Uncertain Supply Chain Management 12 (2024) 857–870

Contents lists available at GrowingScience

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm

Company performance model of wholesale carrier service companies in Indonesia: Company capability, co-creation strategy, and external business environment

Edwin Aristiawan[a*], Sucherly[a], Sulaeman Rahman Nidar[a] and Umi Kaltum[a]

[a]*Department of Management and Business, Universitas Padjadjaran, Bandung 40132, Indonesia*

Article history:
Received September 4, 2023
Received in revised format October 28, 2023
Accepted January 2 2024
Available online January 2 2024

Keywords:
Co-Creation Strategy
Company Capability
Company Performance
External Business Environment

A B S T R A C T

The goal of the study was to assess how Indonesian ICT companies that provide wholesale carrier services can manage the external business environment and improve their performance with the help of their co-creation strategy and corporate skills. Using partial quadratic structural equation modeling (PLS-SEM) to evaluate the research hypothesis, the study concentrated on 45 Indonesian ICT companies offering wholesale carrier services. The outcomes demonstrated how the company's co-creation strategy and capabilities increased its effectiveness and greatly improved its capacity to negotiate the external business climate. According to these results, enhancing organizational capacities and putting co-creation techniques into practice should be Indonesian ICT enterprises' top priorities if they want to improve performance and successfully navigate the external business environment. Involving consumers, users, or other stakeholders in the design and development of digital goods or services is known as the co-creation strategy. It can happen in a lot of different ways, such hackathons, online platforms, workshops, or prototype sessions.

1. Introduction

The external business environment refers to the aspects of a company's business that are outside its control but which can still have an impact on its operations, staff, and revenues (Yasa, Sukaatmadja, & Yuniari, 2019). These elements can be classified into a variety of categories, such as political and legal, economic, demographic, social, competitive, global, and technological (Ajayi, 2016). Managers have a responsibility to be aware of how their surroundings are shifting, as well as the implications of those shifts for the company (Trisakhon, Onputtha, & Peamchai, 2018). The economic sector of the external business environment includes factors such as inflation, interest rates, and economic growth (Khan, Basit, Khan, & Khan, 2022). The political and legal sector includes government policies, regulations and laws that may impact business (Akpoviroro & Owotutu, 2018; Dogru et al., 2020). The demographic sector includes factors such as population size, age, and income distribution (Obamuyi & Olorunfemi, 2011; Ramlan & Suhaimi, 2017). The social sector includes cultural and social trends that can influence business (Indiastuti, 2003; Murjani, 2019). The competitive sector encompasses the activities of rival companies as well as the degree of rivalry present in the market (Farida & Setiawan, 2022).

The global sector includes factors such as international trade, exchange rates, and global economic conditions. The technology sector includes technological advances that can impact business (Kurniawan et al., 2023; Phiri, 2020; Tham & Atan, 2021). Because they can have an impact on a business's operations, workforce, and revenue both directly and indirectly, external environmental issues are important (Markovic & Bagherzadeh, 2018). It is common practice for managers to monitor external environmental elements, with the goal of locating and resolving issues brought on by those circumstances, as well as adapting their practices accordingly (Akpoviroro & Owotutu, 2018; P.-S. Huang & Shih, 2010). Businesses must design themselves to thrive as an organization in their external environment (Akpoviroro & Owotutu, 2018). They must respond to the unique opportunities and challenges of their external environment (Aslam, Elmagrhi, Rehman, & Ntim, 2021; Yong et al., 2020). The complexity and unpredictability of the external environment might affect how firms are designed and run. Numerous

* Corresponding author
E-mail address edwin.aristiawan@gmail.com (E. Aristiawan)

ISSN 2291-6830 (Online) - ISSN 2291-6822 (Print)

doi: 10.5267/j.uscm.2024.1.002

research studies have looked into how the success of Information and Communication Technology (ICT) enterprises is impacted by the external business environment. For instance, a study was conducted in Nigeria to determine how the regional business environment affected the information and communication technology firms' productivity in Lagos State (Ogunmuyiwa, 2022). According to the study, among the external elements that affected how well ICT enterprises performed were the physical environment, security, and political climate. Another study looked at how Nigerian firms that sell chilled fish performed as an organization in that country's business environment (Akpoviroro & Owotutu, 2018). The results of the study showed that the various firms' organizational effectiveness was influenced by the external business environment. Similar findings were made by a study carried out in the food sector, which found that organizational success was influenced by technology and innovation skills, leadership development, and the external environment (Mai & Phuong, 2021). According to the findings of the study, shifts in each one of these characteristics has the potential to have an effect on the capacity for technology transfer and innovation.

Information and Communication Technology (ICT) organizations' performance may be impacted by both external and internal variables. Examples of internal variables include the company's ICT experience, organizational scale, culture, and ICT understanding (Chairoel & Riski, 2018; Rozmi et al., 2020). The performance of information and communication technology enterprises can be impacted by a variety of external factors. The structure of the sector, the existence of technology service providers, regulations, and the impact of aspects from the external business environment such as sociocultural, political, and economic issues are some examples of these factors (Rozmi et al., 2020). If the company does not optimize the number of clients it attracts by utilizing the benefits it has to offer, the external business environment may have an impact on its capacity to compete in its external environment (Mugobi & Mlozi, 2021).

