

The Effect of Organizational Ambidexterity, Innovation Capability and Leadership Competencies on Business Performance Mediated Competitive Advantage in Software House Industry Employees in Indonesia

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ABSTRACT

In order to maintain business continuity, the software house must be able to improve its business performance. While previous research identified factors that impact business performance in various sectors, this study focuses on how internal organizational factors are in the software house. Data of 540 respondents was collected from 18 large-scale software in Indonesia. There are 10 hypotheses developed and tested using structural equation modeling. The results showed that organizational ambidexterity, innovation capability and leadership competencies had a significant effect on business performance and competitive advantage showed a positive and significant mediation influence in the model. The results also provide specific measurement of competitive advantage in the software house industry, managerial implications and suggestions for further research.

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Introduction

Currently, Indonesia is in the era of the digital economy, characterized by the rapid development of information and communication technology and increased investment in technology by economic actors (McKinsey, 2018; SMERU Research Institute, 2022). From 2017 to 2022, investment in information and telecommunications technology in Indonesia experienced an increase in CAGR (Compounded Annual Growth Rate), with the largest increase in investment in digital services by 39%. The increase in investment in technology issued by economic players is in line with the increase in the number of companies carrying out digital transformation.

In digital transformation, the need for customized software solutions is becoming increasingly important for optimizing operations and achieving business goals (Martini, 2015; Slaughter, 2014). Software houses are therefore a key sector in digital transformation, as companies rely on them as technology partners to provide solutions and implement the transformation process.

As a growing industry, the number of software houses in Indonesia has increased significantly in recent years. According to Porter (1980), a larger number of firms in an

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industry heightens competition intensity. This high level of competition drives companies to optimize their business performance, as optimal performance is crucial for survival in a competitive environment (Grant and Jordan, 2015). Therefore, understanding how software houses achieve optimal business performance is important and interesting to research.

The business performance of a company is influenced by factors that can be classified into two factors, namely internal organizational factors and external organizational factors (Tzeremes, 2019; Nguyen et al., 2021). Internal factors include factors within the organization that can affect business performance and external factors include factors outside the control of the organization that can affect business performance, such as the organizational environment (Porter, 1980; Barney and Hesterly, 2020). This research focuses on how internal organizational factors consist of competitive advantage, organizational ambidexterity, innovation capability and leadership competencies.

Several studies have examined the effect of organizational ambidexterity on business performance but there are differences of opinion. Based on the opinion of March (1991) where organizational ambidexterity affects business performance in large companies, this study wants to answer how the influence of organizational ambidexterity on business performance in large-scale software houses in Indonesia.

This study also wants to examine the impact of innovation capability on business performance. Although in practice innovation capability is needed in order to improve the business performance of software houses (Saxena et al., 2017), there are still differences of opinion on the effect of innovation capability on business performance and there are still rare studies that discuss the effect of innovation capability on business performance in the software house industry. Unlike previous studies, this study will be tested on how the effect of innovation capability on business performance where business performance is measured based on measures related to consumers and processes. This research will also examine how innovation capability affects competitive advantage and its role as a mediation between innovation capability and business performance.

Like any organization, leadership plays an important role in the software house (Green and Ralph, 2022; Weichbrodt et al., 2022). However, research on leadership in software development is still scarce (Green and Ralph, 2022). Most leadership research in software development views leadership as an individual role that describes the characteristics of leaders required in software development (Garcia and Russoi, 2019; Kalliamvako et al., 2019). Other research also examines how leadership styles are needed in software houses. For example, research conducted by Veiseh et al. (2014) shows how transformational leadership styles are in software development. Unlike previous studies, this research focuses on aspects of leadership competence in the software house industry, where leadership effectiveness is highly dependent on competence (Green and Ralph, 2022).

One important aspect in the internal context of the organization that affects business performance is competitive advantage. Companies that have a competitive advantage have high competitiveness in situations where uncertainty occurs (Barney, 1991). The software industry is a dynamic industry with the characteristics of being in a situation of uncertainty and high levels of competition. Furthermore, the role of competitive advantage variables as mediating variables needs further investigation based on theoretical foundations. Conceptually, Gibson and Birkinshaw (2004) argue that

organizations involved in exploitation and exploration will gain a competitive advantage and subsequently improve business performance.

This study will discuss various variables that shape business performance in the context of organizational behavior. Based on conceptual foundations and supporting previous research, this study examines the influence of variables in organizational behavior science: organizational ambidexterity, innovation capability and leadership competence on software house business performance. This study will also examine competitive advantage variables as mediation in the interrelation of these variables.

The selection of organizational ambidexterity, innovation capability, leadership competence and competitive advantage is also based on the importance of these factors in the software house, where the current situation requires the software house to be able to innovate exploratory and exploitative to respond to consumer needs, software houses must be innovative, leadership roles are increasingly significant and software houses should have unique advantages in order to survive the competition.

