, it becomes interesting to explore this phenomenon in light of the Indonesian government's support for the sustainability of traditional markets in Jakarta.

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The previous mapping results (Systematic Literature Review / SLR) show that the research focuses on agility and ICT adoption by small businesses in traditional markets to create a competitive advantage is still rare. Thus, it is expected to produce focused and sharp recommendations to be adopted as a conceptual basis for developing Small Businesses in Indonesia. This research wants to answer the Influence of the ICT capability on competitive advantage through organizational agility in Jakarta's fashion SMEs.

Literature Review

Lu & Ramamurthy define organizational agility as the ability to identify opportunities for innovation and seize those opportunities by assembling the needed assets, knowledge, and relationships in a timely manner. (Lu & Ramamurthy, 2011b). Another definition put forward by Lu & Ramamurthy, and Volberd is the innovative opportunities for organizations to create new products and services. Using the required assets and organizational knowledge, companies will capture market opportunities, and the ability to adapt to unpredictable market conditions (Lu & Ramamurthy, 2011b; Volberda, 1996, 1997).

Gaddis and Roberts & Grover state that today's highly competitive environment requires organizations to be agile (organizational agility) (Gaddis, 2000; Roberts & Grover, 2012b). These studies' results refer to the company or organization's ability to sense and respond quickly to market changes that may affect the company's operations. Of course, the company's reaction will be in a way that is adaptable by involving the reconfiguration of company resources (Roberts & Grover, 2012b).

Research by Grant and subsequently re-examined by Ayabakan et al. describe a hierarchy of capabilities within a company that leads from lower-level capabilities to higher-level capabilities (Ayabakan et al., 2017; R. M. Grant, 1996). These precious and rare capabilities help a firm gain a competitive advantage. Therefore, organizations can develop agility through the development of work routines and exploit low-level dynamic capabilities simultaneously as they develop agility as a high-level dynamic capability (e.g., the use of information technology) (D. J. Teece, 2007).

Researchers have found that organizational agility is a novel concept in the 21st century based on their mapping results. In strategic management, Judge and Miller define organizational agility as the speed with which organizations make decisions (Judge & Miller, 1991). After that, organizational agility was seen as organizational flexibility. Bahrami said flexibility is "taking advantage of emerging opportunities and avoiding potential threats by changing quickly" (Bahrami, 1992). In today's business environment, an organization's agility is generally defined as its ability to respond to its environment and adapt to changes.

Sambamurthy et al. and Lu & Ramamurthy are the researchers who pioneered the transition from flexibility to organizational agility (Lu & Ramamurthy, 2011b; Sambamurthy et al., 2003b). Researchers use Lu & Ramamurthy's concepts that agility is the ability "To discover and swoop upon opportunities for innovation by assembling the assets, knowledge, and relationships required with speed and surprise" (Lu & Ramamurthy, 2011b). Organizational agility has two dimensions: (1) agility in adapting the company's operations; and (2) agility in utilizing the market.

An organization's agility involves perceptual aspects, a sense of pattern recognition, and speed in dealing with changing situations, among other factors (Wiklund & Shepherd, 2003). Organizational agility is seen as ability to quickly and efficiently respond to environmental changes within an organization (Yaghoubi & Tajmohammadi, 2011). In comparison, Yusuf et al. stated that the concept of organizational agility concerns firms' ability to integrate ICT skills into the production of products and services in various locations and geographies. (Yusuf et al., 1999).

Yaghoobi et al.'s study explain that leadership, culture, and technology significantly affect organizational agility (Yaghoobi et al., 2014b). In contrast to an organization that lacks agility, the culture in organizations with agility is dynamic. Culture is built on the foundation of trust, self-confidence, and reciprocal respect among leaders and employees. Research in information technology such as Lu & Ramamurthy, Goldman et al., and Tsourveloudis et al. show the technology's effect on organizational agility. The use of technology is often seen as a determinant of the pace of change for SMEs in doing technology business (Goldman et

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al., 1994b; Lu & Ramamurthy, 2011b; Somsuk et al., 2012; Tsourveloudis & Valavanis, 1999b; Werr et al., 2009). From that explanation, it is hypothesized that information and communication technology capability affects organizational agility.