Indonesia's ICT industry is growing, with significant spending on ICT by both the government and private sector. More than twenty percent of all information and communications technology expenditures made by Indonesian corporations in 2016 were made by the retail industry alone. This was primarily due to increasing demand to invest in e-commerce capabilities (Antoni, Jie, & Abareshi, 2020; Chairoel & Riski, 2018; Kurniawan, Othman, Hwang, & Gikas, 2022). The proliferation of online shopping has created opportunities for a growing number of logistics firms to provide delivery services. The Consumer Electronics Package (CEP) industry in Indonesia is slightly consolidated and is dominated by long-established competitors including JNE Express, Pos Indonesia, and DHL (Bogue, 2016; Kayikci, 2019; Moriset, 2018). Chinese ICT companies (Li & Cheong, 2017; Priyandita, van der Kley, & Herscovitch, 2022; Triolo, Allison, Brown, & Broderick, 2020), such as Huawei and ZTE, have also been successful in Indonesia's telecommunications sector. Huawei is the largest supplier of telecom carrier equipment in Indonesia, according to all interviewees in a private research report. However, it is more difficult to determine what percentage of the market share Chinese companies hold in Indonesia's market for telecom carrier equipment. The growth of e-commerce in Indonesia is being driven by innovations in the wholesale and retail trade, the repair of motor vehicles and motorbikes, and the financial sector. The growth of digital access and literacy across the Indonesian archipelago has led to rapid expansion in the digital retail segment (Chairoel & Riski, 2018). E-commerce and digital financial services are dependent on the infrastructure of the mobile internet, which is predicted to become the primary channel through which these services will be carried in the near future (Gao et al., 2023; Savić & Pavlović, 2023).

The Information and Communication Technology (ICT) sector in Indonesia is a prominent sector with a contribution of more than 3% to the economy. From 2019 to 2022, the market potential for providing ICT services in Indonesia is anticipated to reach US$78 billion. At the moment, Indonesia's national digital transformation is the main factor driving the country's economic growth, and the expansion of the digital economy there is directly related to the country's economic foundation (Antoni et al., 2020; Chairoel & Riski, 2018). For the following five years, the Indonesian ICT market is anticipated to grow at a CAGR of 8.2% (Aristiawan, Nidar, & Kaltum, 2022). The country is becoming more prepared for the digital era due to the increased use of ICT infrastructure. The government has implemented various ICT industry initiatives within the framework of the Indonesian Broadband Plan (IBP) to develop the Indonesian broadband sector with the aim of enhancing the welfare of its citizens. In recent years, the expanding middle class in Indonesia and the recognition of the role that ICT plays in accelerating economic development have contributed to an increase in ICT spending (Haron et al., 2022; Ikhsan, Widodo, & Adi, 2021; Nugraha & Fatwanto, 2021). Several ICT-related strategic programs have been identified by the government, including ICT infrastructure to support digital transformation, Industry 4.0 in five priority subsectors, and technology parks. Indonesia has become the Southeast Asian nation with the quickest-growing digital economy as a result of its unique conditions for ICT companies to expand their operations (Anshari & Almunawar, 2022; Purbasari, Sari, & Muttaqin, 2020). E-commerce, fintech, health-tech, ed-tech, and agri-tech are the five ICT domains with the greatest potential for ICT actors to concentrate on (Bhavsar, 2022). A 2014 report by LIRNEasia showed a decline in average revenue per minute in mobile telecom services in Indonesia. However, much of Indonesia's potential has yet to be realized, giving the nation an optimistic outlook in the ICT industry. The robust demand for emerging technologies is likely to drive the Indonesian ICT industry, and Indonesia is moving towards a digital golden era (Ginting, 2020).

In Indonesia, the external business environment is favorable for Information and Communication Technology (ICT) firms. With a population of approximately 264 million, Indonesia is an attractive market for both domestic and international telecommunications companies (Kurniawan, Manurung, Hamsal, & Kosasih, 2021; Ramli, Ramli, & Hutauruk, 2023). With an approximate 3% contribution, the ICT sector is among the major economic contributors. Now, Indonesia's transformation into a digital nation is the main force behind economic growth, and the country's economic base is closely linked to the development of the digital economy. Thanks to the efforts of MSMEs and the population, coupled with the swift adoption of new technologies, the country today boasts Southeast Asia's fastest-growing digital economy (Hanggraeni & Sinamo, 2021; Supandi et al., 2022). Indonesia's World Bank ease of doing business rank has improved, indicating a more effective business environment. Unique conditions in Indonesia have created enormous growth opportunities for ICT companies in the country. The industrial internet era offers businesses opportunities for growth in the Information and Technology (IT), software, and telecommunications industries through direct investment, partnership ventures, technology export, consulting, and training (Untari, Priyarsono, & Novianti, 2019). The external business environment can have an impact on the performance of wholesale carrier service companies in Indonesia's ICT industry. Studies have shown that competitive strategy and co-creation can influence company performance (Aristiawan et al., 2022; Simanjuntak & Sukresna, 2022). However, there are also external risks to doing business in Indonesia, such as high dependence on foreign investors (Anwar & Nguyen, 2010; Block, Fisch, Vismara, & Andres, 2019). Internal factors, such as ICT adoption and successful implementation of process innovation, can also affect organizational performance (Chairoel, Widyarto, & Pujani, 2015; Suwignjo, Gunarta, Wessiani, Prasetyo, & Yuwana, 2022). The challenges faced by ICT companies wholesale carrier services in Indonesia include cybersecurity, e-commerce, fixed broadband segment, legal and regulatory environment, and low business adoption of ICTs (Antoni et al., 2020; Chairoel & Riski, 2018; Untari et al., 2019).