This research will contribute to the literature and knowledge in several factors: This study examines the influence of organizational ambidexterity, innovation capability, leadership competence on business performance with the role of competitive advantage as a mediator in the software house industry in one model, is a novelty that does not replicate previous research. The results will contribute to science both theoretically and practically for organizations especially for IT companies, especially the software house industry. This research on competitive advantage in software houses is still very limited. The study also identifies sources of competitive advantage in the software industry that have not been done in previous studies. The object of research will be carried out in software house industry companies that are rarely done by previous researchers in the field of organizational behavior science. In contrast to the research conducted by Garcia and Russoi (2019), Kalliamvako et al., (2019), Veiseh et al. (2014), this study focuses on the competency aspect of leaders in software houses, which has not been done much research.

Literature Review

Business Performance

The literature contains the difference between business performance and organizational/firm performance although these terms are often used interchangeably in practice. Organizational performance is generally defined as the actual output of an organization compared to its desired goals, including financial aspects such as profitability, return on sales, return on investment and non-monetary aspects such as reputation or quality.

In this study, performance measurement is measured qualitatively through subjective measurement methods using perceptive opinions from respondents about performance. There are several reasons for using subjective measures in measuring business performance. First, the management of the company or organization refuses to disclose the actual data regarding financial information and financial records (Esmaeel et al., 2018). Second, if management is willing to show data, objective data does not show the actual business performance of a company because there may be data manipulation (Dess and Robinson, 1984). Grawe et al. (2009) suggests business performance as a dependent variable and subjective measurement of business performance. The literature supports subjective business performance measurement as a substitute for objective measurement (Madanchian et al., 2017). Research conducted by Esmaeel et al., (2018) also shows a preference for subjectively assessing business performance.

Competitive Advantage

Barney (1991) defines competitive advantage as a value creation strategy with the utilization of scarce, valuable, imitable, and irreplaceable resources and capabilities. A review of the literature resulted in 2 main streams in competitive advantage modeling, namely based on external context and internal context. Popular external contexts are Porter's five forces framework and product life cycle. The internal context includes theory of resource-based view, core competence and dynamic capability.

Resource-based theory states that unique resources and capabilities are needed for companies to implement strategies and achieve competitive advantage (Barney, 1991). A firm needs to have resources that are valuable, scarce, difficult to replicate by other firms and also difficult to replace (Barney 1991). The integration of the company's resources to take advantage of opportunities is a capability that allows the company to be competitive in its environment (Peteraf and Barney, 2003).

Organizational Ambidexterity

Ambidexterity is usually viewed as a combination of two conflicting activities. The term organizational ambidexterity was first used by Duncan in 1976 where Duncan suggested a "dual structure", one focused on alignment and the other on adaptation. Duncan (1976) as the first person to theorize about ambidextrous organizations states that ambidexterity is a competitive response to the shift experienced by organizations in the 1970s from static environments to dynamic environments.

According to March (1991), organization ambidexterity is an organization capable of balancing a series of different activities for exploitation, which are characterized attributes such as improvement, choice, production, efficiency, selection, implementation, execution and exploration, consisting of search, variety, risk-taking, experimentation, games, flexibility, invention, innovation. Ambidextrous organizations separate the two sets of exploratory and exploitative activities into distinct units, each unit having flexibility in making important decisions regarding the people, culture, skills, and processes required by the unit (Binns and Tushman, 2017).

Innovation Capability

Hogan et al. (2011) defines innovation capability as the company's ability to transform the company's collective knowledge, skills, and resources into new products, services, methods, organizational systems, and management, aimed at creating added value for the company and providing benefits to interested parties. According to Saunila and Ukko (2012), innovation capability can be considered as the ability of organizations to produce innovation outputs by utilizing intangible resources related to innovation, innovation capability contains three elements; namely innovation potential, innovation process, and innovation output (Saunila and Ukko, 2012).

Leadership Competencies

The term competency is singular and refers to specific skills, attributes, or abilities that a person possesses and can be effectively applied in a particular context (e.g., communication competency refers to the skill of effectively conveying and exchanging information. with others) (Kulovic et al., 2022) Competencies are the plural form of the word competency and refers to the set or set of various skills, attributes, or abilities required by an individual or role in order to work effectively (e.g., leadership competencies may include a combination of skills such as leadership, communication, decision-making, and so on) (Kulovic et al., 2022).

Leadership competencies are defined as certain personality traits, skills, values, knowledge, capacities and abilities that facilitate a person's ability to perform leadership tasks (Boyatzis, 2008).

Characteristics of Industrial Software House in Indonesia

The software house industry in Indonesia is one of the prospective industries. In 2022, the software market turnover in Indonesia is US\$ 1.3 billion or around Rp 19.92 trillion, in 2023, it is projected to reach US\$ 1.4 billion or around Rp 21.46 trillion (Researchandmarkets, 2024). According to Researchandmarkets (2024) Indonesia and Vietnam are two countries in Asean that are experiencing extraordinary development in the software house industry (Researchandmarkets, 2024).

