

FACTORS OF ORGANIZATIONAL AGILITY MEDIATED BY COMPETITIVE PERFORMANCE IN ONLINE FASHION RETAILERS



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Abstract

An organization is the formation of human relations work behavior efficiently and effectively to obtain personal satisfaction in carrying out their duties and providing certain environmental conditions to achieve goals. The study aimed to determine the effect of system quality, adoption of business intelligence, and flexibility of IT infrastructure organizational agility mediated by competitive performance on online fashion retailers so that it can be used as a reference in the field of science. Quantitative techniques were used in this study. The analysis of this study is a structural approach to the Equation Model (SEM) with the help of smart PLS. The results of this study are to indicate that the adoption of business intelligence is not able to affect organizational agility, system quality affects organizational agility, IT infrastructure flexibility affects organizational agility, competitive performance affects organizational agility, system quality affects competitive performance, adoption of business intelligence affects competitive performance, IT infrastructure flexibility affects competitive performance. Competitive performance is able to mediate the effect of system quality on organizational agility and IT infrastructure flexibility on organizational agility. Competitive performance is not able to mediate the adoption of business intelligence on organizational agility.

Keywords: Competitive Performance, Infrastructure Flexibility, Organizational Agility, System Quality

INTRODUCTION

An organization is a forum for effectively forming behavioral relationships between people to work together efficiently and obtain personal satisfaction in carrying out their responsibilities and providing certain environmental conditions to achieve goals (Candra Wijaya & Rifa'i, 2016). Environmental changes impact the high level of competition in running a business that puts the organization in a dynamic environment (Wilhelm, Schlömer, & Maurer, 2015). Thus, to face change, high intensity of competition, and a dynamic environment, the organizations will be better off implementing a new approach as a solution, namely agility. Agility is the ability to survive and succeed in an environment of continuous and unexpected competitive change with a quick and effective reaction to change the market by controlling existing products and services (Gunasekaran, 1998; Wagech, 2016).

Research conducted by Diugwu, 2011 states that as the number of companies that offer similar goods and services to consumers grows, so will competition. Growing competition will provide benefits in creating a company advantage over its competitors or competitive advantage. As competition increases, the action and reaction in competing will also increase, requiring a competitive advantage (Diugwu, 2011). Conceptually, (Mithas, Ramasubbu, & Sambamurthy, 2011) states that agility and competitive action are two constructs that build the entrepreneurial action process. (Hahn & Kühnen, 2013) views that the construct of competitive action is the missing link to the company's competitive advantage research. López-(Santos & Martinho, 2020) revealed that due to globalization, technological innovations, chaotic business environments, and dramatic competition caused action and reactions between companies to occur quickly. Therefore, competitive advantages are very important to note.

The first factor that affects organizational agility is system quality. System quality measures the desired characteristics of an information system, including perceived ease of use, system features, response time, and flexibility. The quality of the system can serve as a reference to the system owned by a company that can be used to regulate the quality of service of goods and services (Popoola, Chinomona, & Chinomona, 2014). The effectiveness of the company's information system depends on how well it is implemented

in consideration of the user's needs and skills, enabling it to transform data into high-quality information that the user will find useful (Amalia & Pratomo, 2016).

The next factor that affects organizational agility is Business Intelligence (BI). High-level management as a decision maker needs something that can encourage the system to compete with other companies. Business Intelligence is one of the systems that can help management by providing predictions and patterns and assisting in decision making. According to (Hadi, 2016), Business Intelligence is not a product or a system. Business Intelligence is an integrated operational suite, decision support software, and database that allow business communications access to corporate data. Business Intelligence is a process, technology, and tool capable of turning data into information into meaningful knowledge that serves to plan corporate strategies for profit (Prayitno, 2018). Previous research has shown that Business Intelligence can help sense market opportunities and threats (Elbashir, Collier, & Sutton, 2011; Mithas et al., 2011; Trkman, 2010; Wixom & Watson, 2010).

The next factor that can feel the opportunity and threat of the market is IT Infrastructure Flexibility. Flexible IT infrastructure can help respond to market opportunities and threats by facilitating the integration and reconfiguration of existing resources to develop new capabilities (Bharadwaj & Menon, 2000; Bhatt & Grover, 2005; Byrd & Turner, 2001; Gal-Or & Ghose, 2010). Therefore, Business Intelligence and IT infrastructure flexibility are two supporting components that can help improve organizational agility.