The Indonesian telecommunications market has been progressively liberalized, but business adoption of ICTs is low, particularly among SMEs (Chairoel & Riski, 2018). Despite this, the low adoption of IT solutions in the country is predicted to fuel significant growth in Indonesia's Information and Communication Technology (ICT) industry in the coming years. The success of Indonesian wholesale carrier service providers with network and infrastructure scope was found to be significantly impacted by the co-creation method and competitive strategy (Hamidi & Gharneh, 2017; Rurianto, Sumarwan, Suharjo, & Hasanah, 2021). Corporate competence is mentioned in several search results. One study examines how corporate reputation and specific organizational capacity affect how incumbent Indonesian telecoms providers formulate their co-creation strategies (Alamsyah, 2018; Hadikusuma & Siagian, 2022). An additional study examines how company resources and outside environmental factors affect business success, particularly corporate capability, in Indonesian courier service companies (Suryana, 2015). In addition, information technology capabilities are essential to a company's survival and facilitate supply chain integration (Hadikusuma & Siagian, 2022). The national economy may be significantly impacted by new technologies' power to reduce communication and data transfer costs, assuaging concerns about company capacity (Salam et al., 2018). The ability of an organization to successfully use its resources and knowledge to achieve the goals and objectives it has set for itself is known as corporate capability Alamsyah (2018) explores the relationship between corporate reputation and special organizational abilities and the construction of co-creation methods for well-established Indonesian telecom companies. Further research examines the relationship between IT expertise and operational success through internal and external integration, which is crucial for supply chain integration and long-term business viability (Hadikusuma & Siagian, 2022). Overall, corporate capability is essential to a company's adaptability to the external business environment and its ability to achieve success.

There are other references to co-creation techniques scattered throughout the search results. According to the findings of one study, organizations and their networks of players have access to enormous chances for innovation when they engage in co-creation since each actor provides access to new resources through a co-creation strategy (Frow, Nenonen, Payne, & Storbacka, 2015). Another study outlines how co-creation alters the way businesses conceive of operations and strategy, and how it presents a tremendous opportunity for businesses that can figure out how to leverage it (Nudurupati, Bhattacharya, Lascelles, & Caton, 2015). Furthermore, in the quickly evolving corporate world of today, co-creation is increasingly being recognized as a key approach for success and innovation (Hamidi & Gharneh, 2017). Co-creation strategies have a positive and substantial impact on the performance of businesses in the wholesale carrier services industry. Another study examines how business-to-business platforms use value co-creation tactics (Hein et al., 2019). However, some of the search results provide insight into related topics that could be useful for the research question. A study (Alamsyah, 2018) examines The influence of corporate reputation and distinctive organizational capability on the formulation of co-creation strategies for incumbent Indonesian telecommunications firms. According to the findings of the study, two factors—company reputation and distinctive operational competence—have an impact on co-creation strategy, with corporate reputation playing a more significant part in the process of co-creation strategy development than distinctive capability (Haro, Ruiz, & Canas, 2014; Mihardjo & Alamsjah, 2018). This finding suggests that corporate reputation could be an important factor in developing a co-creation strategy, which could be relevant to the research question (Hadikusuma & Siagian, 2022). Examining the relationship between corporate capability and co-creation strategy and the success of ICT firms in Indonesia's wholesale carrier service industry is the study challenge for this topic. The purpose of this study is to ascertain the effects that the co-creation strategy has on the companies engaged in Indonesia's wholesale carrier service sector, with an emphasis on network and infrastructure in particular. Moreover, an analysis of the impact of partnerships, inventiveness, and flexibility on Indonesia's ICT industry success will be carried out (Sasmoko, Mihardjo, Alamsjah, & Elidjen, 2019).he pandemic caused by COVID-19 has had an effect on both the global economy and ecosystem, and the information and communications technology industry is not an exception. Businesses' embrace of digital technologies, particularly cross-border ones like social media and online shopping, has increased as a result of the pandemic (Bai, Quayson, & Sarkis, 2021). Using the internet as a data-driven management paradigm in the fields of design, production, marketing, sales, and communication is known as the "digital transformation." The study's possible conclusions include how Indonesia's digital adoption of technologies has been affected by the COVID-19 pandemic, as well as the corporate capability and co-creation strategy of ICT firms in Indonesia (Sepulveda, Stall, & Sinha, 2020).

Due to its thoroughness, the research could be valuable in managing the Indonesian telecoms industry. The results can aid the sector in creating co-creation strategies that are successful in retaining existing customers and luring in new ones to increase sales. Using digital technology to rethink corporate processes can help the sector increase productivity, cut costs, and innovate. The research can shed light on how the sector might build alliances, innovative capabilities, and dynamic capacities. To maintain their competitive advantage in a constantly shifting environment (Mihardjo & Alamsjah, 2018; Sasmoko et al., 2019). Companies in the Information and Communication Technology (ICT) sector must adapt to stay competitive in a market that is always changing. Indonesia's wholesale carrier services market is growing swiftly, thus it is crucial for companies to have solid plans in place to handle the external business environment. The goal of this research is to examine how corporate competency and co-creation strategies impact company performance and assist ICT enterprises in Indonesia that provide wholesale carrier services in navigating the external business environment.

2. Literature review and hypothesis development

2.1 Company Capability

Multiple studies have investigated the connection between a company's external business environment and its performance. One critical review of literature (Ombaka, Machuki, & Mahasi, 2015), demonstrated that a company's dynamic capabilities have a major impact on this relationship. The term "dynamic capabilities" describes an organization's capacity to innovate in the face of novel challenges and adjust to shifts in the external environment. Businesses with great dynamic skills outperform others, according to the report, since they are better able to adjust to changes in their external environment. Added research (Huang & Huang, 2020), examines how a company's success is impacted by both internal and external capabilities from a holistic standpoint. According to the study, businesses with great competencies in both areas typically outperform those with lower capabilities. A third study (Helfat, 2022), focuses specifically on dynamic capabilities and their role in helping firms adapt to and shape their environments externally. The study suggests that dynamic capabilities can help enterprises respond to and even influence changes in their external environment. A fourth study (Lee, Lee, & Pennings, 2001), studied the influence on company performance exerted by a company's internal competencies as well as its organizational linkages to entities external to the company. Both internal capabilities and external networks play a significant role in determining a company's performance, according to the study. Finally, a fifth study (Drago et al., 2022), It looked into how organizational procedures and dynamic capacities related to one another. The study's conclusions indicate that by creating and leveraging dynamic capabilities, businesses can expand or modify their operations, which can enhance overall performance. All things considered, these studies show a strong correlation between an organization's success and its external business environment, with dynamic capabilities being a critical component of this relationship. Businesses that can innovate in response to new problems and adjust to changes in their external environment have a higher chance of success. Additionally, firms with strong internal capabilities and external networks tend to perform better than those with weaker capabilities.