The effect of information and communication technology capabilities on competitive advantage is theoretically based on the firm's resource-based theory (Penrose, 1996) or resources-based view (Barney, 1991a), seen from the dynamic capability theory perspective (D. J. Teece et al., 1997). Based on dynamics capability theory, it explains the relationship as follows: "ICT and competitive advantage refer to a company's capacity to use technology to adapt to changes in the external environment faster than their competitors, giving them a sustained competitive edge" (Jared et al., 2015). Therefore, information and communication technology theoretically aims to achieve or maintain a competitive advantage (Sourander et al., 2018; D. Teece & Leih, 2016). Company capability is defined as its ability to commit its responsibilities in a coordinated manner to achieve company goals (Chibelushi & Trigg, 2012; Escandón-Barbosa et al., 2016; Shafei & Zohdi, 2014). A technological system employed by an organization to generate, process, and disseminate information in any form. Therefore, company operations are supported by information technology (Febrian et al., 2018).

In Liu & Fang's research, the term competitive advantage means the creation of value by companies can be superior to that of their competitors (Liu & Fang, 2016). Newbert extends Porter's concept and emphasizes that an organization's competitive advantage is typically described as its ability to reduce costs, neutralize competition threats and capitalize on market opportunities (Newbert, 2008).

Small businesses today are required to have a fast response rate, products with short lifespans, and consumer preferences that change (Uden, 2007). The conditions in which small business organizations operate demand greater speed, flexibility, participation (Sussan & Johnson, 2003a), sharp, and resilient (Wang & Ahmed, 2007a).

The research results of Baker state that dynamic capability refers to the ability of an organization to respond quickly and effectively to market changes (Baker, 1996a). A dynamic capability also responds quickly and flexibly to market changes (Wang & Ahmed, 2007b). In the end, organizational agility becomes a competitive advantage source when the competitors find it difficult to compete with and imitate (Yaghoobi et al., 2014b). Based on the theoretical explanation, the following research hypotheses are presented:

- H1 Organizational agility is strongly influenced by information and communication technology capabilities.
- H2 Information and communication technology capabilities influenced competitive advantage.

H3 The influence of competitive advantage is profoundly affected by organizational agility.

Method

The research respondents were fashion SMEs entrepreneurs in Jakarta. The determination of respondents refers to the experts' opinions. According to Suwarno, in SEM analyses, it is usually between 200 and 600 respondents that provide relatively stable results. Meanwhile, Hair et al. estimate the model coefficients by multiplying the sample size by five to ten (Hair et al., 2010a). There are 65 questionnaire items in this study. Hence, in reference to Hair et al., the number of respondent ranges between 300 and 600 (Hair et al., 2010b). This would affects the results of data analysis stability if the number of respondents does not meet the criteria.

The unit of analysis in this study is fashion SMEs entrepreneurs with the following characteristics:

Fulfills the criteria as a small business that sells clothes following Law No. 20 of 2008 concerning Micro, Small, and Medium Enterprises.

Has been registered as a clothing trader who has been in a Jakarta traditional market for two years.

Uses Information and Communication Technology applications in the management of the Company in building relationships with consumers, employees, and partners.

Based on the population criteria, the researcher then refers to the number of fashion SMEs in Jakarta's traditional markets managed by PD. Pasar Jaya. The total population that meets the three criteria is 12,455 fashion SMEs. Then, the samples number is determined with the Slovin formula (Umar et al., 2021).

$$n = \frac{N}{1 + Nd^2} = \frac{12.455}{1 + (12.455 \times (0.05^2))} = 387.55$$

Based on a sample size of 388, a proportional calculation for each market area is obtained. The table below describes it:

No	Market Name	Population	Sample
1	Tanah Abang Market	8.878	276
2	Jatinegara Market	800	25
3	Cipulir Market	1.926	60
4	Mayestik Market	215	7
5	Blok M Square Market	636	20
То	tal	12,455	388

Table 1. The Population and Sample

The data collection method is carried out through survey techniques by distributing questionnaires to respondents with random sampling. From the tabulation results, it is found that the distribution of respondents based on gender and recent education is as follows:

Table 2.	The Profile of Fashion Smes Er	ntrepreneurs

	Characteristics		Distribution	
No		Note	Frequency	Percentag e
1	Gender	Male	183	47,16%
		Female	205	52,84%
		Total amount	388	100.00%
	Educational background	Primary School	2	0,52%
		Junior High School	28	7,22%
2		Senior High School	254	65,46%
		Diploma (D3)	24	6,19%
		Bachelor (S1/D4)	76	19,59%
		Master (S2)	4	1,03%
		Total amount	388	100.00%

Based on the interview, information was obtained. It is found that education is important for SMEs because entrepreneurs with higher education allow the managed company to develop and survive. Along with the increase in company activity, the number of employees and income is also significant, so that the level of company complexity increases, and the ability of company owners is very dependent on the level of education.