Previous research conducted by (Xiaofeng Chen & Siau, 2012) stated a significant positive influence of variable business agility and IT infrastructure flexibility on organizational agility. Another study conducted by (Permana, Purnomo, Santoso, & Syamsurizal, 2021) states that there is a significant positive influence between variable competitive advantages on organizational agility. Based on research conducted, incorporating a quality system and mediation of fluctuating competitive advantage is the most recent development in this study. This study aims to determine the Influence of System Quality, Business Intelligence Adoption, and IT Infrastructure Flexibility on Organizational Agility mediated by Competitive Performance in Online Fashion Retailers so that it can be used as a reference in the scientific field.

REVIEW OF LITERATURE

System Quality

System quality is defined as the suitability, system reliability, and stability of software and hardware where the required information is characteristic of the system in terms of ease of use, functionality, flexibility, understandability, and reliability (Alameria, Isaac, Ameenc, & Bhaumik, 2019). It is formed in the process of interaction between the user and the system such as when completing certain tasks (Al-Gamrh, Ku Ismail, & Al-Dhamari, 2018). Moreover, it is considered as one of the pillars influencing user satisfaction and usage as higher level of system quality is positively associated with higher actual usage frequency.

Table 1
System Quality Indicators

Transfer rate
First-call resolution rate
Adherence to protocol
Error/rework rate
Knowledge and competency
Telephone etiquette

Source: Al-Gamrh et al., 2018

Business Intelligence Adoption (BIA)

Business Intelligence Adoption (BIA) is critical to sustaining the success of an organization's strategic objectives, provision of higher quality information, and reengineering of business processes. The impact of BIA ultimately increases the conditions for decision making, which makes BIA a common information technology (IT) innovation (Nazri, Ashaari, Iskandar, & Bakri, 2020). BIA is a term that characterizes many applications of informatics with an affordable basis, used in organizations to examine information so that it turns it into data that will form the basis for choices made by managers (Airinei & Berta, 2012).

Table 2
Business Intelligence Adoption Indicators

Technology
Organization
Environment

Source: (Airinei & Berta, 2012)

IT Infrastructure Flexibility

Information technology is a science that has developed from time to time (Agarwal & Karahanna, 2000; Dedrick, Kraemer, & Shih, 2013). The information technology we enjoy today is supported by information technology infrastructure, which consists of hardware, software, and information technology services (Masa'deh, 2013). Information technology infrastructure is the main supporting infrastructure for technological resources in the context of the implementation of the information dissemination process (Widjajarto, Lubis, & Yunan, 2019).

According to (Harry Suharman, 2020), information technology infrastructure is physical facilities, information technology components, information technology services, and information technology management that support the entire company. In addition, (Hou, 2020) states that IT infrastructure is a shared technology resource that provides a platform for detailed enterprise or organizational information system applications.

Flexibility is about flexibility and the ability to help respond to changing demands both quickly and economically, and is a key antecedent of agility in a business context (S. Li, Gu, Liu, Han, & Zhang, 2008; Tiwana, Konsynski, & Bush, 2010). The definition of IT infrastructure flexibility from (Byrd & Turner, 2001) emphasizes the ability of IT infrastructure to easily and readily support a variety of hardware, software, and communication technologies, to distribute information anywhere within the organization and beyond, and to support design, development, and implementation of heterogeneous business applications.

Table 3
IT Infrastructure Flexibility Dimensions and Indictors

Dimension	Indicators
Flexibility	Information system modularization Standardization of report and information formats Implementation of simple administration

	Adoption of network systems data privacy
	Security
Service	Provide cross-platform services
Ability	Location and time
Greenness	Improve Business Process Efficiency
Ability	

Source: (Harry Suharman, 2020)