2.2 Co-Creation Methodology

The process of including outside stakeholders in the value generation for a business is known as co-creation strategy. According to the literature, businesses can gain from co-creation with many types of external stakeholders (Markovic & Bagherzadeh, 2018). In high-tech companies, co-creating value with customers can help increase performance in the face of high uncertainties (Soltanzadeh, 2014). Co-creation against competition, radical product/service innovation, incremental product/service improvement, and corrective product/service improvement are the four primary methods that co-creation is advised to be used to produce value (Anbardan & Raeyat, 2014). Co-creation of value is another somewhat comparable concept that has been extensively studied in the literature (Fan & Luo, 2020; Nájera-Sánchez, Ortiz-de-Urbina-Criado, & Mora-Valentín, 2020). Value co-creation is the process of creating value by collaborating with multiple stakeholders, such as customers, suppliers, and employees (Fan & Luo, 2020). Literature indicates that value co-creation can result in enhanced business performance (Nájera-Sánchez et al., 2020). The relationship between co-creation strategy and business performance is examined in the literature. Research indicates that co-creation and enhanced business success are positively correlated (Kim, Trimi, Hong, & Lim, 2020; Soltanzadeh, 2014). The effectiveness of a corporation has been proven to be significantly impacted by co-creation (Cheung & To, 2020; Grissemann & Stokburger-Sauer, 2012). The performance of high-tech businesses has been proven to benefit from co-creation initiatives, particularly those that are dealing with a lot of unpredictability (Soltanzadeh, 2014). In addition, the influence of co-creation on innovation capability and firm performance has been investigated, with hypotheses developed and tested via research surveys (Hamidi & Gharneh, 2017). Co-creation has been designated as a key factor in establishing shared objectives and enhancing the process of value creation (Kim et al., 2020).

2.3 External Business Condition and Company Performance

The external forces and circumstances that impact organizational performance are referred to as the external business environment (Akpoviroro & Owotutu, 2018). These variables can include marketing variables, infrastructure variables, financial variables, working conditions, and government regulations (Ebabu Engidaw, 2021). In micro and small firms, the impact of external influences on industry performance has been studied2. According to the study, external factors like marketing, infrastructure, and financial issues have a big impact on how well an industry performs. In order to improve their performance, organizations should, according to the report, create adaptive business plans and programs that take into account both their internal and external contexts. Another study looked at Pakistan's management accounting practices' external and internal influences (Shahzadi, Khan, Toor, & ul Haq, 2018). The study found that strategic business, company type, company scale, and the environment influence the design of management accounting practices. The study suggests that organizations must respect the constraints imposed by their relationship with the environment, and that the environment's unpredictability influences the accounting management system.

A strong relationship has been observed between the performance of an organization and the external business environment. The phrases "external business environment" and "external forces" refer to the several external factors that affect an organization's operations (Akpoviroro & Owotutu, 2018). Many different types of external influences, such as those that are political, economic, social, technological, and legal, can affect an organization's success. A study conducted by Innovation & Entrepreneurship (Ebabu Engidaw, 2021) studied how external influences affect the effectiveness of micro and small enterprises. According to this study, the success of an industry is influenced by external elements such as marketing, infrastructural, financial, labor conditions, legal, and technological aspects. According to the report, micro and small businesses should create business plans and programs that can be adjusted to their unique internal and external contexts in order to function better. Another study by Eruemegbe (2015), the impact of the business environment on the organization's effectiveness was examined. According to this report, firms must adapt to these changes in order to survive and expand. These difficulties come from the outside world. The study distinguished between internal and external environmental forces as the two types of external environment factors that affect business success. While external environmental forces impact an organization's operations and need to be closely monitored, internal environmental forces affect the corporation as a separate entity. On a company's overall performance, the external business climate can have a big impact. When developing company strategies and programs to improve their performance, businesses must take into account external issues including marketing, infrastructure, financial considerations, working conditions, governmental restrictions, and the unpredictable status of the environment. This study addresses the micro and macro environments that make up the external business environment and focuses on the components of corporate capabilities and co-creation strategy and how they affect company performance. Figure 1 shows the study paradigm based on the above-described framework.

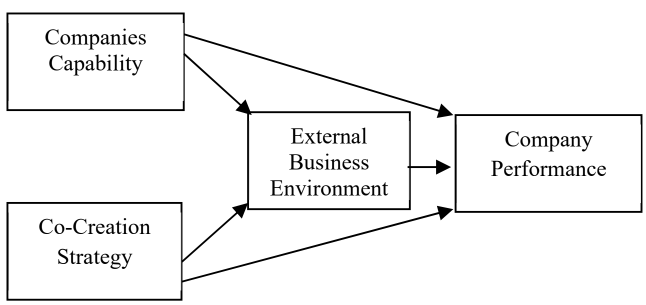

Fig. 1. Conceptual Framework

2.4 Research Hypothesis

There exist multiple ideas that align with the Conceptual Framework depicted in Figure 1, specifically:

H_0: *Co-creation strategy has no effect on business environment.*
H_1: *Co-creation strategy influences the external business environment.*

H_0: *Companies' capability has no effect on the external business environment.*
H_1: *Companies' Capability influences the external business environment.*