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The research data analysis employed Structural Equation Modeling (SEM) with SmartPLS software. In SEM, a series of relatively "complicated" relationships are simultaneously tested with the help of statistical techniques (Ferdinand, 2014a). As a result of a complex model, it would appear that measuring ICT capabilities, organizational agility, and competitive advantage is a multidimensional process involving multiple hierarchical causality patterns. This multidimensional research requires a model and an analysis tool to accommodate it. SEM applications can be used to confirm the dimensions of concepts or factors, as well as measure the impact of theoretical relationships (Ferdinand, 2014b).

Result And Discussion

Structural equation model with smart partial least squares (SmartPLS) was used in this analysis. SEM analysis with PLS was carried out in three phases: inner model analysis, outer model analysis, and hypothesis testing.

Outer Model Analysis

Table 3 shows the results of the outer model analysis.

Table 3. Cronbach Alpha, Composite Reliability and Average Variance Extracted

	Cut-off Value	ICT_Cap	Agility	Comp_Advantage	Note	
Cronbach's Alpha	>0.6	0.92	0.92	0.92	All aspects of	
Composite Reliability	>0.7	0.96	0.94	0.95	- All aspects of Small business meet the	
Average Variance Extracted (AVE)	>0.5	0.93	0.72	0.86	standards	

According to Chin in Ghozali (2021), construct reliability testing is measured by Cronbach's alpha and composite reliability (Ghozali, 2008). A construct's composite reliability value exceeds 0.70 if Cronbach's alpha is greater than 0.60. Meanwhile, the average variance extracted (AVE) value is more than adequate to measure validity. (Ghozali, 2018).

Based on Table 1, the outer model criteria are met as a result of the data processing output, indicating that the research data are valid and reliable. Therefore, the inner model can be considered.

Inner Model Analysis

The inner/structural model is analyzed to ensure accuracy and robustness. Robert Andrews first introduced robust regression, and a regression technique is used when there are several outliers or abnormal error distributions in the data. (Andrews, 1972). An outlier-resisting model can be produced by using this method when analyzing data which is influenced by outliers. In a resistant estimation, it does not matter if there is a large change in a small part of the data or a small change in a large portion of the data.

Several indicators are available for evaluation of the inner model, such as; coefficient of determination (R2), predictive relevance (Q2), and goodness of fit index (GoF). The associated calculations are described below:

Coefficient Of Determination

Based on the SmartPLS 3 software output, the R2 value is as follows:

Table 4. R² Value

R Square	R Square Adjusted

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Agility	0,83	0,83
Competitive Advantage	0,70	0,70

Chin points out that the R square value is 0.67 (strong), 0.33 (moderate), and below 0.19 (weak) (Chin, 1998a). Therefore, the variables analyzed in this research model are strongly related (Hwang, 2009). In this study, a business agility variable and a competitive advantage variable are endogenous variables. Exogenous variables independently and collectively show a strong relationship, as shown by r squared and adjusted r squared values.

Predictive Relevance (Q2)

For calculating Q2, use the formula below:

$$Q^{2} = 1 - (1 - R1^{2}) (1 - R2^{2}) \dots \dots (1 - Rn^{2})$$

$$Q^{2} = 1 - (1 - 0.83) (1 - 0.70)$$

$$Q^{2} = 0.95$$

A blindfolded procedure is used during this test to determine whether it can predict the outcome. In Chin's view, a 0.02 value indicates a low degree of predictive capability (Chin, 1998b). Models with a value of 0.15 have moderate predictive ability. It is highly accurate when the model's predictive capability is calculated to be 0.35. Calculating Q2 gave an outcome of 0.95, which means the model can predict with a significant degree of accuracy.

The goodness of Fit Index (GoF)

This formula calculates the GoF value manually in SEM with PLS (Tenenhaus et al., 2004):

$$GoF = \sqrt{AVE^2 \times R^2}$$
$$GoF = 0.80$$

Tenenhaus et al. estimated that small GoF = 0.1, medium GoF = 0.25, and large GoF = 0.38. The value of the GoF calculated indicates that the model is representative of the real phenomenon because it shows a large value of the GoF.