The growth of software houses in Indonesia is mainly due to economic conditions and market demand (consumer demand and digital transformation). The government's general policies in the development of information and communication technology, such as creative economy programs, also contribute to the growth of software business in Indonesia.

Table 1 contains information on the software house industry in Indonesia prepared based on Porter's five forces industry analysis framework.

Table 1 Analysis of Software House Industry in Indonesia

A. Existing level of competition	The software house industry in Indonesia has a high level of competition due to the large number of software houses operating in the market. As of November 2023, there are 78 software houses in Indonesia (Clutch, 2023).
B. New entry	The barrier to entry for new entrants into the software house industry is relatively low, especially for smaller companies that can enter the market at an affordable cost. The level of investment required to start a small-sized software house is generally not very high. However, large investments are still needed to build software houses to reach the corporate segment, the government sector or serve complex projects.
C. The threat of substitution products	The existence of substitute products depends on the complexity of the application required and the solution required by the customer. Substitution products do not exist if the application needs required by the customer tend to be complex and require a specific solution from the software house. However, the pressure of substitute products tends to be high if the services required from the software house tend to be general.
D. Supplier strength	The strength of suppliers in Indonesia is very low because generally software houses do not rely on certain platforms or infrastructure controlled by third parties.
E. The level of bargaining power of the buyer	How dependent the buyer is depending on the product and the solution offered. If the software house offers a web development product where many competitors based on Clutch (2023) data, then buyers can control the price.

Hypothesis Formulation

March (1991) states that the paradox of exploration and exploitation as a strategy has a bearing on how organizations achieve performance. Supporting this opinion, Bustinza et al. (2020) states that the balance between exploration and exploitation may be the optimal way to improve business performance. Research conducted by Vahlne and Jonsson (2017) and Úbeda-Garcia et al. (2020) shows that synergy between exploitation and exploration drives business performance. In technology companies, there are studies that support the influence of organizational ambidexterity on business performance, for example, Hsu et al. (2013) in high-tech companies in Taiwan, Severgnini and Galdamez (2017) in technology companies in Brazil which stated that organizational ambidexterity

has a major impact on business performance. Based on the concepts and previous research that has been stated above, the researcher proposed a hypothesis:

H1: Organizational ambidexterity has a positive effect on business performance

Companies with greater innovation capability can respond quickly to market changes by developing new approaches or business models that can take advantage of opportunities available in the market and therefore gain a sustainable competitive advantage (Al-Kalouti et al., 2020). Small companies with high technological and innovation capabilities can develop their potential by taking advantage of external opportunities to produce products or services that are difficult for companies without these characteristics to replicate (Rasiah et al., 2016). Jin and Choi's (2019) research states that innovation capabilities in products and processes affect business performance. Rhodes et al. (2008) focused on Taiwanese companies and found that innovation capabilities impact organizational performance.

H2: Innovation capability has a positive effect on business performance

Competence is the main driver of organizational growth, playing a very important role for the realization of the goals of the organization's vision and mission (Kuruba, 2019). Leadership competency which if utilized effectively allows leaders to direct company operations successfully (Kuruba, 2019). The study of Wisittigars and Siengthai (2019) revealed five leadership competencies needed to help organizations in Thailand. Amedu & Dulewicz's (2018) research found that results-oriented behavior greatly impacts all three aspects of organizational performance.

H3: Leadership competency has a positive effect on business performance

Hitt et al (2001) stated that intangible resources are more likely to produce a firm's competitive advantage than tangible resources, which means superior financial performance. Research conducted by Newbert (2008), concluded that there is a positive relationship between competitive advantage and organizational success and competitive advantage is able to predict business performance variance significantly. Moran's (2005) research provides competitive advantage results that can improve business performance, customer satisfaction and loyalty, and relationship efficiency.

H4: Competitive advantage has a positive effect business performance

Companies that engage in exploitation to the exclusion of exploration are most likely to be stuck in a sub-optimal stable equilibrium (March, 1991). Therefore, maintaining the right and dynamic balance between exploration and exploitation is a major factor in the continuity and continuation of the company (Turner et al., 2013). Based on a resource-based perspective (Barney, 1991), contextual ambidexterity is a source of potential competitive advantage because it is valuable, scarce, and expensive to replicate (Kassotaki, 2022). Contextual ambidexterity is also positively related to stakeholder satisfaction, mid- and senior-level manager performance, and strategic performance (Kassotaki, 2022). Research Lieshout et al. (2021) produces ambidextrous strategy conclusions resulting in competitive advantage where in the implementation of organizational amidexterity, organizations can develop dynamic capability through changes in value propositions. Research Sijabat et al. (2021) provides results that exploration and exploitation positively affect competitive advantage because they are able to create the ability to overcome threats and capture market opportunities.