H_0: *Co-creation strategy has no effect on the Business Environment.*
H_1: *Co-creation strategy influences the external business environment.*

H_0: *Companies' capability has no effect on companies' performance.*
H_1: *Companies' capability influences companies' Performance.*

H_0: *Co-creation Strategy has no effect on companies' performance.*
H_1: *Co-creation strategy influences companies' performance.*

H_0: *External business environment has no effect on companies' performance.*
H_1: *External business environment influences companies' performance.*

3. Research Methodology

In order to better understand how Indonesian ICT wholesale carrier service providers engage with the outside business environment, this study will look at how corporate competence and co-creation strategy affect company performance. This study aims to provide light on the approaches taken by ICT companies to deal with problems in the external business environment and how such approaches affect the companies' overall performance. This study will employ a quantitative approach with a survey method (Creswell, 2013). A stratified random sampling approach will be used. Stratified random sampling is a probability sampling strategy that requires dividing the population into subgroups and then randomly selecting participants from each segment. The population will consist of companies in the wholesale freight services sub-sector in Indonesia. The sample size will be determined using the concept of power analysis, which states that the sample size must be large enough to detect statistically significant differences. The questionnaire will be sent to 66 companies and then returned to 45 companies, resulting in a sample of 45 companies for this study.

An online polling will be used to collect data. The survey queries will be associated with the theoretical model's variables. Before being administered to the target demographic, the survey will be pilot-tested to guarantee its reliability and validity (Jarvis, MacKenzie, & Podsakoff, 2003). The data will be analyzed using Smart-PLS 4 and partial least squares structural equation modeling (PLS-SEM). PLS-SEM is a statistical method for looking at the connections between variables. Smart-PLS 4 is a well-known PLS-SEM analysis software tool (Hair, Ringle, & Sarstedt, 2017).The relationship between corporate competencies, co-creation strategy, external business environment, and firm performance will be assessed using the PLS-SEM approach. PLS-SEM analysis will determine the path coefficients, R-squared values, and the significance of the correlation between variables (Jarvis et al., 2003). Bootstrap assessment The standard errors and t-values of the path coefficients will be computed using bootstrap analysis. Bootstrapping analysis will also be utilized to determine the importance of the model's mediating effect (Ringle, Sarstedt, & Straub, 2012).The statistical significance of the correlations between the variables will be examined in order to comprehend the study's conclusions. The strength of the correlations between the variables as well as the direction in which the association point will be determined using the path coefficients and accompanying t-values. To evaluate the path coefficients' statistical significance, bootstrap sampling will be employed. Confidence intervals for the path coefficients will be generated by bootstrap resampling. By making sure that the confidence interval does not contain 0, the statistical significance of the link will be ascertained (Ghozali, 2014; Jarvis et al., 2003). The percentage of the dependent variable's variance that can be attributed to independent variables will be determined using the coefficient of determination (R-squared). The R-squared numbers show how well a model fits the data.

4. Result

This study employed survey methodologies and a quantitative approach, which were then analyzed with Smart-PLS 4, and information was gathered via a structured questionnaire survey.

Table 1
Result, Loading Factor, Cronbach's Alpha and AVE

SOC	FOC	LF	CA	AVE
	CC			
OS	CC.1	0.794	0.765	0.598
TIC	CC.2	0.863	0.831	0.647
	CC.3	0.872	0.825	0.628
HRC	CC.4	0.774	0.782	0.570
CI	CCS			
	CCS.1	0.852	0.847	0.782
PI	CCS.2	0.795	0.801	0.598
EI	CCS.3	0.790	0.765	0.618
	CCS.4	0.827	0.779	0.722
	EBE			
CA	EBE.1	0.866	0.799	.699
RC	EBE.2	0.836	0.838	0.786
	EBE.3	0.938	0.867	0.842
	EBE.4	0.843	0.793	0.681
RUE	EBE.5	0.761	0.733	0.586
	EBE.6	0.833	0.821	0.801
	CP			
FP	CP.1	0.803	0.784	0.796
	CP.2	0.773	0.796	0.758
OP	CP.3	0.868	0.846	0.812
	CP.4	0.852	0.845	0.834
CS	CP.5	0.785	0.742	0.658

SOC : Second-Order Construct	FOC : First Order Construct	LF : Loading Factor
CA : Cronbach's Alpha	AVE : Average Variant Extracted	OS : Organizational Structure
TIC : Technology Innovation Capability	HRC : Human Resources Capability	CI : Customer Involvement
PI : Partnership Involvement	EI : Employee Involvement	CA : Competitive Advantage
RC : Regulatory Compliance	RUE : Resources Utilization Efficiency	FP : Financial Performance
OP : Operational Performance	CS : Customer Satisfaction	CC : Companies Capability
CCS : Co-Creation Strategy	EBE : External Business Environment	CP : Companies Performance

Source : Primary Data (2023)

In Indonesia, a questionnaire survey was distributed to managers of ICT enterprises in the wholesale transport services sub-sector. There were 66 questionnaires distributed, and 45 of them were returned, resulting in a 68.18% response rate. Combining partial least squares (PLS) analysis with structural equation modeling (SEM). For data analysis, a tool called

Smart-PLS 4.0 is utilized. Effective convergence is indicated by a value greater than 0.5. The loading factor provides an illustration of the link between the latent variables that underpin the observed indicators. Good reliability is indicated by a composite reliability score of greater than 0.7. It evaluates the internal consistency of each latent variable's suggestions. Convergent validity is deemed satisfactory when the value is higher than 0.5. The AVE calculates the percentage of an indicator's variance that the underlying latent variable can account for. The measurement model is valid and reliable in this case since all latent variables show strong convergent validity and reliability. This discovery is important to prior studies (Chin, 1998; Ghozali, 2014), which highlighted how Cronbach's alpha and Loading Factor can be used to evaluate the reliability of testing a construct. Cronbach's alpha must be greater than 0.60, and the loading factor must be greater than 0.70, for a test to be considered reliable. In addition, the average variance extract (AVE) must have a minimal value of 0.5 to be considered valid (Jarvis et al., 2003).