Hypothesis Testing

To test the hypothesis in SEM PLS, the t-count value is obtained through bootstrapping. When the t-value surpasses the t-statistic at a 95% confidence level (>1.96), the hypothesis is significant. Meanwhile, to determine the magnitude of influence between the research variables, the loading factor value of the original sample output of SmartPLS is referred to. Thus, it can be seen in the table of path coefficients on the smartPLS output presented in Figure 1 Path diagram:

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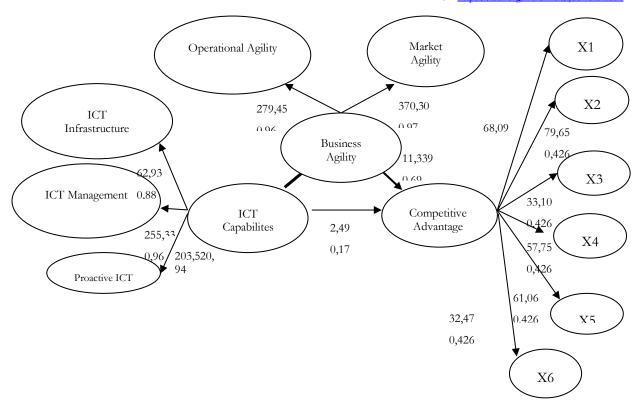


Figure 1. The Research Model of ICT Capabilities, Agility and Competitive Advantages

Based on Figure 1 of SmartPLS output, an average value above 1.96 for all hypotheses. The following table 5 summarizes the hypothesis testing results.

Table 5. The Summary of Research Hypothesis Test Results

No	Hypothesis	Result
H_1	ICT capabilities affect Business agility	Accepted
H_2	ICT capability affects Competitive Advantage	Accepted
H_3	Business agility affects Competitive Advantage	Accepted

Based on the results of SEM-PLS analysis, ICT capability has a significant effect on Organizational Agility. As can be seen from the t-statistic value of 115.92, the original load factor estimate is 0.91 with a significance below 5%, significantly more significant than the t-table value of 1.962. The original value of the positive sample of ICT Capability indicates that organizational agility is positively affected by ICT capabilities. The magnitude of the influence of ICT capabilities on Organizational Agility is 91%. With a t-statistic value more significant than the t-table, the ICT Capability variable significantly affects organizational agility. Based on the regression results, the first hypothesis can be accepted. It proves that:

The higher the ICT capability of the fashion SMEs, the higher the business organization agility during the business process.

In particular, an important aspect of ICT capabilities is that they can provide access to data in ICT Management Capabilities. Meanwhile, the Market Agility dimension is an important dimension to consider in the Organizational Agility variable. The test results indicate that the more fashion SMEs pay attention to ICT management capabilities, the higher the market agility of fashion SMEs will increase.

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The second hypothesis shows a significant influence between ICT Capability and Competitive Advantage. As indicated by a t-statistic of 2.49, this estimate of the loading factor has a significance below 5%, higher than the t-table value of 1.962, indicating that the original sample value was 0.17 with a significance below 5%. Based on the regression results, it can be concluded that the second hypothesis is accepted. It shows that ICT capabilities will affect competitive advantage because adequate digital capabilities can increase its competitive advantage.

The research findings are consistent with research conducted by Barney, which emphasizes that to qualify as capabilities that affect competitive advantage, the formation of capabilities within the company must be repeatable (Barney, 1991b). Capabilities often appear as the result of experiments and reflections on the failures and successes achieved by the company.

The third hypothesis shows a significant impact of organizational agility on competitive advantage. The original sample value of the loading factor estimation is 0.69 with a significance below 5%, which is indicated by the t-statistic value of 11.339, greater than the t-table value of 1.962. Organizational agility positively affects competitive advantage based on the original positive sample value. The magnitude of the influence of the organizational agility variable on competitive advantage is 69%. Organizational agility significantly affects competitive advantage if the t-statistic value is greater than the t-table.

