



Research Article

Corporate Resilience and Competitiveness Relying on System Digitalization Through Ambidextrous Innovation

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ABSTRACT

The business process of shipping agencies in the post-pandemic is facing adjustments in providing services to customers. A digitalization system carried out by shipping agencies is a solution to respond to these changes and enable shipping agency businesses to survive. This study explored the extent of the impact of system digitalization on the resilience of shipping agency companies and also on the company's competitive advantage mediated by ambidextrous innovation. This study was conducted on 192 shipping agency companies that are members of shipping agency associations in Indonesia's main ports. Data collection was carried out by distributing questionnaires online then data processing was carried out and analysis was carried out, both descriptive statistical analysis and inferential statistics using WarPLS. The research results showed that the existence of a system digitalization program increases company resilience. Likewise, the existence of a system digitalization program also increases the company's competitive advantage. With a proactive response in the form of ambidextrous innovation from the company, digitalization is increasingly showing a significant influence on the company's resilience and also on the company's competitive advantage. The results of this research provide additional empirical contributions in proving the RBV-based theory of competitive advantage where with breakthrough innovation and adaptation to digitalization of the system which is part of the empowerment of company resources aimed at producing service products that are of unique value and cannot be imitated by competitors so that they have a competitive advantage for the company. The results of this research also provide a practical contribution to the shipping agency industry where it cannot be denied that the system digitalization process followed by ambidextrous innovation will increase the company's resilience and produce competitive advantage for the company as well.

INTRODUCTION

The company's resilience in pandemic conditions, especially in service companies, has decreased due to the company's operations not being able to run as before the pandemic. Shipping agency service companies in Indonesia that rely on human resources as the main asset have experienced obstacles in delivering services to customers since the enactment of provisions that do not allow mobility and direct interaction during the pandemic. This has an impact on the ability of shipping agency service companies to generate turnover and profit achievements. In other words, the resilience of shipping agency companies indirectly decreases and also decreases the competitiveness of companies. One of the breakthrough steps taken by the company to maintain business processes in delivering services to keep running is digitizing services.

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Likewise, shipping agency service companies make breakthroughs in digitizing services in maintaining their business activities.

Digitizing business service processes is the answer to mobility constraints or interaction constraints between the company's human resources in serving customers. Such previous research has shown that the role of e-commerce increases company resilience during the pandemic (Orinaldi, 2020). The role of e-commerce also increases the resilience of companies based on digital marketing and facilitates communication with customers during the pandemic (Hidayat et al, 2022). However, on the other hand, the transformation or change of service forms from conventional forms of face-to-face and direct interaction to digitalization does not automatically guarantee meeting customer needs. In other words, these changes do not

completely replace the value of services desired by customers, especially in service companies that are synonymous with human resources who deliver products or services to customers. At the end of the pandemic period when restrictions on direct interaction between service givers and recipients were eliminated, the shipping agency business business activities made adjustments to the business processes used. Digitalization adaptation is also carried out by shipping agency business partners at ports such as port authorities, and port operators. The shipping agency company partners also introduced their business processes and required stakeholders to adjust their respective business processes on a digitalization basis. Based on this phenomenon, it is interesting to explore the relationship between digitalization and the resilience and competitiveness of shipping agency companies, especially post-pandemic.

This study uses the theoretical basis of competitive advantage based on the resource base view (RBV) where companies that can empower the potential of internal resources with a significant difference from those provided by competitors then the company has the potential to have a competitive advantage (Barney, 2021). Based on this resource-based view (RBV) theory, the process of digitizing business activities aimed at replacing conventional business process models is part of an effort to offer services to customers with a distinctive appearance that cannot be imitated by competitors.

Efforts to maintain service quality or even produce a completely new service display simultaneously to maintain market share require a breakthrough innovation. The form of breakthrough innovation is not just ordinary but a spectacular breakthrough innovation that cannot be replicated by competitors. Companies that can overcome and produce breakthrough innovations that are sustaining while also being able to produce spectacular breakthrough innovations or breakthrough new findings are referred to as ambidextrous innovations. The extent to which the influence of the system digitization process carried out by shipping agency companies in post-pandemic conditions on company resilience and competitive advantage still requires empirical exploration and proof. Likewise, when companies make ambitious innovation breakthroughs in business process conditions that have adapted to digitalization, the impact on resilience and competitive advantage still requires empirical exploration and proof. Some previous empiricists found that the digitization process showed a significant influence on company resilience. Likewise, the process of digitizing the system shows a significant influence on competitive advantage. On the other hand, some empiricists who examine the relationship between innovation and digitalization and company resilience still use types of process innovation

and product innovation. This research was conducted to answer the alleged resilience of companies that rely on system digitalization followed by an ambidextrous innovation breakthrough in ship agency service companies. This research also answers the allegations of how the company's competitive advantage is obtained from the process of digitizing the system followed by an ambidextrous innovation breakthrough in shipping agency service companies.