H5: Organizational ambidexterity has a positive effect on competitive advantage.

Innovation capability can increase a company's competitiveness because innovative companies integrate technological innovations into systems and processes that can increase cost efficiency and added value (e.g., new designs, new production

techniques, etc.) (Martínez-Román, 2017). Research conducted by Seo et al., (2014) states innovation capability allows companies to move faster than competitors, introduce new products, and adopt new systems through innovative behavior, strategic capabilities, and internal technological processes, resulting in higher company advantages. Research conducted by Seo et al., (2014) concluded that innovation capability allows companies to solve problems, increase efficiency, and cope with internal and external changes.

H6: Innovation capability has a positive effect on competitive advantage

Business success depends on the leader (Grey, 2013). Leaders need support through formal and informal training, mentoring to improve their behavior and abilities. Most organizations benefit greatly from improving the behavior and abilities of these leaders (Grey, 2013). Previous research has recognized leadership competency as a determinant of organizational performance. Krupskiy and Grynko (2018) found that different cognitive leadership styles are associated with an organization's ability to absorb knowledge and respond quickly to changes in the external and internal environment. Research conducted by Al Zoubi (2012) provides results that leadership competency has an influence on competitive advantage. Research Martina et al. (2012) observed that, dynamic business environments require managerial competence to achieve strategic organizational goals.

H7: Leadership competency has a positive effect on competitive advantage

In an environment filled with high levels of uncertainty, it is important to develop the ability to capture new opportunities and have a clear understanding of how to create value in the short term. In addition, effective coordination of activities is also required to achieve these values. This prerequisite is considered crucial in achieving business performance (Birkinshaw and Gibson, 2004). Research Jafari-Sadeghi et al. (2021) and Sahi et al. (2020) shows that the balance between the two practices of reducing costs and managing limited resources helps companies achieve sustainable competitive advantage and business performance. Kristal et al. (2020) shows that ambidextrous strategies in supply chain management can improve combinative competitiveness.

H8: Competitive advantage positively mediates the relationship between organizational ambidexterity and business performance.

To achieve a competitive advantage that helps organizations improve business performance and achieve strategic goals, organizations must be able to acquire, develop, and combine resources in a way that supports innovation capabilities and improves competency management systems (Benraouane and Harrington, 2021).

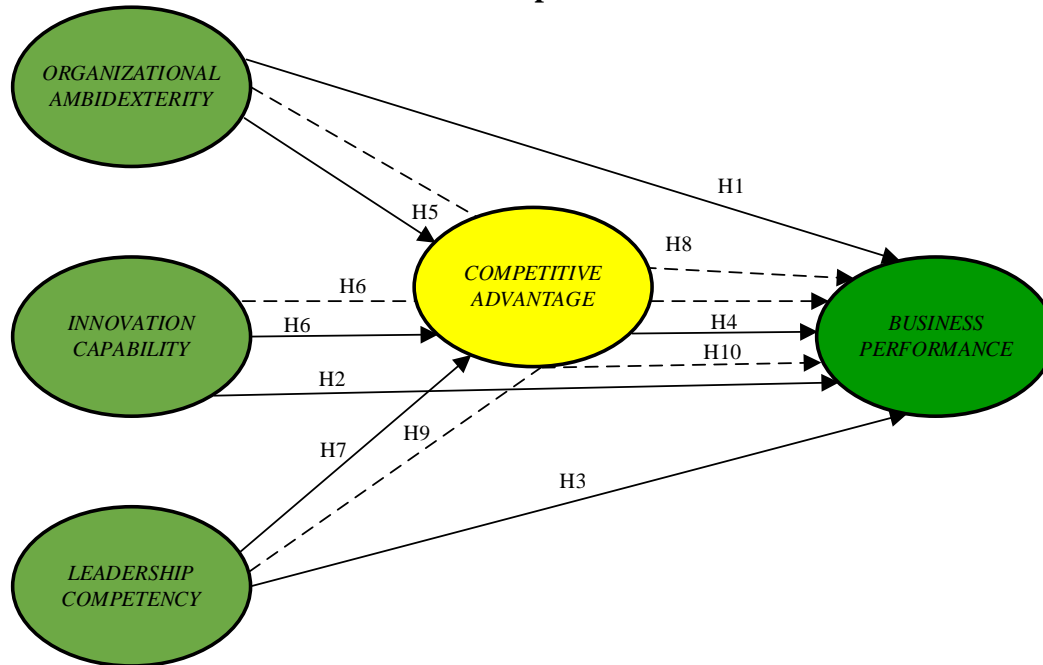
H9: Competitive advantage positively mediates the relationship between innovation capability and business performance

Leadership competencies are essential in managing organizational change effectively. Competent leaders guide their teams through transitions, fostering organizational learning and adaptation. Companies that can respond quickly and effectively to changes in the business environment will gain a competitive advantage by staying ahead of the curve (Eisenbeiss et al., 2008).