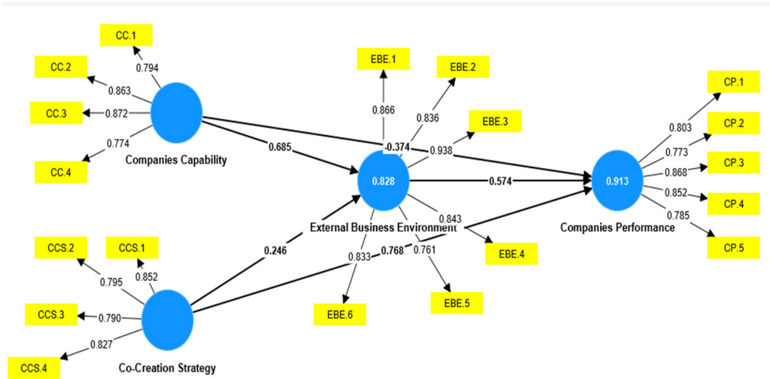

Fig. 2. Model Fit

Using Smart-PLS 4 analysis, a suitable model for this project was found. The following are the model fit indices: Table 2. The R-squared value indicates the extent to which the dependent variables (performance of the company and the external business environment) can explain the variation in the independent elements (company capabilities and co-creation approach). In this instance, the external business environment explains 65% of the variation in the company's performance, leaving these variables to account for 58% of the variation. The R square is the proportion of variation explained by the independent variables (Chin, 1998) as 0.67 (powerful), 0.33 (moderate), and below 0.19 (weak). GoF metrics assess the model's overall fit and reflect how well the model reproduces the covariance structure of the observed data. according (Tenenhaus, Vinzi, Chatelin, & Lauro, 2005), Low GoF equals 0.1, moderate GoF equals 0.25, and high GoF equals 0.38. The Q2 value is a measure of prediction accuracy that evaluates the model's ability to predict additional observations. In this instance, according to the formula, if the obtained value is 0.02 or less, the model has poor predictive ability (Chin, 1998; Jarvis et al., 2003).

Table 2
Fit Model

Model Measures	Value
R-Squared	
External Business Environment	0.65
Companies Performance	0.58
Goodness-of-Fit (GOF)	0.40
Q2	
External Business Environment	0.51
Companies Performance	0.47

Source : Primary Data (2023)

Table 3
Internal VIF

Variable	External Business Environmental	Companies Performance
Companies Capability	1.735	2.131
Co-creation Strategy	2.363	1.434
External Business Environmental		1.983

The multicollinearity issue in this study was assessed through an examination of the internal VIF values. The findings confirmed that there were issues with multicollinearity among the chosen variables. The internal VIF values provide sufficient explanation for the correlations between the research variables, suggesting that multicollinearity in these variables does not pose a substantial issue. Therefore, variables such as companies' capability, co-creation strategy, companies' performance, and external business environment in this research model have appropriate convergent validity. Table 4 contains information about the internal VIF values. The discriminant validity of the data is assessed in this study using widely used tests like the HTMT ratio and the Fornell and Larcker Criteria. It's crucial to have discriminant validity, which shows a low correlation between indicators of various variables, to make sure the indicators are measuring distinct things (Ringle et al., 2012; Sarstedt et.al., 2017) When discriminant validity was measured using the Fornell and Larcker criteria, substantial discriminant validity was found. In line with findings in the literature, the pairwise squared correlations demonstrate that the largest pairwise correlations are at the top of each column, which supports this (Hair et.al., 2019; Sarstedt et.al., 2021). Table 4 presents the research findings linked to the Fornell and Larcker criteria of the factors evaluated, including company performance, external business environment, companies' capabilities, and co-creation strategy.

Table 4
VIF for Larcker dan Fornell

	CP	EBE	CC	CCS
Companies Performance	0.722			
External Business Environmental	0.433	0.743		
Companies Capability	0.451	0.421	0.731	
Co-Creation Strategy	0.633	0.434	0.443	0.741

S*ource : Primary Data (2023)*

The HTMT results, as stipulated by Hair et al. (2019), indicate a satisfactory degree of Heterotrait-Monotrait ratio of correlations and enhance the discriminant validity of the data. The HTMT value must be below 0.85 to comply with these criteria. Table 5 indicates that each variable (company's performance, external business environment, company capability, and co-creation strategy) exhibits an HTMT value below 0.85. Thus, this confirms that the variables are appropriate for use as measuring instruments.

Table 5
Validity for Discrimination

	CP	**EBE**	**CP**	**CCS**
Companies Performance	1			
External Business Environmental	0.614	1		
Companies Capability	0.332	0.297	1	
Co-Creation Strategy	0.542	0.463	0.433	1

Source : Primary Data (2023)

The path coefficients and t-values for the relationships in the model are shown in the following table. The PLS analysis' findings show that company capability significantly improves both company performance (t 3.807, p 0.000) and the external business environment (t 5.785, p 0.000). This study confirms findings from prior research that strong company capabilities are essential for organizations to effectively navigate the external business environment and achieve higher levels of performance.