Literature Review and Hypothesis Development

Digitalization is defined as the use of digital technology to transform business processes and also to generate turnover and create various business opportunities (Vrana and Singh, 2021). The use of digital technology was initially intended to increase the efficiency of existing business processes where lower operational costs, shorter service delivery times, and also included increased convenience for customers. Several empiricists show that digitalization and information technology contribute several benefits to the world of logistics and sea transportation business. The benefits of digitalization in the shipping industry show that digital innovation solutions have a significant influence on customer value (Lam and Zhang, 2019). Other empiricists also show that digital transformation in shipping companies can contribute added value to the shipping world ecosystem (Poulis et al, 2020). Digitalization also plays an important role in improving the company's performance and internal relations about the supply chain relationship between land and sea (Vaio and Varriale, 2020). Besides aiming to generate competitiveness, digitalization is also useful in generating company resilience to unanticipated environmental challenges and changes (Zhang et al, 2021). Putra et al (2022) in testing the resilience of MSME businesses show that digitalization has a significant effect on company resilience.

Shipping agency service companies are required to adjust their business processes by adapting business service processes based on digital technology. The main capital of shipping agency service companies which lies in relational social capital from human resources is transformed into digital-based relationships. Transforming business processes that rely on the power of relational interaction into digital-based interaction is a difficult choice concerning the products or services provided by service providers identical or attached to the service provider's human resources. Between the service provider and the service recipient, there is an emotional connection in the interaction. On the other hand, due to the demands of business processes that occur in the port activity environment where the main partners of the Port Authority have required digitization business processes, shipping agency companies are required to adjust their business processes. In addition to the demands of adjusting business

processes to adapt to system digitalization, the benefits obtained by customers from the process of changing manual business processes to digital-based ones include speed of service, efficiency and value addition for customers. Shipping agency service companies that make adjustments to system digitization business processes can experience or generate company resilience because customers will also continue to support the benefits obtained by customers. In other words, shipping agency service companies can adapt to various challenges with the role of information technology or the digitization process, thus the hypothesis that can be built is:

H1. Digitization of shipping agency systems has a significant effect on the company's resilience

The concept and understanding of digitalization then developed and became fundamental to business competition or related to creating competitiveness for companies. Digitalization of services is an important source in the process of differentiation and creating competitive advantage (Verhoef et al, 2021). However, digitalization is not the main source of competitive advantage. Empirical results from Balci (2021) which explores the digitization process in the container sea transportation company industry show that digital service integration is not the main resource but collaboration within companies that manage the digitization process. Even if digitalization is considered a source of competitive advantage for companies, it is important and main to note that companies must check or test the company's capabilities and readiness to adapt to the digitization process (Machado et al, 2019).

Several empiricists exploring the digitization process in companies related to competitive advantage or competitiveness for companies show that digitalization has a significant effect on competitive advantage. Priyanto, et al (2023) who explore competitive advantages in the banking sector from the aspect of digital business strategy show that competitive advantage is very significantly influenced by digital business strategies which are reflected in management skills, operational capabilities and also information technology skills and electronic collaboration capabilities. Other empiricists show that digital transformation has a significant effect on competitive advantage (Ismail, 2022; Shehadeh et al, 2023) and also showed the significant influence of testing on the small and medium enterprise (SME) industry (Putra et al, 2022). The digitization process is applied to shipping agency service companies that rely on human resources in addition to providing benefits for customers where indirectly the company benefits in the form of company resilience. Furthermore, companies that have corporate resilience, especially those that emphasize efforts to

bounce back from difficult conditions, can take advantage of these conditions to become a competitive advantage factor for shipping agency companies. The factor causing the emergence of excellence is the uniqueness or privilege possessed by the results of the adaptation of the system digitization process to pave the way for other resource empowerment steps that support the system digitization process and become a source of competitive advantage for the company, thus the hypothesis that can be built is:

H2. Digitization of systems in shipping agency companies has a significant effect on competitive advantage

The existence of a system digitization process adopted or used by the company is solely aimed at improving the quality of service to customers. Adaptation to the digitalization process is increasingly absolutely carried out by service companies during the pandemic and also post-pandemic. The adaptation of the digitalization process is also related to the steps or breakthroughs in innovation made by the company. Changes in business operational patterns will also require companies to modify existing business processes and or even find new process ways through breakthrough innovation. Both breakthrough innovation solutions can be done simultaneously which is called an ambidextrous innovation breakthrough.

Previous empiricists have shown that digitalization affects innovation, which is important for companies that have a digitalization strategy vision to increase innovation capabilities (Zhang et al, 2021; Tajudeen et al, 2022). Agility and digitalization as well as integration in digitalization increase the company's innovation capabilities. Shipping agency companies that transform business processes from relational interaction processes to business processes that rely on digital interactions will have resilience or competitiveness when the transformation of digital business processes is accompanied by innovation steps that are attractive to customers. The breakthrough innovation steps taken are not limited to modifying but combined with breakthrough innovations in the form of new findings or introducing new processes or products that are not owned by competitors, thus the hypothesis that can be built is:

H3. Digitization of systems in agency companies has a significant influence on innovation ambidextrous.