In this study, it is known that the important dimension to pay attention to in Competitive Advantage is a superior indicator in reducing operating costs (X2). The test results indicate that the more fashion SMEs pay attention to innovation, the more efficient the fashion SMEs' operations will be. The view on the importance of focusing on cost efficiency. The company must achieve and maintain a good level of efficiency. Still, unless the company is a low-cost leader in its market, it cannot use a cost-efficiency scenario to generate profits. There are many ways to attract customers than using efficiency and low prices (Piperopoulos & Scase, 2009). Such as efficiency in human resources, ICT infrastructure, operational costs, and others.

All three research hypotheses are accepted. ICT capability contributes significantly to business agility, ICT capability contributes significantly to competitive advantage, and business agility contributes substantially to competitive advantage.

Yaghoobi et al.'s findings are consistent with these results that ICT capability positively affects business agility (Yaghoobi et al., 2014b). As a small business adapts to the digital age, ICT capabilities will affect agility because digital capabilities will provide many business opportunities, customer relationships, and resources. Business actors who possess ICT capabilities utilize digital media/information technology for supporting business operations

Agile management means responding quickly and confidently to changes in the business environment, anticipating, adapting, and reacting with certainty to events that may arise. (A. Grant, 2013). It is imperative for small businesses to be faster, more flexible, participatory (Sussan & Johnson, 2003b), sharp, and resilient (Wang & Ahmed, 2007b). Baker states that organizational agility is achieved through flexibility and speed in response to market changes (Baker, 1996b).

Mathiassen & Pries-Heje argue that companies need to integrate business and IT effectively to gain agility (Mathiassen & Pries-Heje, 2006). Lack of investment means procrastination ((Jalilian & Weiss, 2002)). The authors also state that it is important not to have a short-term focus on IT investments. An important aspect of investing is understanding a tradeoff between today's earnings and tomorrow's returns.

Study results also indicate that competitive advantage can be measured more directly through ICT capability than indirectly through its impact on agility of business. In other words, business agility reinforces the indirect relationship between ICT capabilities and competitive advantage. These findings are consistent with Yaghoobi et al.'s findings that the rate at which an organization makes it challenging for its competitors to compete and emulate leads to competitive advantage (Yaghoobi et al., 2014b). Agile organizations

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become competitive in the marketplace through their agility (Fernandes & Solimun, 2017; Wang & Ahmed, 2007b).

These findings support the findings of a study conducted by Cakmak & Tas, which examined the impact of digital capabilities on competitive advantages (Cakmak & Tas, 2012). The results indicate that digital capabilities are positively correlated with a competitive advantage. Competitive advantage will be affected by digital capability, as a sufficient digital capability will increase competitive advantage.

Conclusions

Indonesia's small businesses have played an important role as the backbone of the country's economy, but they must compete with other small businesses worldwide to survive and thrive. Therefore, small businesses need to have agility in their companies to be competitive. Agility can be achieved by utilizing information and communication technology. Through ICT capabilities, competitive advantage can be measured more directly than indirectly through the impact on agility of business. Organizational agility in this study is a very important variable because of two things: first, the organizational agility variable directly affects competitive advantage by 69%. Second, ICT capabilities are more closely linked to competitive advantage through organizational agility. To increase a company's competitive advantage, it is fundamental to strengthen organizational agility in light of the influence of ICT capabilities on competitive advantage. This study can have implications for various government policies in helping SMEs to Go Digital and Go Global. However, there are still many things to be discovered from this topic. For the next studies, it is expected for researchers to explain research and design methods with experimental design.

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References

Andrews, D. F. (1972). Plots of High-Dimensional Data. Biometrics, 28(1). https://doi.org/10.2307/2528964

Ayabakan, S., Bardhan, I. R., & Zheng, Z. (2017). A data envelopment analysis approach to estimate IT-enabled production capability. MIS Quarterly: Management Information Systems, 41(1). https://doi.org/10.25300/MISQ/2017/41.1.09

Bagheri, M. M., Abdul Hamid, A. B., Soltani, I., Mardani, A., & Hazrate Soltan, E. K. (2013). The role of supply chain antecedents on supply chain agility in SMEs: The conceptual framework. Jurnal Teknologi (Sciences and Engineering), 66(1). https://doi.org/10.11113/jt.v66.1826

Bahrami, H. (1992). The Emerging Flexible Organization: Perspectives from Silicon Valley. California Management Review, 34(4). https://doi.org/10.2307/41166702