Competitive Performance

Competition determines the accuracy of the company's activities that can support its performance, such as innovation, a culture of cohesion or good implementation (Szczepańska-Woszczyna, 2015). Competitive strategy is the search for a favorable competitive position within an industry, a fundamental area in which competition occurs (Muñoz & Kimmitt, 2019; Porter, 1985). Competitive strategy aims to establish a profitable and defensible position against the forces that determine industrial competition (Kowo, Sabitu, & Adegbite, 2018). A company differentiates itself from competitors based on a set of competitors (Potjanajaruwit, 2018). Competitive advantage basically develops from the value that a company is able to create for its buyers that exceeds the company's costs in creating it (Grover, Chiang, Liang, & Zhang, 2018; Palandeng, Kindangen, Tumbel, & Massie, 2018). Value is what buyers are willing to pay, and superior value comes from offering lower prices than competitors for commensurate benefits or providing unique benefits that more than offset higher prices (Sharabati, 2021). In the concept of the company, there are two types of competitive advantage, namely the cost advantage of differentiation (Nuraini, Sarkum, & Halim, 2021).

Table 4
Competitive Performance Indicators

1. Price/cost
2. Quality
3. Delivery dependability
4. Product innovation
5. Time to market

Source: (Sharabati, 2021)

Organization Agility

Rapid and drastic changes in the industrial sector make organizations face new challenges and in this case the formation of agility in an organization is very necessary.

(Alberts & Hayes, 2003) explains that organizational agility is the capacity to change the organization and business rules which when operating make it more effective and efficient when dealing with various types of things that must be done by the organization. These capacities make organizations more responsive, flexible, and innovative. Organizational agility is considered as a core competency, competitive advantage, and differentiator that requires strategic thinking, innovative mindset, taking advantage of change and the relentless need to adapt and be proactive (Harraf, Wanasika, Tate, & Talbott, 2015). Organizational agility is defined as the organization's ability to deal with changes that often appear suddenly in the business environment through rapid and innovative responses that exploit change as an opportunity to grow and prosper (Lu & Ramamurthy, 2011).

There are several key concepts that determine agility according to (Fahami, Pordanjani, Mahmoudi, & Montazer-Al-Zohour, 2017), namely key competency management, virtual organization, ability to restructure, and knowledge-based organization. First, the management of key competencies is the first concept behind the agility paradigm. For example, the main competencies of organizational members include skills, knowledge, behavior, and experience. Second, virtual organization, which has the characteristic of using a virtual structure. In this case the organization utilizes information technology, such as the internet, e-mail, and the widespread use of computers causes the organizational form to have different characteristics from traditional organizations. In identifying and implementing organizational agility, (Zhang & Sharifi, 2000) reveals the characteristics to achieve organizational agility, written in the following table.

Table 5
Organization Agility Indicators

Responsiveness
Competency
Quickness
Flexibility

Source: (Zhang & Sharifi, 2000)