Service companies are required to make various breakthroughs to survive various unanticipated environmental changes. The company's resilience will be determined by how the company takes breakthrough innovation steps. Previous empirical have shown that innovative companies will have more company resilience

because innovation, either directly or indirectly, helps companies strengthen capabilities that have a positive impact on risk management capabilities (Sabahi and Parast, 2020). Ship agency companies in making various breakthroughs in business process improvements both modified and breakthrough forms of innovation new findings carried out simultaneously will increase company resilience, so the hypothesis that can be built is:

H4. Ambidextrous Innovation has a significant effect on the Company's Resilience

Shipping agency service companies to maintain competitive advantage in the market must take various breakthrough steps, both breakthroughs in business processes and service products provided to customers. The form of service produced must be unique and difficult to imitate by competitors and the ability to innovate is done by a combination of innovation that is maintaining and modifying and innovation that is new findings. The correlation between ambidextrous innovation and competitive advantage has been tested by various empiricists where ambidextrous innovation has a significant effect on competitive advantage (Wang and Fang, 2022; Clauss et al., 2021; Wang and Zhang, 2021; Zhang et al, 2021). Breakthrough innovation steps, both exploitative and exploratory forms, will increase competitive advantage so that hypothesis that can be built is:

H5. Ambidextrous Innovation has a significant effect on competitive advantage

The company tries to respond to environmental changes by taking breakthrough steps to survive. Efforts made in addition to maintaining the performance that has been achieved are also aimed at producing competitive advantages for the company. Experience in how to survive during a pandemic is an important capital in achieving a competitive advantage after the post-pandemic period. Previous empiricists have also shown that company resilience influences companies in achieving competitive advantage (Fathi et al, 2021; Abeysekara et al., 2019) Assuming the ship agency service company is fully operating at capacity and competition is also getting tighter, then efforts to generate competitive advantage can also be achieved, so that the hypothesis that can be built is

H6: Company Resilience has a significant effect on Competitive Advantage

The adaptation of the digitization process carried out by agency service companies will increase the company's resilience and also increase the company's competitive advantage. Previous empiricists have proven that digitalization has a significant effect on company resilience

(Zhang et al, 2021) and digitalization has a significant effect on competitive advantage (Ismail, 2022; Shehadeh et al, 2023). The existence of ambidextrous innovation breakthroughs will have an impact on digitalization which will result in company resilience so that the digitalization process followed by ambidextrous innovation breakthroughs will increase company resilience so that hypothesis that can be built in the role of ambidextrous innovation as a mediating variable between system digitalization and company resilience is:

H7. Ambidextrous innovation has a significant effect on Company resilience

The existence of ambitious innovation breakthroughs will also affect the digitalization process in producing company competitive advantages. Ship agency service companies in delivering their product services to customers with the adaptation of digitalization will further increase competitive advantage if there is a breakthrough innovation so that the hypothesis that can be built is

H8: Ambidextrous innovation has a significant effect on competitive advantage

Based on several previous empiricists in testing the relationship between system digitalization and company resilience and also the relationship between system digitalization and competitive advantage where the results show a significant influence relationship, then using the theoretical basis of resource-based competitive advantage or resource base view (RBV) can be reconstructed the factor model of factors that determine competitive advantage with the basis of resource empowerment owned by the company. Efforts to empower resources owned by ship agency service companies after the pandemic can be in the form of adaptation, digitalization of the system, and breakthrough innovations made in business processes and/or in the form of service products provided to customers. The form of resource empowerment owned by the ship agency service company is intended to maintain the company's existence or company resilience and also at the same time become a source of competitive advantage for the company.

Based on the summary of the literature review and hypothesis development, a relationship model can be reconstructed between system digitalization (X_1) as exogenous variable and competitive advantage (Y_2) as endogenous variables and ambidextrous innovation (Y_3) dan company resilience (Y_4) as a mediating variable. The reconstruction of the model is shown in Figure 1

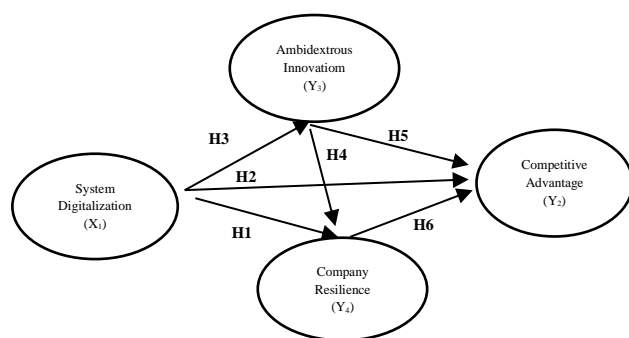


Figure 1. Research Model and Hypothesis

METHOD

This research was conducted with a quantitative method approach using the population of shipping agency companies in Indonesia that are members of the Indonesian Shipping Agencies Association (ISAA). The study was conducted for 2 months in the period April – May 2023. The selection of the population of companies that are members of the association is intended to obtain the level of homogeneity of data to be obtained which can represent typical shipping agency service companies in Indonesia. The unit of analysis is a company represented by company leaders with director, general manager and branch head levels who are considered to be able to know the complete business processes in the company.