Baker, D. (1996a). Improving Vertical Jump Performance Through General, Special, and Specific Strength Training: A Brief Review. Journal of Strength and Conditioning Research, 10(2). https://doi.org/10.1519/00124278-199605000-00015

Baker, D. (1996b). Improving Vertical Jump Performance Through General, Special, and Specific Strength Training: A Brief Review. Journal of Strength and Conditioning Research, 10(2). https://doi.org/10.1519/00124278-199605000-00015

Barney, J. (1991a). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1). https://doi.org/10.1177/014920639101700108

Barney, J. (1991b). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1). https://doi.org/10.1177/014920639101700108

Cakmak, P. I., & Tas, E. (2012). The use of information technology on gaining competitive advantage in Turkish contractor firms. World Applied Sciences Journal, 18(2). https://doi.org/10.5829/idosi.wasj.2012.18.02.744

Chibelushi, C., & Trigg, D. (2012). Internal self-assessment for ICT SMEs: A way forward. International Journal of Business Performance Management, 13(2). https://doi.org/10.1504/IJBPM.2012.046196

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DOI: https://doi.org/10.62754/joe.v3i6.4004

- Chin, W. W. (1998a). The partial least squares approach for structural equation modeling. In APA (Ed.), Modern methods for business research (pp. 295–336). Lawrence Erlbaum Associates Publishers.
- Chin, W. W. (1998b). The partial least squares approach for structural equation modeling. In APA (Ed.), Modern methods for business research (pp. 295–336). Lawrence Erlbaum Associates Publishers.
- Escandón-Barbosa, D., Hernandez-Espallardo, M., & Rodriguez, A. (2016). International Market Orientation and International Outcomes. Global Economy Journal, 16(4). https://doi.org/10.1515/gej-2015-0037
- Febrian, A. F., Maulina, E., & Purnomo, M. (2018). The influence of social capital and financial capability on sustainable competitive advantage through entrepreneurial orientation: Empirical evidence from Small and Medium Industries in Indonesia using PLS-SEM. Advances in Social Sciences Research Journal, 5(12). https://doi.org/10.14738/assrj.512.5720
- Ferdinand, A. (2014a). Management Research Methods: Research Guidelines for Writing Thesis, Thesis and Dissertation in Management Science. Fifth edition. Diponegoro University Publishing Agency.
- Ferdinand, A. (2014b). Management Research Methods: Research Guidelines for Writing Thesis, Thesis and Dissertation of Management Science. Fifth edition. Diponegoro University Publishing Agency.
- Fernandes, A. A. R., & Solimun. (2017). Moderating effects orientation and innovation strategy on the effect of uncertainty on the performance of business environment. International Journal of Law and Management, 59(6). https://doi.org/10.1108/IJLMA-10-2016-0088
- Gaddis, P. O. (2000). Adaptive Enterprise Creating and Leading Sense-and-Respond Organizations. Long Range Planning, 33(2). https://doi.org/10.1016/s0024-6301(00)00018-2
- Ghozali, I. (2008). SEM Metode Alternatif dengan PLS. Badan Penerbit Universitas Diponegoro.
- Ghozali, I. (2018). Aplikasi Analisis Multivariate dengan Program SPSS-Imam Ghozali-2018. In Badan Penerbit Universitas Diponegoro.
- Goldman, S. L., Nagel, R. N., & Preiss, K. (1994a). Agile competitors and virtual organizations measuring agility and infrastructure for agility. John Wiley & Sons, Inc.
- Goldman, S. L., Nagel, R. N., & Preiss, K. (1994b). Agile competitors and virtual organizations measuring agility and infrastructure for agility. John Wiley & Sons, Inc.