Conceptual

Framework

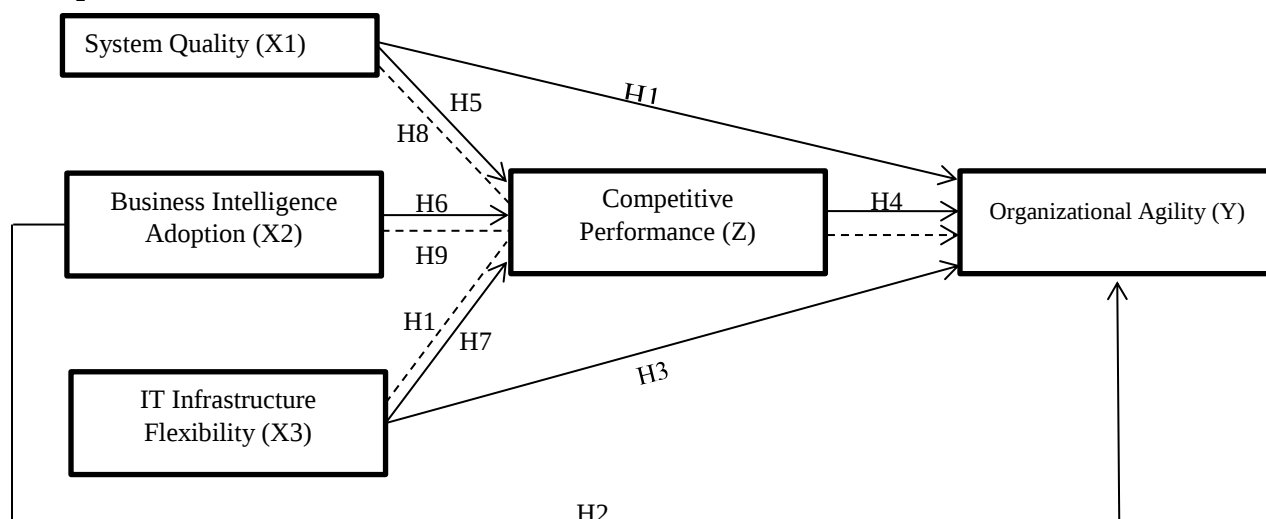


Figure 1
Conceptual Framework

Hypothesis

- H1: Effect of system quality on organizational agility
- H2: Effect of business intelligence adoption on organizational agility
- H3: Effect of IT infrastructure flexibility on organizational agility
- H4: Effect of competitive performance on organizational agility
- H5: Effect of system quality on competitive performance
- H6: Effect of business intelligence adoption on competitive performance
- H7: Effect of IT infrastructure flexibility on competitive performance
- H8: Effect of system quality on organizational agility is mediated by competitive performance
- H9: Effect of business intelligence adoption on organizational agility is mediated by competitive performance
- H10: Effect of IT infrastructure flexibility on organizational agility is mediated by competitive performance

RESEARCH METHOD

Quantitative techniques were used in the study. Quantitative research methods aim to test the established hypothetic. The method is in the form of numbers derived from measurements using questionnaires on variables in the study. The analysis used in this

study is a Structural Equation Model (SEM) approach assisted by smart PLS applications (Imam Ghazali, 2018). The research was conducted at online fashion retail. The sampling technique was simple random sampling so that in this study, 100 online fashion and retail samples were obtained.

RESULTS AND DISCUSSION

Outer Model Analysis

Validity Test

Validity uses convergent validity, where the measurement model with the reflection of indicators is assessed based on the correlation of item score/component score calculated with PLS. The size of individual reflections is said to be high if it correlates more than 0.7 with the measured construction. However, according to (I. Ghazali, 2013), developing a 0.5 to 0.6 loading score for the initial research stage is quite adequate.

Table 6
Validity Test Results

Variable		Outer Loading	AVE	Information
System Quality (X1)	SQ.1	0.710	0.576	Valid
	SQ.2	0.851		Valid
	SQ.3	0.848		Valid
	SQ.4	0.754		Valid
	SQ.5	0.701		Valid
	SQ.6	0.702		Valid
Business Intelligence Adoption (X2)	BIA.1	0.770	0.670	Valid
	BIA.2	0.835		Valid
	BIA.3	0.848		Valid
IT Infrastructure Flexibility (X3)	IIF.1	0.716	0.586	Valid
	IIF.2	0.748		Valid
	IIF.3	0.747		Valid
	IIF.4	0.764		Valid
	IIF.5	0.781		Valid
	IIF.6	0.760		Valid
	IIF.7	0.799		Valid
	IIF.8	0.736		Valid
	IIF.9	0.830		Valid
Organizational Agility (Y)	OA.1	0.940	0.786	Valid
	OA.2	0.860		Valid
	OA.3	0.795		Valid
	OA.4	0.942		Valid
Competitive Performance	CF.1	0.880	0.631	Valid

(Z)	CF.2	0.800		Valid
	CF.3	0.705		Valid
	CF.4	0.851		Valid
	CF.5	0.731		Valid

Based on the results of testing the instrument's validity, all indicators in the study are valid means that all indicators can be used.

Reliability Test

The study used two types of reliability tests: the Cronbach Alpha test and the Composite Reliability Test. Cronbach Alpha measures the lowest value (lower-bound) reliability. The data is declared reliable if the data has a Cronbach alpha value of >0.7 . Composite reliability measures the actual reliability value of a variable. The data is stated to have high reliability if it has a composite reliability score of >0.7 .

Table 7
Reliability Test Results

	Cronbach's Alpha	Composite Reliability
Business Intelligence Adoption (X2)	0.753	0.859
Competitive Performance (Z)	0.852	0.895
It Infrastructure Flexibility (X3)	0.911	0.927
Organizational Agility (Y)	0.907	0.936
System Quality (X1)	0.852	0.890

The test results showed that all instruments were declared reliable with a Cronbach Alpha and Composite reliability score of > 0.7 .

R-Square Test

The R-Square Coefficient determination (R-Square) test measures how much endogenous variables are affected by other variables. Based on data analysis carried out through the use of the smartPLS program, the R-Square value was obtained as stated in the following table.