Research conducted by Talu and Nazarov's (2020) provides results that in pandemic conditions, leaders who have goal-oriented competencies and continuous improvement will be able to achieve competitive advantage and maintain business performance. Research conducted by Kabii and Kinyua (2023) based on a literature review propositions that competitive advantage as a mediator in leadership competency and business performance.

H10: Competitive advantage positively mediates the relationship between leadership competencies and business performance

Figure 1
Conceptual Model



Research Methods

This study uses a quantitative approach, where the variables to be observed are quantified through an operational definition process (Cooksey, 2020), then the primary data generated from the distribution of questionnaires to large-scale software houses in Indonesia are processed statistically to produce decisions on acceptance or rejection of hypotheses.

The number of companies meeting the study criteria was 29, of which 18 agreed to participate, while 11 declined. Therefore, the researcher defined the study population as employees in these 18 large-scale software houses in Indonesia, including those working as programmers/software engineers, project managers, product managers, UI & UX designers, product owners, and other roles.

The sample of respondents in this study was determined using the cluster probability sampling method, where the population is divided into clusters, each with heterogeneous members. This heterogeneity arises from the different types of work or positions held by the workers. Subsequently, members from each cluster were selected to form the sample (Tharenou et al., 2007).

The minimum sample size or number of employees participating as respondents set at 54 indicators x 10 is 540 individuals. This number of samples has exceeded the minimum sample requirement of the cluster random sampling formula above with unknown population conditions. The determination of the sample size using a 5:1 ratio of the number of indicators was based on the consideration that this was the minimum sample required for structural equation modeling (SEM) statistical analysis to achieve the necessary level of reliability for this study (Hair et al., 2011; Memon et al., 2020). Data collection is done through google form.

This study used 2 methods in the preparation of question items in the questionnaire, namely the adaptation of the questionnaire from previous research and the preparation of question items in the questionnaire based on concepts. Questionnaires to obtain data on organizational ambidexterity, innovation capability, leadership competencies are taken from scientific journals that have international reputation, where researchers adapt to the question items. The items in the organizational ambidexterity variable questionnaire were adapted from the questionnaire in the study conducted by Jansen et al., (2006). The items in the innovation capability variable questionnaire were adapted from questionnaires in research conducted by Akman and Yilmaz (2009). The items in the leadership competencies variable questionnaire based on Giles (2016) research contain 5 dimensions and 10 indicators.

In this study, questionnaires to obtain business performance and competitive advantage data were developed by researchers. Business performance measurement has been carried out in several studies (e.g., Correia et al., 2021). Measurements can be both quantitative and qualitative. In contrast to these studies, this study reviews the business performance side based on consumer performance and process performance that is prioritized in the software house. The business performance measurement questionnaire contains 6 question items. Respondents were asked to rate consumer-related performance using 3 question items and process-related performance using 3 question items (Kaplan and Norton, 1996; Biazzo and Garengo, 2012).

Measurement of competitive advantage in several studies (e.g., Chong and Thu, 2020; Claus et al., 2020) are generic to all industries, where question items are not appropriate to apply to the software house industry. In this study, researchers developed a questionnaire to measure competitive advantage specifically for the software house industry (table 2).

Table 2 Measurements Competitive Advantage Software Industry

Dimensi	Indikator dan referensi	Question items uestion items
Flexibility	The ability to make modifications according to consumer preferences (Kozludzhova, 2019)	Compared to other software houses, the company I work for is more flexible in responding to changes in products/services according to consumers
Collaboration teamwork	Teamwork collaboration (Stepanek, 2012; Liu, 2009)	The ability to collaborate in teams at the company where I work is more effective than teams in other software houses
Knowledge	Knowledge acquisition (Stralin, 2016)	Access to knowledge at the company where I work is better than other software houses
	Knowledge provision/sharing (Stralin, 2016)	Knowledge sharing/sharing in the company where I work is more effective than other software house companies
	Access knowledge (Stralin, 2016; Keyes, 2016)	The ability of the company where I work to utilize knowledge is superior to other software houses
Design	Ability to design interfaces (Branson, 2020)	The company I work for has the advantage of designing interfaces that are more professional, attractive, easy to use, than other software houses.
Adaptation to change.	Adoption of new technologies (Stralin et al., 2016)	The ability of the company I work for to adopt the latest technology is superior to other software houses.