Table 6
Hypotheses Testing

H	O	M	SD	t-S	p-V
CC → EBE	0.685	0.693	0.118	5.785	0.000
CCS → EBE	0.246	0.241	0.112	2.196	0.002
CC → CP	0.374	0.388	0.098	3.807	0.000
CCS → CP	0.768	0.775	0.085	9.010	0.000
EBE → CP	0.574	0.581	0.077	7.428	0.000

H : Hypotheses; O : Original Sample; M : Sample Mean
SD : Standard Deviation; t-S : T-statistic; p-V : p-Values
CC : Companies Capability; EBE : External Business Environment; CCS : Co-Creation Strategy
CP : Companies Performance

Source : Primary Data (2023)

Additionally, it was discovered that the co-creation technique significantly improved company performance (t 9.010, p 0.000) and the external business environment (t 2.196, p 0.002). It was found that the co-creation method significantly and favorably affected corporate performance. This finding supports past studies on the benefits of co-creation initiatives for enhancing business success. The results of this study also show how successful co-creation methodologies can be when used to Indonesian wholesale ICT carrier service providers. Company performance and the external business environment were shown to be significantly positively correlated (t 7.428, p 0.000). Additionally, it was found that the company's performance is significantly and favorably impacted by the external business environment. This outcome is consistent with past research that demonstrates that companies must have a complete understanding of the external business environment and adjust their plans accordingly in order to perform better. Generally speaking, this study advances our understanding of corporate competency, co-creation strategy, and firm success—particularly with regard to Indonesian ICT companies that offer wholesale carrier services. The findings indicate that having strong organizational competencies and implementing a co-creation strategy can benefit businesses.

5. Discussion

According to the findings of the study, Co-creation strategy is positively and significantly impacted by corporate competency, external business environment, and company performance. This study backs up prior research that found that strong corporate competencies are crucial for organizations to properly deal with the external business environment and achieve higher performance.

5.1 Companies Capability on External Business Environment and Company Performance

The search results show that a company's capabilities significantly and favorably affect its performance and the external business environment. Factors that affect an organization's operations, employees, and income that are external to the organization's internal environment are known as external environment factors (Akpoviroro & Owotutu, 2018). According to the search findings, a company's capabilities significantly and favorably influence both its performance and the external business environment. Elements that are present outside of an organization's internal environment and have the potential to affect its operations, employees, and income are known as external environment factors (Ajayi, 2016; Suryana, 2015; Trisakhon et al., 2018). Change is inevitable, and an organization's ability to adapt to unforeseen market mutations can mean the difference between survival and extinction (Trisakhon et al., 2018). Internal capabilities, external networks, and organizational performance are interrelated (Lee et al., 2001). Intellectual capital is negatively impacted by customer knowledge, while it is positively impacted by market knowledge, relationships, and innovative capabilities (C.-C. Huang & Huang, 2020). Among external connections, a partnership with other businesses and venture capital firms significantly improves organizational performance (Lee et al., 2001). Positive impact of external environment and resource capability on firm performance (Yasa et al., 2019). Improving the external business environment of a company can be challenging as it is beyond the control of the company. However, there are some steps that a company can take to manage the external environment and its impact on the business1 (Cherkos, Zegeye, Tilahun, & Avvari, 2018; Markovic & Bagherzadeh, 2018). Identifying the external factors that may affect the business and evaluating their prospective impact on company operations is one approach, personnel, and revenue (Trisakhon et al., 2018). This can be done by conducting environmental scans and analyzing the prevailing external factors. Once the external factors are identified, the company can develop methods for overcoming the challenges and making relevant changes accordingly. Another way to improve the external business environment is to build strong external networks and alliances with other firms4 (Yasa et al., 2019). This can help the company to gain access to new markets, technologies, and resources, and enhance its organizational performance. Additionally, the company can invest in enhancing its market knowledge, relationships, and innovative capabilities, which have been shown to have a positive impact on intellectual capital (Markovic & Bagherzadeh, 2018). By doing so, the company can better understand the external environment and respond to changes quickly and effectively.

5.2 Co-Creation Strategy Regarding the External Business Environment and Organizational Performance

Co-creation is a business practice that involves the participation of outside parties in the product conception and development phases (Fan & Luo, 2020; Kim et al., 2020; Lin, Yang, Ma, & Huang, 2018; Mihardjo & Alamsjah, 2018). It can generate numerous organizational benefits, such as enhanced innovation performance (Markovic & Bagherzadeh, 2018). Co-creation enhances a company's financial performance, as co-creation is repeatedly shown to be beneficial (Alamsyah, 2018; Nájera-Sánchez et al., 2020). Companies save enormous amounts on research and development, marketing expenses, and consumer attrition (Grissemann & Stokburger-Sauer, 2012; Nambisan & Baron, 2009). Through co-creation, new viewpoints are introduced to help firms disrupt themselves and produce new goods that reflect how actual consumers think. Co-creation can benefit a company's external business environment as well. Co-creation for social innovation with non-profits can enhance a company's reputation, which may increase customers' satisfaction with the business (Díaz-Perdomo, Álvarez-González, & Sanzo-Pérez, 2021). Platforms for stakeholder engagement can become the new foundation for the creation of enterprise value (Ramaswamy & Ozcan, 2013).

According to the literature on co-creation, "value co-creation must be understood in the context of relationships between a complex web of actors (customers, employees, suppliers, and other stakeholders)". As a result, co-creation can strengthen a company's bonds with its stakeholders, which is advantageous for the outside business community. In the context of social enterprises, studies have been conducted on the positive benefits of co-creation on business performance and the external business environment. According to a study, value co-creation benefited social firms' expansion (Ge, Xu, & Pellegrini, 2019). The study found that environment dynamics can mitigate the impact of value co-creation on social enterprise development. Co-creation can enhance innovation performance by introducing new perspectives to assist businesses in disrupting themselves. Co-creation enables companies to receive direct feedback from consumers or influencers, which can result in new products that reflect how actual consumers think. According to a report by Hitachi Europe, 51% of businesses found that co-creation enhanced their financial performance, and 54% found that it aided in the development of new products and services. Co-creation can also increase stakeholder interactions over time, which is key to managing innovation (Hamidi & Gharneh, 2017; Mihardjo & Alamsjah, 2018; Yousaf, 2021). By engaging with individual actors, co-creation can lead to more successful products and better financial performance (Ge et al., 2019).