Table 8
R-Square Test Results

	R Square	R Square Adjusted
Competitive Performance (Z)	0.885	0.881
Organizational Agility (Y)	0.892	0.887

Based on the test results, the R-Square score for competitive performance was obtained of 0.885 means that competitive performance is influenced by system quality, business intelligence adoption, and IT infrastructure flexibility of 88,5%. The rest is influenced by variables that have not been described in this study. Then the R-Square score for organizational agility is 0.892, which is influenced by system quality, Business Intelligence Adoption, IT infrastructure flexibility, and competitive performance.

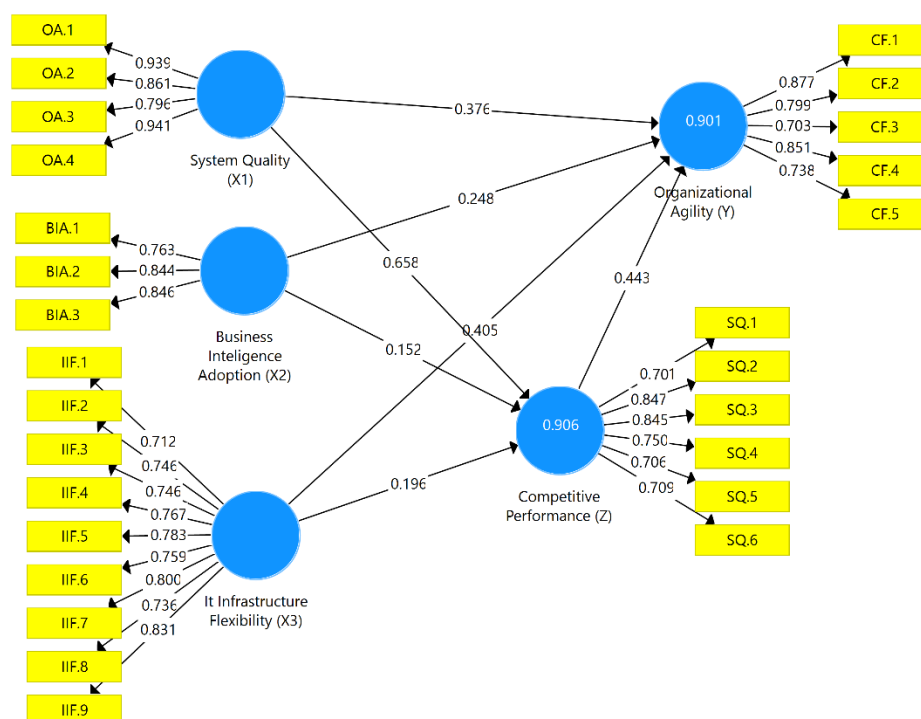


Figure 2
Outer Model

Hyphotesis Test

Table 9
Hypothesis Test Results

	Original Sample (O)	T Statistics (O/STDEV)	P Values
Direct Influence			
Business Intelligence Adoption (X2) -> Competitive Performance (Z)	0.225	2.519	0.012
Business Intelligence Adoption (X2) -> Organizational Agility (Y)	0.146	1.402	0.162
Competitive Performance (Z) -> Organizational Agility (Y)	0.400	3.432	0.001

Organizational Agility (Y)			
It Infrastructure Flexibility (X3) -> Competitive Performance (Z)	0.381	4.855	0.000
It Infrastructure Flexibility (X3) -> Organizational Agility (Y)	0.209	2.053	0.041
System Quality (X1) -> Competitive Performance (Z)	0.795	11.702	0.000
System Quality (X1) -> Organizational Agility (Y)	0.616	5.069	0.000
Indirect Influence			
Business Intelligence Adoption (X2) -> Competitive Performance (Z) -> Organizational Agility (Y)	0.090	1.956	0.051
It Infrastructure Flexibility (X3) -> Competitive Performance (Z) -> Organizational Agility (Y)	0.152	2.620	0.009
System Quality (X1) -> Competitive Performance (Z) -> Organizational Agility (Y)	0.318	3.310	0.001