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	Application of new technologies (Stralin et al., 2016)	The ability of the company where I work in implementing the latest technology is superior to other software houses.
Project management	Project management (Stepanek, 2012)	Project management in the company where I work is more effective than other software houses.
Customer support	Solution delivery (Schief, 2014)	In the company where I work, providing solutions to customer problems is better than other software houses.
	Complaint management (Schief, 2014)	The company I work for handles customer complaints better than any other software house.
	Communication with customers. (Schief, 2014)	The company I work for communicates with customers more effectively than other software houses.
Software development competencies	Programming skills in relevant programming languages (Stralin et al., 2016)	The programmers of the company where I work have better programming language skills than other software houses.
	Technical knowledge of software development (Stralin et al., 2016)	The programmers of the company I work for have great technical expertise in programming, which sets it apart from other software houses.
Software development competencies (continued)	Analytical skills (Schief, 2014)	The programmers of the company where I work have better analytical skills than programmers in other software houses
	Problem solving skills (Schief, 2014)	The programmers of the company where I work have better problem-solving skills than programmers in other software houses
Image/ Reputation	Operational excellence (Schief, 2014)	The company I work for is known to have superior operational advantages compared to other software houses
	Dependability (Schief, 2014)	The company I work for is known to be more reliable compared to other software houses

Results and Discussions

Respondents involved in this study have the characteristics of most respondents aged 24 to 30 years, have university education (S1, S2, S3), have work experience of 3 to 5 years, most occupy positions as staff, most respondents have professions in the IT field (programmer / software engineer and system analyst).

Inferential testing is carried out through structural equation modeling (SEM) analysis processed with AMOS 23 software. The use of AMOS is based on the advantages of providing a visually user-friendly graphical interface, the ability to build models of attitudes and behaviors that reflect complex relationships more accurately, having an easy-to-use interface for bootstrapping methods, and being able to accommodate non-recursive models, models with fixed parameters and models based on data from various populations.

Content Validity Competitive Advantage Test

In this study, questionnaires to obtain competitive advantage and business performance data were developed by researchers themselves based on theoretical

concepts proposed by experts. According to Tharenou et al., (2007) Before using a questionnaire prepared based on theoretical concepts, a content validity test must be carried out. Content validity is carried out in research to determine the extent to which the content or material of the instrument covers exactly all aspects to be measured (Tharenou et al., (2007).

In this study, researchers used a team of experts consisting of 9 people. The requirements set for the expert team as respondents have an educational background in information technology or management, more than 5 years of experience in the software house business, have a minimum position level of general manager and senior project manager.

Based on the calculation of I-CVI business performance, it is known that items have an I-CVI value of 0.889 to 1. The S-CVI value of 0.981 is worth using. Based on the calculation of I-CVI, it is known that the items in the competitive advantage questionnaire have an I-CVI value of 0.889 to 1. The S-CVI value of 0.998 is worth using.

Pre-Survey Validity and Reliability Test

Before the instrument is distributed to all target respondents, the initial testing stage of pre-survey validity and reliability is carried out. The validity testing technique uses the corrected item-total correlation method. Based on the results of processing with SPSS 26, it can be seen that all indicators or question items are valid with a correlation coefficient value or corrected item total correlation above 0.312. Furthermore, the level of reliability of all research variables showed satisfactory results where the value of Cronbach's alpha was above 0.60.

Test Structural Equation Modeling Assumptions

Based on the results of statistical processing of Mahalanobis Distance sorted from the highest value with a p_1 value of < 0.001 and $p_2 < 0.001$, there is a potential for 19 (nineteen) respondents to be included in multivariate outliers. Multivariate data outliers can cause the distribution of data to be abnormal, then the data is omitted from the SEM model.

Data normality tests can be done univariately and multivariately where for univariate normality tests seen from skewness or kurtosis measures. In the initial data condition, all indicators have abnormal data conditions in skewness indicated by the value of $C.R > \pm 3$ while kurtosis all indicators show normal data with a value of $C.R$ kurtosis $< \pm 7$. Furthermore, after transforming the box cox method data, there is a decrease in the degree of data abnormality.

Multicollinary analysis becomes important to ensure that the estimated parameters of SEM analysis are not biased. The results of the model estimation show a correlation between variables less than 0.90, so there is no multicollinary potential.

Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is an evaluation of measurement models, namely causality between variables with dimensions and measurement items. After removing indicators that have a loading factor value of less than 0.60, it can be seen that all indicators have a loading factor of > 0.60 (valid). These results show that valid indicators reflect dimensional measurements. The results of dimensional level evaluation show the accepted results where Cronbach's alpha and construct reliability values are above 0.60. The results of the variable level evaluation show the accepted results where the value of Cronbach's alpha and construct reliability is above 0.60. Next is the examination of convergent validity with variance extracted (VE) where the recommended

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value is at least 0.50, Hair et al, 2014. Overall, the research variables contain variations in each dimension/indicator that measures them above 50%.

Goodness of fit CFA models

The estimated results obtained p-value chi square or p CMIN is $0.000 < 0.05$ then the resulting CFA model is in the criteria of poor fit / not fit. According to Thakkar (2020) in large-sized samples, chi square results are not fit can be ignored, chi square criteria are only used if the sample < 200). The CMIN / DF size gives a model estimate result of $1.61 < 5$ so this criterion obtains a good fit CFA model assessment. The estimated result of the CFA model is 0.877 in the range of 0.80 – 0.90, so the CFA model proposed is marginal fit. The estimated result of the CFA model for RMSEA is $0.034 < 0.08$ then the CFA model proposed is good fit. Because the RMSEA size < 0.05 , the model shows close fit or the data fits very close to the model.