- Grant, A. (2013). Givers take all: The hidden dimension of corporate culture. McKinsey Quarterly, 2.
- Grant, R. M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(SUPPL. WINTER). https://doi.org/10.1002/smj.4250171110
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010a). Multivariate Data Analysis. In Vectors. https://doi.org/10.1016/j.ijpharm.2011.02.019
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010b). Multivariate Data Analysis. In Vectors. https://doi.org/10.1016/j.ijpharm.2011.02.019
- Hwang, K. K. (2009). The Development of Indigenous Counseling in Contemporary Confucian Communities. The Counseling Psychologist, 37(7), 930–943. https://doi.org/10.1177/0011000009336241
- Jalilian, H., & Weiss, J. (2002). Foreign Direct Investment and Poverty in the ASEAN Region. Asean Economic Bulletin, 19(3). https://doi.org/10.1355/ae19-3a
- Jared, D., Oloko, M., & Orwa, G. (2015). The Relationship between Dynamic ICT Capabilities and Competitive Advantage of Technical, Vocational and Entrepreneurship Training Institutions in Western Kenya Region. International Journal of Academic Research in Business and Social Sciences, 5(8). https://doi.org/10.6007/ijarbss/v5-i8/1767
- Judge, W. Q., & Miller, A. (1991). Antecedents and outcomes of decision speed in different environmental contexts. In Academy of Management journal. Academy of Management (Vol. 34, Issue 2). https://doi.org/10.2307/256451
- Liu, C. H. S., & Fang, Y. P. (2016). Night markets: entrepreneurship and achieving competitive advantage. International Journal of Contemporary Hospitality Management, 28(11). https://doi.org/10.1108/IJCHM-03-2015-0114
- Lu, Y., & Ramamurthy, K. (2011a). Understanding the link between information technology capability and organizational agility: An empirical examination. MIS Quarterly: Management Information Systems, 35(4). https://doi.org/10.2307/41409967
- Lu, Y., & Ramamurthy, K. (2011b). Understanding the link between information technology capability and organizational agility: An empirical examination. MIS Quarterly: Management Information Systems, 35(4). https://doi.org/10.2307/41409967
- Mathiassen, L., & Pries-Heje, J. (2006). Business agility and diffusion of information technology. European Journal of Information Systems, 15(2). https://doi.org/http://dx.doi.org/10.1057/palgrave.ejis.3000610
- Newbert, S. L. (2008). Value, rareness, competitive advantage, and performance: A conceptual-level empirical investigation of the resource-based view of the firm. Strategic Management Journal, 29(7). https://doi.org/10.1002/smj.686
- Penrose, E. (1996). The theory of the growth of the firm. Long Range Planning, 29(4). https://doi.org/10.1016/s0024-6301(96)90295-2
- Piperopoulos, P., & Scase, R. (2009). Competitiveness of small and medium sized enterprises: Towards a two dimensional model of innovation and business clusters. International Journal of Business Innovation and Research, 3(5). https://doi.org/10.1504/IJBIR.2009.027173
- Power, D. J., Sohal, A. S., & Rahman, S. U. (2001). Critical success factors in agile supply chain management an empirical study. International Journal of Physical Distribution and Logistics Management, 31(4). https://doi.org/10.1108/09600030110394923
- Roberts, N., & Grover, V. (2012a). Leveraging information technology infrastructure to facilitate a firm's customer agility and competitive activity: An empirical investigation. Journal of Management Information Systems, 28(4). https://doi.org/10.2753/MIS0742-1222280409