The sample determination was carried out with a census approach, namely by distributing questionnaires to 350 ship agency companies of association members operating in 10 major Indonesian ports. The number of questionnaires responded to and returned was 192 ship agency companies with a return rate of 55% which included the moderate category (Solimun et al, 2017). The return rate of 55% on a moderate scale still requires further exploration of the representativeness of the sample in the population. The ideal moderate value should be above 60%. Data collection was carried out by sending questionnaires through a Google form link with the category of measuring intervals 5 on the Likert scale, namely with answer choices: 1. strongly disagree, 2. disagree 3. Neutral, 4 agree and 5. Agree. Furthermore, analysis was carried out with a descriptive statistical analysis approach and inferential statistical analysis using the WarPls 7 multivariate analysis method.

The variables in this study consist of 4 variables, namely the system digitization variable as an exogenous variable and 3 variables as endogenous variables, namely company resilience variables, competitive advantage variables and ambidextrous innovation variables as mediation variables. The four variables are measured from the results of reflection from several indicators that reflect each variable. The variables of system digitalization are reflected by 4

indicators adapted from Abou-foul, et al (2021), including:

1. Using digital technology to adjust port authority partners,
2. Using digital technology to meet customer needs,
3. Using technology for internal coordination of the company,
4. Using various digital modules.

The Company's Resilience variable is reflected by 4 indicators adapted from Fathi, et al (2021), including: 1. Proactive in quickly solving problems, 2. Developing in difficult conditions, 3. Creative amid difficult conditions, 4. Surviving in deteriorating conditions.

The Competitive Advantage variable is reflected by 6 indicators adapted from Sigalas and Papadakis (2018), including 1. More reliable in human resource ownership, 2. A pioneer in meeting customer needs, 3. Pioneers produce the latest services, 4. Unparalleled services in the market, 5. Quality of service is more efficient, 6. Service prices are more competitive. The Ambidextrous Innovation variable is reflected by 4 indicators adapted from Cho et al (2019), including: 1. Adjusting the digital system of port authority partners, 2. Modifying the internal service system according to the customer system, 3. Offering efficient digital transformation, 4. Creating a business process service system relevant to port authority partners. All indicators that reflect the 4 variables are then used as a list of questions in the questionnaire. Before distributing the questionnaire to the target respondents, a questionnaire instrument test is carried out to ensure whether the questionnaire instrument is valid and reliable.

The questionnaire was distributed to 30 samples of ship agency companies. The validity test is intended to test the extent to which the questionnaire can measure what it wants to measure by actual conditions. The questionnaire instrument is concluded to be valid when the value of the correlation coefficient is ≥ 0.3 . Reliability tests are intended to ascertain whether the questionnaire instrument can measure a variable consistently. The questionnaire instrument was concluded to be reliable when the value of the Cronbach Alpha coefficient was >0.6 . The test results of the questionnaire instrument as shown in Table 1 show that all items reflecting the four variables have a correlation coefficient value above 0.3 so it is concluded that all questionnaire items are valid. Likewise, the results of reliability testing showed that the four variables had Cronbach Alpha values above 0.6 so the questionnaire instrument was reliable to use.

RESULT AND DISCUSSION

The test results are reviewed from the respondent profile of the ship agency company as illustrated in Table 2 shows that when viewed from the age of the company there are 72% or 140 companies over 15 years old, 15% or 27 companies aged 5 years, 9% or 18 companies aged 5-10

years and 4% or 7 companies aged 11-15 years. When viewed from the number of employees owned by the company, there are 32% or 62 companies that have employees above 100 people, 36% have employees below 25 people, 20% have employees 25-50 people, 4% have employees 51-75 people, and 8% have employees 76-100 people. When viewed the level of leaders who responded consisted of 30% or 57 people as directors, 35% or 67 people with general manager level and 35% or 68 people with branch head level.

Furthermore, the results of data processing related to variable descriptions and outer model testing in detail are described in Table 3. The System Digitization variable has a mean value of 4.1 with a high category. This variable is reflected by the highest indicator, which is using digital technology to meet customer needs with a value of 0.876. Compared to the mean value of other indicators which are relatively not much different which are still in the high category, the indicator of the use of digital technology that meets customers that best reflects the variable of system digitalization. This shows that from several series of adaptations to the system digitization process, respondents consider that the important factor is to use digital technology to meet customer needs to achieve company

competitiveness and resilience. While the Company's Resilience variable has the highest mean value among other variables of 4.3 with a high category. This variable is reflected by the highest indicator with a value of 0.850, which is a creative indicator amid difficult conditions.

This illustrates that from several company steps in maintaining the company from environmental situations, respondents consider the company's creative factors amid difficult conditions to be the main factor related to company resilience. The Competitive Advantage variable has the lowest mean value among all variables, which is 3.8 in the medium category. This variable is reflected by the highest indicator, which is a pioneer indicator in meeting customer needs with a value of 0.855. This illustrates that in achieving competitive advantage, the company's factor as a pioneer in meeting customer needs becomes a determining factor. The Ambidextrous Innovation variable has a mean value of 4.0 in the high category. This variable is reflected by the highest indicator, which offers efficient digital transformation with a value of 0.840. This illustrates that companies in making breakthrough innovations put more emphasis on how companies offer efficient digital transformation.