The NFI (Normed Fit Index) result of the CFA model estimate is 0.879 located between 0.80 – 0.90, so the CFA model has marginal fit criteria. The RFI (relative fit index) result of the CFA model estimate is 0.871 between 0.80 – 0.90, so the CFA model has marginal fit criteria. The IFI (Incremental Fit Index) result of the CFA model estimate is $0.950 > 0.90$, so the CFA model has good fit criteria. The TLI (Tucker Lewis Index) result of the CFA model estimate is $0.947 > 0.90$, so the CFA model has good fit criteria. CFI (Comparative Fit Index) results of CFA model estimates for CFI are $0.950 > 0.90$ then the CFA model has good fit criteria

The estimated result of the CFA model AIC model value of 2183.5 is closer to its saturated value of 1190 than the AIC independence value of 2652, so the proposed CFA model has good fit criteria. The estimated result of the CFA model is that the CAIC value of the model 2836.4 is closer to the saturated value of 9633.7 than the ECVI independence value of 16342.9, so the CFA model proposed has good fit criteria.

Test Research Hypothesis

A partial test is carried out for testing the proposed research hypothesis. The analysis will evaluate the significance of the influence between variables. This analysis consists of direct effect test and indirect effect test. In this study, the test results were delivered p-value with maximum likelihood estimator and p-value bootstrapping. Table 3 shows the results of hypothesis testing.

Table 3 Partial Test

Hypothesis	<i>Estimate</i>	S.E.	C.R.	P-value ML	P-Value Bootstrapping	Information
OA --> BP	0,153	0,043	3,54	0.000	0,007	H1 Supported (+)
IC --> BP	0,237	0,065	3,674	0.000	0,016	H2 Supported (+)
LC --> BP	0,129	0,049	2,652	0,008	0,036	H3 Supported (+)
CA --> BP	0,497	0,113	4,386	0.000	0,009	H4 Supported (+)
OA --> CA	0,072	0,022	3,225	0,001	0,04	H5 Supported (+)
IC --> CA	0,226	0,032	7,006	0.000	0,006	H6 Supported (+)
LC --> CA	0,114	0,025	4,509	0.000	0,005	H7 Supported (+)

Next is the mediation test, which examines the role of competitive advantage that mediates the indirect influence of leadership competencies, organizational ambidexterity and innovation capability on business performance. Mediation testing can use a sobel test because the sample size used is quite large. The calculation of the Sobel test is not

by default in AMOS 23 and can be calculated manually or through the Sobel test calculator. Table 4 through table 6 show the results of testing the mediation hypothesis.

Table 4 Mediation Test of the Indirect Effect of Organizational Ambidexterity on Business Performance

Hypothesis		OA --> CA	CA → BP	OA --> CA --> BP	C.R	P-value
H8	Estimates	0,072	0,497	0,036	2,626	0,008
	S. E	0,022	0,113	0,014		

Table 5 Mediation Test of the Indirect Effect of Innovation Capability on Business Performance

Hypothesis		IC --> CA	CA → BP	IC --> CA --> BP	C.R	P-value
H8	Estimates	0,226	0,497	0,112	3,733	0,000
	S. E	0,032	0,113	0,030		

Table 6 Mediation Test of the Indirect Effect of Leadership Competencies on Business Performance

Hypothesis		LC --> CA	CA → BP	LC --> CA --> BP	C.R	P-value
H8	Estimates	0,114	0,497	0,057	3,166	0,001
	S. E	0,025	0,113	0,018		

Discussion

Hypothesis testing shows that organizational ambidexterity has a positive and significant effect on business performance. Acceptance of this hypothesis provides empirical evidence that organizations that are able to effectively balance exploratory activities and exploitative activities can achieve better business performance. This balance is important because exploration without exploitation requires large costs but the benefits to be received are moderate (the existence of failure traps) (Kauppila, 2015), while exploitation without exploration leads to stagnation and obsolescence of assets (success traps) (March, 1991).

The results of hypothesis testing show that software houses that have high innovation capability tend to produce reliable products or quality services, have good relationships with customers and tend to have a positive image or reputation. Innovation capability affects the business performance of large-scale software houses in Indonesia, mainly due to the attitude or mentality of management and employees in this research software house that supports the innovation process, and due to the utilization of new ideas that support the innovation process. According to Saxena (2017), the utilization of new ideas in the field of software development is very necessary in completing projects on time and saving costs.