Volume: 3, No: 6, pp. 319 – 330

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https://ecohumanism.co.uk/joe/ecohumanism DOI: https://doi.org/10.62754/joe.v3i6.4004

- Roberts, N., & Grover, V. (2012b). Leveraging information technology infrastructure to facilitate a firm's customer agility and competitive activity: An empirical investigation. Journal of Management Information Systems, 28(4). https://doi.org/10.2753/MIS0742-1222280409
- Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003a). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. MIS Quarterly: Management Information Systems, 27(2). https://doi.org/10.2307/30036530
- Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003b). Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. MIS Quarterly: Management Information Systems, 27(2). https://doi.org/10.2307/30036530
- Shafei, R., & Zohdi, M. (2014). Relational capabilities in market orientation to improvement of performance outcomes in SMEs. International Journal of Business Performance Management, 15(4). https://doi.org/10.1504/IJBPM.2014.065009
- Singh, P., Parker, J. A., & Nadim, A. (2007). Employee relations in small businesses: Examining underdeveloped issues. International Journal of Human Resources Development and Management, 7(3–4). https://doi.org/10.1504/IJHRDM.2007.017138
- Somsuk, N., Wonglimpiyarat, J., & Laosirihongthong, T. (2012). Technology business incubators and industrial development: Resource-based view. Industrial Management and Data Systems, 112(2). https://doi.org/10.1108/02635571211204281
- Sourander, A., Chudal, R., Skokauskas, N., Al-Ansari, A. M., Klomek, A. B., Pornnoppadol, C., Kolaitis, G., Maezono, J., Steinhausen, H. C., Slobodskaya, H., Kaneko, H., Regmee, J., Li, L., Nguyen, M. H., Grimland, M., Osokina, O., Ong, S. H., Praharaj, S. K., Lesinskienė, S., ... Lehti, V. (2018). Unmet needs of child and adolescent psychiatrists among Asian and European countries: does the Human Development Index (HDI) count? In European Child and Adolescent Psychiatry (Vol. 27, Issue 1). https://doi.org/10.1007/s00787-017-1095-7
- Sussan, A. P., & Johnson, W. C. (2003a). Strategic capabilities of business process: Looking for competitive advantage. Competitiveness Review, 13(2). https://doi.org/10.1108/eb046458
- Sussan, A. P., & Johnson, W. C. (2003b). Strategic capabilities of business process: Looking for competitive advantage. Competitiveness Review, 13(2). https://doi.org/10.1108/eb046458
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13). https://doi.org/10.1002/smj.640
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7). https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z
- Teece, D., & Leih, S. (2016). Uncertainty, innovation, and dynamic capabilities: An introduction. In California Management Review (Vol. 58, Issue 4). https://doi.org/10.1525/cmr.2016.58.4.5
- Tenenhaus, M., Amato, S., & Vinzi, E. V. (2004). A global goodness-of-fit index for PLS structural equation modelling. The XLII SIS Scientific Meeting.
- Tsourveloudis, N., & Valavanis, K. (1999a). On the measurement of agility in manufacturing systems. Proceedings of The, 1995.
- Tsourveloudis, N., & Valavanis, K. (1999b). On the measurement of agility in manufacturing systems. Proceedings of The, 1995.
- Uden, L. (2007). Activity theory for designing mobile learning. International Journal of Mobile Learning and Organisation, 1(1). https://doi.org/10.1504/IJMLO.2007.011190
- Umar, H. A., Sulaiman, S. A., Azmanbn, M., Said, M., Gungor, A., & Ahmad, R. K. (2021). Use of Response Surface Methodology to Measure the Impact of Operating Variables on the Co-gasification of Oil Palm Biomass. J. Human Univ. Sci., 48(4), 147–157.
- Volberda, H. W. (1996). Toward the Flexible Form: How to Remain Vital in Hypercompetitive Environments. Organization Science, 7(4). https://doi.org/10.1287/orsc.7.4.359
- Volberda, H. W. (1997). Building Flexible Organizations for Fast-moving Markets. Long Range Planning, 30(2). https://doi.org/10.1016/s0024-6301(96)00110-0
- Wang, C. L., & Ahmed, P. K. (2007a). Dynamic capabilities: A review and research agenda. In International Journal of Management Reviews (Vol. 9, Issue 1). https://doi.org/10.1111/j.1468-2370.2007.00201.x
- Wang, C. L., & Ahmed, P. K. (2007b). Dynamic capabilities: A review and research agenda. In International Journal of Management Reviews (Vol. 9, Issue 1). https://doi.org/10.1111/j.1468-2370.2007.00201.x
- Werr, A., Blomberg, J., & Löwstedt, J. (2009). Gaining external knowledge boundaries in managers' knowledge relations. Journal of Knowledge Management, 13(6). https://doi.org/10.1108/13673270910997114
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. Strategic Management Journal, 24(13). https://doi.org/10.1002/smj.360
- Yaghoobi, N. M., Bakhshimazdeh, M., & Alikhasi, M. (2014a). Analysing key concepts of organisation: Knowledge management, competitive intelligence and competitive advantage. International Journal of Services and Operations Management, 18(3). https://doi.org/10.1504/IJSOM.2014.062234
- Yaghoobi, N. M., Bakhshimazdeh, M., & Alikhasi, M. (2014b). Analysing key concepts of organisation: Knowledge management, competitive intelligence and competitive advantage. International Journal of Services and Operations Management, 18(3). https://doi.org/10.1504/IJSOM.2014.062234
- Yaghoubi, N. M., & Tajmohammadi, N. (2011). E-commerce application in insurance industry; review of organizational factors. In European Journal of Scientific Research (Vol. 60, Issue 2).
- Yusuf, Y. Y., Sarhadi, M., & Gunasekaran, A. (1999). Agile manufacturing: the drivers, concepts and attributes. International Journal of Production Economics, 62(1). https://doi.org/10.1016/S0925-5273(98)00219-9.

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