Table 1. Instrument Questionnaire Test

| Variable | Indicator/Item | Correlation Coefficient | Cronbach Alpha | Result |
|------------------------------|---|-------------------------|----------------|------------------|
| System Digitalization (SD) | Using digital technology to adjust port authority partners (SD ₁) | 0.812 | 0.855 | Valid & Reliable |
| | Using digital technology to meet customer needs (SD ₂) | 0.876 | | |
| | Using technology for internal company coordination (SD ₃) | 0.841 | | |
| | Using various digital modules (SD ₄) | 0.811 | | |
| Company Resilience (OR) | Proactively quickly troubleshoot (OR ₁) | 0.806 | 0.832 | Valid & Reliable |
| | Thrive in difficult conditions (OR ₂) | 0.761 | | |
| | Creative amid difficult conditions (OR ₃) | 0.850 | | |
| | Persist in deteriorating conditions (OR ₄) | 0.845 | | |
| Competitive Advantage (CA) | More reliable in human resource ownership (CA ₁) | 0.718 | 0.879 | Valid & Reliable |
| | Pioneer in meeting customer needs (CA ₂) | 0.855 | | |
| | Pioneer produces the latest services (CA ₃) | 0.841 | | |
| | Unparalleled service in the market (CA ₄) | 0.836 | | |
| | More efficient quality of service (CA ₅) | 0.775 | | |
| | More competitive service prices (CA ₆) | 0.713 | | |
| Ambidextrous Innovation (IA) | Customizing the port authority partner digital system (IA ₁) | 0.824 | 0.852 | Valid & Reliable |
| | Modify the internal service system according to the customer system (IA ₂) | 0.830 | | |
| | Offers efficient digital transformation (IA ₃) | 0.840 | | |
| | Creating a relevant business process service system with port authority partners (IA ₄) | 0.836 | | |

Source: Primary Data processed, 2023

Table 2. Description of Respondents

| Parameters | | Number of company (responden) | Percentage (%) |
|-----------------------------------|---------------------|----------------------------------|----------------|
| Company Age | < 5 years | 27 | 15% |
| | 5 s/d 10 years | 18 | 9% |
| | 11 s/d 15 years | 7 | 4% |
| | >15 years | 140 | 72% |
| Company Size (number of employee) | <25 employes | 69 | 36% |
| | 25 s/d 50 employes | 38 | 20% |
| | 51 s/d 75 employes | 7 | 4% |
| | 76 s/d 100 employes | 15 | 8% |
| | >100 employes | 62 | 32% |
| Status / Position of Respondent | Branch Head | 68 | 35% |
| | General Manager | 67 | 35% |
| | Director | 57 | 30% |

Source: Primary Data processed, 2023

Table 3. Mean, and Validity

| Variable | Mean | Indicator | Mean | Loading Factor | Result |
|------------------------------|------|-----------------|------|----------------|--------|
| System Digitalization (SD) | 4.1 | SD ₁ | 4.2 | 0.812 | Valid |
| | | SD ₂ | 3.9 | 0.876 | Valid |
| | | SD ₃ | 4.1 | 0.841 | Valid |
| | | SD ₄ | 4.2 | 0.811 | Valid |
| Company Resilience (OR) | 4.3 | OR ₁ | 4.4 | 0.806 | Valid |
| | | OR ₂ | 4.2 | 0.761 | Valid |
| | | OR ₃ | 4.2 | 0.850 | Valid |
| | | OR ₄ | 4.4 | 0.845 | Valid |
| Competitive Advantage (CA) | 3.8 | CA ₁ | 4.0 | 0.718 | Valid |
| | | CA ₂ | 3.9 | 0.855 | Valid |
| | | CA ₃ | 3.6 | 0.841 | Valid |
| | | CA ₄ | 3.6 | 0.836 | Valid |
| | | CA ₅ | 3.8 | 0.775 | Valid |
| | | CA ₆ | 3.8 | 0.713 | Valid |
| Ambidextrous Innovation (IA) | 4.0 | IA ₁ | 4.2 | 0.824 | Valid |
| | | IA ₂ | 4.2 | 0.830 | Valid |
| | | IA ₃ | 3.8 | 0.840 | Valid |
| | | IA ₄ | 3.8 | 0.836 | Valid |

Source: Primary Data processed,2023

Testing of the outer model related to validity and reliability shows that these two indicators are in the valid category. All variables have a loading factor value above 0.6 (Solimun et al, 2017) so it can be concluded that each indicator that reflects the four variables meets the convergent validity requirements. Furthermore, based on the results of discriminant validity testing as illustrated in Table 4 show that each indicator has a higher loading factor value than cross-loading so that all indicators meet the discriminant validity requirements. Furthermore, testing the validity of variable discriminants also shows AVE values above 0.5 so that it can be concluded that all variables meet the provisions for discriminant validity (Solimun et al, 2017).

The results of reliability testing as illustrated in Table 5 can be concluded that all variables meet the reliability requirements because all Cronbach alpha values of each variable are above the value of 0.7. Likewise, the composite reliability value of each variable is also above the value of 0.6. These results show that all variables, including indicators that reflect variables, meet reliability requirement.

Before entering the interpretation stage of the results of hypothesis testing, the research model is tested beforehand whether it has a good Goodness of Fit. The goodness of Fit in question is an index and measure of goodness of relationships between latent variables (inner model) related

to assumptions. Model feasibility testing is structurally measured using R-squared and Q-squared which is equivalent to the total coefficient of determination in path analysis. The R-squared value indicates what proportion of endogenous variables can be explained by exogenous variables. While the Q-squared value is used to assess the predictive validity or relevance of a set of exogenous latent variables to their endogenous variables.