System Quality Affects Organizational Agility

The results of testing the system quality hypothesis on organizational agility obtained a score of ($p = 0.616$) with a p-value of 0.000 ($p1.96$), showing a significant positive relationship between the system quality variable and organizational agility. The better the system quality, the better the organizational agility. Organizational agility is the ability to cope with rapid, relentless, and uncertain changes and to thrive in a competitive environment full of unexpected opportunities (Cheng, Zhong, & Cao, 2020). Information system quality indicators can be assessed from user perceptions regarding ease of use, namely SIA is easy to use and easy to learn, speed of access (response time), reliability, namely hardware and software resistance from damage, system flexibility, namely system ease. to be accessed, as well as security, namely the security of the system itself. The findings of this study support the research conducted by Amalia (2014), but are not in line with the research conducted by Setyo & Rahmawati (2015)

Business Intelligence Adoption (BIA) Does Not Affect Organizational Agility

The results of testing the business intelligence adoption hypothesis on organizational agility obtained a score of ($p = 0.146$) with a p-value of 0.162 ($p1.96$), showing no significant relationship between the variables of business intelligence adoption and organizational agility. In addition to such typical BI functionalities, the recent

advancement in BI technology enables organizations to automatically handle data in a way to monitor business events in real time and to proactively and reactively send out information about events to relevant people who are responsible for managing the captured events (XiaoFeng Chen & Siau, 2020). Therefore, BI functionalities can help organizations to enhance sensing agility. Data warehousing provides enterprise wide integrated, historical, consistent data. Online analytical processing and data mining help managers to find patterns embedded in data, and what-if analyses and data visualization help them to compare several alternative models (Atkinson, Hizaji, Nazarian, & Abasi, 2022). This rejects research conducted by (Park, El Sawy, & Fiss, 2017) which states that there is a relationship between Business Intelligence Adoption and organizational agility.

IT Infrastructure Flexibility Affects Organizational Agility

The results of testing the IT infrastructure flexibility hypothesis on organizational agility obtained a score of ($p = 0.209$) with a p-value of 0.041 ($p1.96$), showing a significant positive relationship between the IT infrastructure flexibility variable and organizational agility. Organizational agility increases with the flexibility of the IT infrastructure.

IT infrastructure was consistently defined in literature as a set of shared IT resources that are a foundation for enabling communication across an organization and enabling present and future business applications (Liu, Chan, Yang, & Niu, 2018). IT infrastructure may include (1) platform technology (e.g., hardware and operating systems); (2) network and telecommunication technologies; and (3) data and data management systems (XiaoFeng Chen & Siau, 2020). IIF refers to the degree to which the firm's IT resources are malleable. The definition of IIF from (Gao, Zhang, Gong, & Li, 2020) emphasizes IT infrastructure's ability to easily and readily support a wide variety of hardware, software, and communication technologies, to distribute information to anywhere inside an organization and beyond, and to support the design, development, and implementation of a heterogeneity of business applications. There are four key components of IIF: connectivity, compatibility, modularity, and IT personnel competency. Most commonly accepted technical (static) dimensions of IIF are connectivity, compatibility, and modularity. This is in line with research conducted by (XiaoFeng Chen & Siau, 2020).

Competitive Performance Affects Organizational Agility

The results of testing the competitive performance hypothesis on organizational agility obtained a score of ($p = 0.400$) with p values of 0.001 ($p < 1.96$), showing a significant positive relationship between the competitive performance variables and organizational agility. Organizational agility increases with competitive performance. Organizational Agility was found to have a positive impact on competitive performance, with a lesser performance compared to dynamic capabilities, firm's needs to prioritized market related changes, quickly balance rapid changes in demand from the market and deliver the request of customers. High levels of operational and market capabilities will not only result in satisfying the customers demand but will also enable increase in the performance. Telecom firms should also develop a positive relationship with suppliers to quickly make alternative changes if needed. It is in line with research conducted by (Gyemang & Emeagwali, 2020).

System Quality Affects Competitive Performance

The results of testing the system quality hypothesis on the competitive performance obtained a score of ($p = 0.795$) with p values of 0.000 ($p < 1.96$), showing a significant positive relationship between the system quality variables and competitive performance. The competitive performance improves as system quality increases. It is supported by previous research from (Fauziah & Wulandari, 2018) whose results state that system quality has a positive and significant influence on competitive performance.