5.3 Influence of external business environment on firm performance

The performance of a corporation is significantly impacted by the outside business environment (Al-ahdal & Hashim, 2022; Markovic & Bagherzadeh, 2018; Yasa et al., 2019). The external environment includes, among other things, political, economic, social, and technological elements (Santoso, Purwoko, Umar, & Renwarin, 2020). These variables may have direct or indirect effects on business operations, personnel, and revenue (Ajayi, 2016). Managers frequently monitor external environment factors so they can identify and address the problems they cause and make the necessary adjustments (Akpoviroro & Owotutu, 2018; Trisakhon et al., 2018; Yasa et al., 2019). Studies show that business strategy and performance are significantly impacted by the external environment (Jaya, Nasir, & Dewi, 2021; Yasa et al., 2019). The examination of a company's internal and external environments showed that they significantly affect its performance. The external environment affects a company's internal operations, learning and development, financial performance, social capital performance, customer focus performance, and environmental performance (Santoso et al., 2020). The company's ability to compete in its external environment by maximizing the number of consumers it attracts by capitalizing on its advantages increases in direct proportion to the degree to which the dangers, opportunities, and advantages in the external environment have been accurately identified (Akpoviroro & Owotutu, 2018). There are numerous methods for a business to adapt to external environment changes. One way is to plan ahead and be proactive in anticipating changes (Ebabu Engidaw, 2021). Another way is to be cautious about who you get advice from and seek advice from experts in the field. Plus, a company can invest in technology and innovation to stay ahead of the competition (Shahzadi et al., 2018). A company's performance, according to a study, is determined by its ability to compete in its external environment by utilizing its strengths to attract the greatest number of consumers (Eruemegbe, 2015; Trisakhon et al., 2018). Therefore, a company can adjust to external environment changes by identifying its strengths and weaknesses and leveraging its strengths to capitalize on external environment opportunities (Cherkos et al., 2018; Kim et al., 2020). All things considered; a business can use an agile approach to adjust to shifting circumstances in the industry.

5.4 Restriction and Future Studies

It is critical to understand the limitations of this research. First, it's possible that the study's exclusive emphasis on Indonesian ICT companies providing wholesale carrier services limited the findings' applicability in other contexts and domains. Therefore, other research might duplicate this study in different industries and settings to demonstrate the applicability and validity of the findings. Second, because the study employed a cross-sectional survey approach, it was challenging to establish a causal relationship between the variables. Future research may employ a longitudinal strategy to examine the causal relationships between the variables over time. Third, the results of the study might have been skewed because it only used respondents' self-reported data. Future studies could triangulate findings and lessen bias by utilizing multiple data sources. Finally, the study's focus was limited to the relationships among co-creation approach, corporate competencies, and business performance. Future research should examine additional factors that could affect company success, such as organizational culture, leadership style, and innovation capacity.

6. Implication

The study's findings have a big impact on management theory and practice when it comes to Indonesian wholesale ICT service providers. The current study adds to the body of knowledge on corporate capabilities and co-creation strategy, the external business environment, and firm performance by examining the connections between these characteristics in previously unexplored conditions. This study provides empirical evidence that corporate skills and co-creation strategies are crucial factors affecting a company's ability to adapt to and enhance its performance in the external business environment. These findings further emphasize the interconnectedness of company capabilities and co-creation techniques, implying that these two aspects should be improved in tandem. Second, this study has practical consequences for Indonesian ICT enterprises. The findings indicate that establishing a corporate. Competencies and implementing co-creation techniques can assist ICT enterprises in dealing effectively with the external business environment, which is characterized by intense competition, rapid technical advances, and stringent regulations. To develop their enterprise capabilities, ICT businesses should focus on enhancing their organizational structure, technical innovation capabilities, and human resource capabilities. Furthermore, they must involve customers, partners, in order to establish co-creation strategies that are aligned with the external business environment. As a result, ICT organizations can improve their financial and operational performance while also increasing consumer happiness. Third, The results of this study have policy implications for Indonesia's governance. According to the findings, the government should foster a business environment that encourages enterprise capability development and co-creation techniques in ICT firms. For example, the government can provide incentives to corporations that invest in R&D, human resource development, and customer and other stakeholder collaborations. Furthermore, the government might reduce the number of permissions, permits, and approvals required to operate in the ICT industry. In this manner, the government may promote the expansion and competitiveness of the ICT industry, which is critical to the development of the Indonesian economy.

7. Conclusion

This study's findings demonstrate the importance of corporate skills and co-creation strategies in navigating the external business environment, as well as their impact on corporate performance in Indonesian ICT firms that provide wholesale carrier services. In conclusion, the search results suggest that a company's capabilities significantly and positively impact its performance and the external business environment. External environmental factors can affect a company's operations, employees, and income, and companies can manage these factors by identifying and evaluating their impact on company operations. Building strong external networks, enhancing market knowledge, relationships, and innovative capabilities, and responding to changes in the external environment quickly and effectively can help companies navigate the external business environment and improve their performance. Co-creation is a valuable business practice that can generate numerous organizational benefits, such as enhanced innovation performance and financial performance, and strengthen a company's bonds with its stakeholders. The performance of a corporation is significantly impacted by the external business environment, and companies must adapt to these changes by identifying their strengths and weaknesses and leveraging them to capitalize on external environment opportunities.

Acknowledgements

We thank all our family and colleagues for support, encouragement, and assistance during this research process.

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