Based on the test results as illustrated in Table 6, all R values include a moderate range because they are below 0.65 and above 0.35 (Solimun et al, 2017). The Company Resilience can be explained by System Digitalization and Ambidextrous Innovation by 44.7%, while the remaining

56.3% is explained by other factors outside this research model. Competitive Advantage is explained by System Digitalization with Ambidextrous Innovation by 49.6% while the remaining 50.4% is explained by other factors outside this research model. Ambidextrous Innovation is explained by System Digitalization by 44.7% and the remaining 55.3% is explained by other factors outside this study. The feasibility of the model when viewed from the test results of the Q-squared value of all Q values is above 0.35 so it can be concluded that the predictive validity or relevance of exogenous variables to endogenous variables is a large category. Thus, based on the feasibility test of the model, it can be concluded that the model is good with a moderate category and its relevance is large.

Table 4. Discriminant Validity Test

| Variable | AVE | Indicator | SD | OR | CA | IA |
|------------------------------|-------|-----------------|--------------|--------------|--------------|--------------|
| System Digitalization (SD) | 0.698 | SD ₁ | 0.812 | 0.045 | 0.084 | -0.224 |
| | | SD ₂ | 0.876 | 0.076 | -0.203 | 0.080 |
| | | SD ₃ | 0.841 | 0.021 | -0.084 | 0.082 |
| | | SD ₄ | 0.811 | -0.149 | 0.221 | 0.053 |
| Company Resilience (OR) | 0.666 | OR ₁ | -0.165 | 0.806 | -0.018 | 0.090 |
| | | OR ₂ | 0.105 | 0.761 | 0.008 | -0.059 |
| | | OR ₃ | 0.185 | 0.850 | 0.031 | -0.116 |
| | | OR ₄ | -0.123 | 0.845 | -0.021 | 0.083 |
| Competitive Advantage (CA) | 0.627 | CA ₁ | -0.025 | 0.238 | 0.718 | 0.088 |
| | | CA ₂ | -0.059 | 0.305 | 0.855 | -0.109 |
| | | CA ₃ | 0.184 | -0.136 | 0.841 | 0.018 |
| | | CA ₄ | -0.064 | 0.234 | 0.836 | -0.011 |
| | | CA ₅ | 0.092 | -0.208 | 0.775 | -0.068 |
| | | CA ₆ | 0.011 | -0.010 | 0.713 | 0.107 |
| Ambidextrous Innovation (IA) | 0.693 | IA ₁ | 0.041 | 0.212 | -0.029 | 0.824 |
| | | IA ₂ | 0.087 | 0.228 | -0.150 | 0.830 |
| | | IA ₃ | -0.122 | -0.221 | 0.110 | 0.840 |
| | | IA ₄ | -0.004 | -0.214 | 0.067 | 0.836 |

Source: Primary Data Processed, 2023

Table 5. Composite Reliability and Cronbach Alpha

| Variable | Composite Reliability | Cronbach Alpha | Result |
|------------------------------|-----------------------|----------------|----------|
| System Digitalization (SD) | 0.902 | 0.855 | Reliable |
| Company Resilience (OR) | 0.888 | 0.832 | Reliable |
| Competitive Advantage (CA) | 0.909 | 0.879 | Reliable |
| Ambidextrous Innovation (IA) | 0.900 | 0.852 | Reliable |

Source: Primary Data Processed, 2023

Table 6. R-squared and Q squared

| Variable | R Squared | Adjusted R Squared | Q Squared | Result |
|------------------------------|-----------|--------------------|-----------|----------|
| System Digitalization (SD) | - | - | - | |
| Company Resilience (OR) | 0.447 | 0.442 | 0.444 | Moderate |
| Competitive Advantage (CA) | 0.496 | 0.490 | 0.496 | Moderate |
| Ambidextrous Innovation (IA) | 0.447 | 0.358 | 0.359 | Moderate |

Source: Primary Data Processed, 2023

Table 7. Fit Model and Quality indices

| Fit Model and Quality Indies | Fit Criteria | Result | Remark |
|--|--|-----------------|----------|
| APC (Average path coefficient) | P<0.05 | 0.274 p < 0.001 | Good |
| ARS (average r-square) | P<0.05 | 0.434 p < 0.001 | Good |
| AARS(average adjusted R squared) | P<0.05 | 0.430 p < 0.001 | Good |
| AVIF (Average block VIF) | Accepted if <=5 ideally <=3.3 | 1.567 | Good |
| AFVIF (Average full collinearty VIF) | Accepted if <=5 ideally <=3.3 | 1.749 | Good |
| GoF (Tenenhaus Gof) | Small >= 0.1 medium >=0.25 large >=0.36 | 0.566 | Large |
| SPR (Sypmson's paradox ratio) | Accepted if >=0.7 ideally =1 | 0.750 | Accepted |
| RSCR (R-squared contribution ratio) | Accepted if >=0.9 ideally =1 | 0.994 | Accepted |
| SSR (Statistical suppression ratio) | Accepted if >=0.7 | 1.00 | Accepted |
| NLBCDR (nonlinear bivariate causality direction ratio) | Accepted if >=0.7 | 0.750 | Accepted |