Business Intelligence Adoption Affects Competitive Performance

The results of testing the business intelligence adoption hypothesis on the competitive performance obtained a score of ($p = 0.225$) with a p -value of 0.012 ($p < 1.96$), showing a significant positive relationship between the business intelligence adoption variable and competitive performance. The competitive performance improves with increased business intelligence use. The results of this research are supported by the research results of (Popovič, Puklavec, & Oliveira, 2019) which states that the existence of business intelligence can improve competitive performance.

IT Infrastructure Flexibility Affects Competitive Performance

The results of testing the IT infrastructure flexibility hypothesis on the competitive performance obtained a score of ($p = 0.381$) with a p -value of 0.000 ($p < 0.05$) and a statistical t of 4,855 ($p > 1.96$), showing that there was a significant positive relationship

between the IT infrastructure flexibility variable and competitive performance. The competitive performance improves with increased flexibility of the IT infrastructure. The research is supported by research conducted by (Mikalef, Pateli, & van de Wetering, 2020) who said that IT infrastructure flexibility affects competitive performance.

Competitive Performance Mediating the Influence of System Quality on Organizational Agility

The results of testing the hypothesis of the competitive performance variable mediating the relationship of system quality to organizational agility, getting a value of ($p = 318$) with p values of 0.001 ($p1.96$), show that competitive performance is able to mediate the influence of system quality on organizational agility. The results of this study are supported by research conducted by Wamba, (2022) which states that competitive performance is able to mediate system quality against organizational agility well.

Competitive Performance Not Mediating the Influence of Business Intelligence Adoption on Organizational Agility

The results of testing the hypothesis of the competitive performance variable mediating the relationship of business intelligence adoption to organizational agility getting a value of ($p = 090$) with a p -value of 0.051 ($p1.96$) showed that competitive performance was not able to mediate the influence of business intelligence adoption on organizational agility. The results of this study reject research conducted by (L. Li, Lin, Turel, Liu, & Luo, 2020) which states that competitive performance is able to mediate the Influence of Business Intelligence Adoption on organizational agility relationship.

Competitive Performance Mediating the Influence of IT Infrastructure Flexibility on Organizational Agility

The results of testing the hypothesis of the competitive performance variable mediating the relationship of IT infrastructure flexibility to organizational agility getting a value of ($p = 152$) with p values of 0.009 ($p1.96$) show that competitive performance is able to mediate the influence of IT infrastructure flexibility on organizational agility.

Tallon & Pinsonneault, 2011 highlights the impact of strategic IT alignment that positively affects organizational agility and is fully mediated by the flexibility of IT infrastructure. They further stated that organizational ambidexterity might be a useful lens for considering the impact of mobile enterprise systems on alignment and agility. Also,

their research shows the positive impact of strategic IT alignment on enterprises. (Krotov, Junglas, & Steel, 2015) outlines the positive influence of mobile technology on organizational agility and the agility of customers and partners with dimensions of ubiquity and uniqueness.

In particular, (Cheng et al., 2020) explains that when Chinese internationalization companies receive valuable knowledge through Business Intelligence. Internationalization will be accelerated if they train organizational agility to manage the new knowledge this Business Intelligence provides effectively. Researchers argue that organizational agility serves as a bridge that connects Business Intelligence with the speed of corporate internationalization. The influence of organizational agility on corporate decision-making depends on the utility of Business Intelligence for two reasons. First, Business Intelligence provides extensive information and explicit knowledge for companies to improve organizational agility (Lu & Ramamurthy, 2011; Mikalef & Pateli, 2017).

CONCLUSION

The study's results show that: a) There is a significant positive relationship between system quality variables and organizational agility; b) There is no significant difference between Business Intelligence Adoption (BIA) and organizational agility variables; c) There is a significant positive relationship between the IT infrastructure flexibility variable and organizational agility; d) There is a significant positive relationship between competitive performance variables and organizational agility; e) There is a significant positive relationship between system quality variables and competitive performance; f) There is a significant positive relationship between the variables of Business Intelligence Adoption (BIA) and competitive performance; g) There is a significant positive relationship between IT infrastructure flexibility variables and competitive performance; h) Competitive performance is able to mediate the influence of system quality on organizational agility and IT infrastructure flexibility on organizational agility. Furthermore, competitive performance is not able to mediate business intelligence adoption to organizational agility.

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