This research shows that software houses that have better leadership competencies tend to achieve higher business performance. The significant influence of leadership competencies on business performance can be explained that leaders who have high moral and ethical standards or ethical leadership will provide positive benefits to the organization (Brown and Treviño, 2006). High ethical leadership in the software house of this research object will have an impact on the ability of employees to produce quality

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products, the ability of employees to meet customer needs, and the ability of employees to improve process performance because ethical leaders instill core values for employees.

Based on the results of hypothesis testing, it can be concluded that software houses that have superior resources and capabilities compared to competitors will have better business performance. Based on the theory of resource-based view, human resources are part of resources for competitive advantage (Barney, 1991). Furthermore, specifically when discussing aspects of competence, superior capabilities resulting from human resources in the form of competencies will have a significant impact on business performance (Otoo, 2019). The competencies possessed by employees in the software house will improve business performance because these competencies will have an impact on the effectiveness and efficiency of the software house process. Employees who have these competencies will increase work productivity and the quality of the products produced.

Organizational ambidexterity has a positive and significant effect on competitive advantage. The application of organizational ambidexterity helps the software house adjust to a competitive environment, where the ability to adapt becomes a differentiator of the software house compared to competitors or creates a competitive advantage (Claus et al, 2021). The fact that happens in Indonesia today, the level of competition of software houses in Indonesia is competitive. In order to respond to this high level of competition, the software house in this study adapts through exploitation (for example through the development of products and services that are different from existing ones and exploitation by making efficiencies.

Structural equation modeling (SEM) analysis confirms the hypothesis that innovation capability positively affects competitive advantage. Respondents perceive that the software houses studied have a strong innovation-supportive culture. This culture significantly enhances competitive advantage by enabling better market responsiveness and customer value creation (Al-Essa, et al., 2008). The impact of competitive advantage is further explained by effective knowledge utilization and idea generation leading to innovations in software houses.

Leadership competencies have a positive and significant influence on competitive advantage. In the perspective of resources-based theory (Barney, 1991), leaders play an important role in improving human resource competence as a unique resource to achieve competitive advantage. When leaders prioritize employee training and development, well-trained employees tend to be more productive and efficient on the job.

Competitive advantage significantly mediates the effect of organizational ambidexterity on business performance in software house industry. By effectively allocating resources between exploration and exploitation, companies can maximize the value generated from their portfolio of products and services (Kassotaki, 2022). This can include the development and marketing of innovative new products as well as expansion or improvement of operational efficiencies on existing products. By utilizing resources optimally, companies can increase profitability and overall business performance.

Competitive advantage as a significant mediating variable in the effect of innovation capability on business performance in software house industry employees in Indonesia. These findings show that the ability to innovate not only directly affects business performance ((Ferreira et al., 2020), but also through the formation of competitive advantages that enable companies to achieve better business performance.

Hypothesis testing indicates that effective leadership in a software house significantly enhances competitive advantage and positively impacts business

performance. Leaders with high competence can develop effective strategies, foster employee creativity and innovation, motivate staff, and continuously improve their knowledge and skills (Katarzyna and Zdzisława, 2014). Effective leaders are able to encourage employees to develop creativity, innovate in solving problems, motivate employees and continuously improve employee knowledge and behavior skills.

Conclusion

This study discusses various variables that make up business performance in the context of organizational behavior. The results showed that organizational ambidexterity, innovation capability and leadership competencies had a significant effect on business performance and competitive advantage showed a positive and significant mediation influence in the model.

Theoretical Implications

The findings of this study aim to enhance understanding of the intricate relationships between organizational ambidexterity, innovation capability, and leadership competence, and their impact on competitive advantage and business performance. By enriching organizational behavior theory and human resource strategy, this research highlights the mediating role of competitive advantage. It introduces a measurement questionnaire for competitive advantage based on the resource-based theory within the software house industry, addressing a gap in existing research. Focusing on the rarely explored human resource aspects in software houses (i.e Garcia and Russo, 2019; Kalliamvako et al.; 2019; Veiseh et al., 2019), the study emphasizes leadership competence, differing from other studies that typically focus on technical aspects.

Managerial Implications

Several practical recommendations are proposed. Efficiency in software houses can be improved through outsourcing support tasks (Schief, 2014; Saxena et al., 2017). Software house management should monitor and control costs, develop profitable products, and provide incentives and rewards to teams that meet or exceed established targets (Saxena et al., 2017). Management should also actively communicate the vision and commitment to innovation across the organization and foster a learning culture within the organization (Schief, 2014). Software houses need to adopt agile development methodologies, enabling teams to work collaboratively, flexibly, and responsively to changing market demands (Lindsjörn et al., 2016).

Suggestions for Future Research

This study was conducted within a specific scope defined by the researchers. Future research should involve small and medium-sized software houses to ensure that the findings can be generalized to a larger population. Data collection should be carried out longitudinally so that it can be tested the influence of the organizational ambidexterity, innovation capability, leadership competence towards competitive advantage in the long term (sustainable competitive advantage).

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