Source: Primary Data Processed, 2023

The results of testing the overall model using WarPls 7 as illustrated in Table 7 which includes model fit indicators and quality indices show that all meet the fit criteria. APC, ARS, AARS, AVIF and AFVIF values all showed good results. Likewise, the criteria of GoF, SPR, RSCR, SSR and NLBCDR can meet the criteria. The p-value for APC, ARS, AARS must be smaller than 0.5 so that it is inferred to be significant and the test results show significant. Likewise, the value of AVIF as an indicator of multicollinearity must be less than 5. The test results show that there is no multicollinearity which means that the variable is not strongly correlated with other variables in the model. The results of the model goodness testing showed that the reconstructed model met the goodness of fit criteria.

Furthermore, the results of testing the relationship between variables from the research model as illustrated in Table 8 show that 6 (six) hypotheses built from the relationship between two variables with a confidence level of 5% all show that the p-value is significant so that the six hypotheses can be accepted. The value of the path coefficients of the relationship between variables varies with a significant range of low-level to medium-level. There are only 2 (two) hypotheses with path coefficient values above 0.500, namely the relationship between system digitalization with ambidextrous innovation and the relationship between ambidextrous innovation and competitive advantage.

The lowest path coefficient value was the relationship between resilience and competitive advantage with a value of 0.116 and the relationship between system digitalization and competitive advantage with a value of 0.188. Testing the relationship between indirect variables, namely the role of ambidextrous innovation as a mediating variable, shows significant value. The value of the path coefficient of the mediation result also shows a higher value than the value of the path coefficient of the direct relationship between the two variables. Shipping agency companies in Indonesia as represented by respondents with the company category are mostly over 15 years old as much as 72% of the total respondents, indicating that companies in a post-pandemic competitive situation emphasize more on the use of digital technology to meet customer needs after the pandemic period.

The digitalization of the system also answers the challenges of environmental change to survive where more emphasis is placed on the company's creativity in difficult conditions. Thus, the result of the process of digitizing the system with an emphasis on aspects of creativity will result in a competitive advantage for the company because it is a pioneer in offering service products for customers. This competitive advantage will be more significant compared to competitors because the breakthrough innovation made is a colour digitalization breakthrough that emphasizes efficiency.

Table 8. Hypotheses Result

| Hypothesis | Relationships between variables | Path coeeficient | p-value | Result |
|------------|---------------------------------|------------------|------------|-------------|
| H1 | SD → OR | 0.286 | P< 0.001** | Significant |
| H2 | SD → CA | 0.188 | P< 0.001** | Significant |
| H3 | SD → IA | 0.600 | P< 0.001** | Significant |

| Hypothesis | Relationships between variables | Path coefficient | p-value | Result |
|------------|---------------------------------|------------------|-------------|-------------|
| H4 | IA → OR | 0.483 | P < 0.001** | Significant |
| H5 | IA → CA | 0.507 | P < 0.001** | Significant |
| H6 | OR → CA | 0.116 | 0.015** | Signifikant |
| H7 | SD → IA → OR | 0.272 | P < 0.001** | Significant |
| H8 | SD → IA → CA | 0.377 | P < 0.001** | Significant |

** signifikan on 0.05 level (5%)

Source: Primary Data Processed, 2023

Testing the relationship between system digitization and shipping agency company resilience as the results of H₁ hypothesis testing showed significant value but was still at a low level of 28.6%. The process of digitizing the system in shipping agency companies shows a low value of influence in generating company resilience. The emphasis on digitizing the system to meet customer needs does not show a high influence in generating resilience that emphasizes creativity. This can happen for shipping agency companies that are over 15 years old, so the process of digitizing the system is aimed at retaining customers and is not directed at creativity but at maintaining. The company's resilience can still be fulfilled but the magnitude of the influence on resilience is ultimately not too great. The results of this test are still relevant and in line with previous empirical (Putera et al, 2022) which were tested on SME companies where the results were also significant.

Testing the relationship between system digitization and the competitive advantage of shipping agency companies as the results of testing the H₂ hypothesis showed a low significance value of only 18.8%. The adaptation of system digitization for shipping agency companies over 15 years old does not show a high significance in generating a competitive advantage for the company. The choice of digitalization in meeting customer needs does not contribute a high influence on achieving a competitive advantage that emphasizes pioneers in offering new services. Efforts to meet customer needs carried out by the company still contribute to competitive advantages for the company, but from the pioneer aspect in fulfilling new services for customers is still low. The results of testing the relationship between system digitalization and competitive advantage are in line with previous empirical studies with research objects in banking (Priyanto, 2023) and in the SME industry (Putera et al, 2022). The results of this test contribute empirical enrichment in proving the theory of competitive advantage based on the resource base view (RBV) where digitalization adaptation in producing competitive advantage is a form of empowering resources

owned to create privileges and uniqueness for the company.

Testing the relationship between system digitization and ambidextrous innovation at ship agency companies showed a significant effect of 60%. The implementation of system digitalization in companies that emphasize meeting customer needs shows a significant influence in increasing breakthrough innovations that emphasize efficiency. This is against the background of ship agency companies that are over 15 years old in the use of system digitalization aimed at increasing innovation breakthroughs, emphasizing more on the efficiency of the systems used. Previous empiricists have not tested ambidextrous innovation breakthroughs, so testing this relationship is complementary to seeing the relationship between digitalization and innovation.

Testing the relationship between ambidextrous innovation and shipping agency company resilience showed an effect of 48.3%. The breakthrough made by ship agency companies, most of whom are over 15 years old, will increase the company's resilience. The emphasis of digitalization implementation on meeting customer needs will contribute to increasing the company's resilience in aspects of creativity in difficult conditions. In connection with testing the relationship between ambidextrous innovation breakthroughs and resilience is quite diverse and the results are significant, the test results in service companies are an enrichment of empirical evidence.

The company's resilience variable can be explained by the previous variable, both the service digitization variable and the ambidextrous innovation variable as a mediating variable, which is 44.7%, while 55.3% is explained by other factors outside this research model. This result is relevant to the large influence of digitalization of services and also the large influence of ambidextrous innovation on resilience which is included in the low category.

Testing the effect of breakthrough ambidextrous innovation on competitive advantage in shipping agency companies over 15 years old showed a significant effect of 50.7%. This result can be interpreted that if the company has a mature company age, breakthrough innovations made that emphasize efficiency will increase competitive advantage for the company with an emphasis on pioneering in producing new services for customers. The experience and breakthrough innovation efforts in responding to environmental changes can be a factor of competitive advantage for the company, namely the company's ability to be a pioneer in competition in offering new services to customers.

Testing the relationship between company resilience and competitive advantage in shipping agency companies still shows a significant value but is still very low at 11.6%. Companies that try to maintain the company's existence, especially the emphasis on corporate creativity, still cannot maximally increase the competitive advantage of companies that emphasize the pioneer's ability to provide services for customers. The background of companies that are over 15 years old is not enough to produce competitive advantages by relying on company creativity in difficult conditions.

The results of testing the relationship between company resilience and competitive advantage in ship agency companies are still in line with previous empirical results (Fathi et al, 2021; Abeysekara et al., 2019) and these results are an empirical complement to testing in service companies. agency companies still shows a significant value but is still very low at 11.6%. Companies that try to maintain the company's existence, especially the emphasis on corporate creativity, still cannot maximally increase the competitive advantage of companies that emphasize the pioneer's ability to provide services for customers. The background of companies that are over 15 years old is not enough to produce competitive advantages by relying on company creativity in difficult conditions. The results of testing the relationship between company resilience and competitive advantage in ship agency companies are still in line with previous empirical results (Fathi et al, 2021; Abeysekara et al., 2019) and these results are an empirical complement to testing in service companies.

The variable of competitive advantage can be explained by the variable of digitalization of services and the variable of ambidextrous innovation and company resilience is 49.6% while 50.4% is explained by other factors outside this research model. This result is relevant to the large influence of digitalization of services, ambidextrous innovation and corporate resilience on competitive advantage that has a low category influence value.

Testing of breakthrough ambidextrous innovations that act as mediating variables between the relationship between system digitalization and competitive advantage, and also between the relationship between service digitalization and resilience shows that this variable including partial mediation variables concerning direct relationship influences also shows significant value. Thus, with an ambidextrous innovation breakthrough with an emphasis on efficiency, the digitalization of services will increase company resilience and also increase competitive advantage for companies. The role of breakthrough innovation still does not contribute to a more significant increase than the influence of direct relationships.

Testing of several relationships between variables in post-pandemic ship agency service companies cannot be drawn to conclusions given the limited research in time coverage. It still needs testing to compare the implementation of system digitalization during the pandemic period and compare it to post-pandemic. It is necessary to deepen further how the resilience of companies that rely on system digitalization and breakthrough ambidextrous innovations are tested and compared during the pandemic and post-pandemic period.

The author realizes that this research has limitations in exploring ambidextrous innovation breakthroughs that affect resilience and competitive advantage stemming from system digitalization, and has not explored the combination of incremental innovation and radical innovation as a combination and balance between the two to produce ambidextrous innovation. How the effect of ambidextrous innovation breakthroughs by comparing with incremental innovations and radical innovations on resilience and competitive advantage is open to exploratory studies in future research.

CONCLUSION

The implementation of system digitalization in ship agency companies after the pandemic increases company resilience and also increases competitive advantage. The emphasis of digitalization on meeting customer needs will increase the company's resilience which emphasizes the company's creativity. The emphasis of digitalization on meeting customer needs also increases competitive advantage which emphasizes the pioneering ability to provide services for customers. The existence of ambitious innovation breakthroughs with an emphasis on system efficiency also increases the influence of system digitalization on company resilience and also on the company's competitive advantage. Service companies that are over 15 years old emphasize meeting customer needs in responding to environmental changes to achieve company resilience and also achieve competitive

advantage. The conclusion of this study has been confirmed in post-pandemic conditions and allows different results if carried out during the pandemic period which requires further study with the object of research on the resilience and competitive advantage of companies during the pandemic.

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The authors declare no conflict of interest

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