Revista del Ciclo Económico © // Volume 3 Number 2 // ISSN (E): 2718-8760

The Effect of Customer Trust in Moderating Business Model Innovation on Competitive Advantage: A Case of Industrial Water Treatment Companies in Indonesia

Bayu Rachmanul Hakim[1]

Abstract

As the largest economy in Southeast Asia, Indonesia has seen significant industrial and infrastructure development during the last five years, impacting the increased water supply demand. Based on data, the industry's total water usage has an annual growth of 10% through 2025. However, the average business growth of water treatment companies for the previous five years is below five percent, which could be very low for some companies. Thus, industrial water treatment companies must look at their competitive advantage to distinguish them from the competition. This research followed the influence of customer trust (CT) as moderating variable that affects the relation of business model innovation (BMI) to competitive advantage (CA). This thesis employed the SPSS v25 and SmartPLS 4 software to generate the structural model and analyze the 65-questionnaire. Data was collected from the firm's employees who worked at C-level and one layer under C-level at industrial water treatment companies, with growth below five percent done against ten industrial water treatment companies, their customers (end-user) who worked at C-level and one layer under C-level. The sampling period is from July to Aug 2022. The result showed that customer trust (CT) has a positive effect on moderating the relationship between business model innovation (BMI) and competitive advantage (CA). The finding contributes to the literature with the moderator variable of customer trust (CT). The practical implication of the study is to provide industrial water treatment companies' management with some guidance on the appropriate response strategy, which would increase their competitive advantage.

Keywords: Strategic Supply Chain Management, Competitive Advantage, Business Model Innovation, Customer Trust

[1] Bayu Rachmanul Hakim. Sekolah Tinggi Manajemen IPMI. Contact: bayu.hakim@ipmi.ac.id

CHAPTER I

INTRODUCTION

1.1 Research Background

As the largest economy in Southeast Asia, Indonesia has seen significant industrial and infrastructure development during the last five years. With a rapidly rising population and rapid industrialization, water consumption will skyrocket, particularly in industrial and agricultural applications, which are two key economic drivers in Indonesia and Southeast Asia (Waterindonesia, 2019). As a result, an intelligent water resource management system is essential for the country's long-term water future.

In Indonesia, water and wastewater treatment is a significant concern. Indonesia's water resources account for six percent of the global and 21% of the Asia-Pacific total. Despite this, 68 percent of Indonesia's rivers are highly polluted. According to the Indonesian National Planning Agency, residential garbage pollutes 70% of those. Indonesia has a total water availability of 690 x 109 cubic meters (m3) per year, significantly higher than the demand of 175 x 109 m3 per year (Waterindonesia, 2019).

By 2024, Southeast Asia's industrial water and wastewater treatment market is expected to exceed USD 5 billion. Because Indonesia is the region's largest economy, it will likely have the most significant potential market. Through the National Medium-Term Planning (RPJM) 2020-2024, the government has set an ambitious goal of achieving 100 percent safe drinking water access by 2024, which will require a total investment of IDR 253,8 trillion. In 2018, the Indonesian government allocated IDR 16 trillion (USD 1.163 billion) towards sanitation infrastructure. The money was set aside to manage the wastewater generated by 853,000 households and to build clean water facilities and water treatment plants (Waterindonesia, 2019).

By 2021, the industry's total water usage in Indonesia had risen to 3,461 MCM, with an annual growth of about 10% since 2017 and forecasted to 2025 with the same increase (BPSDM PU, 2018). This condition necessitates a more critical requirement to upgrade the industry's water supply and waste treatment systems. Since these two subjects are essential for many products' production processes, water supplies and waste management have become significant concerns. Many construction projects' growth undoubtedly results in increased water supply demand and waste treatment management.

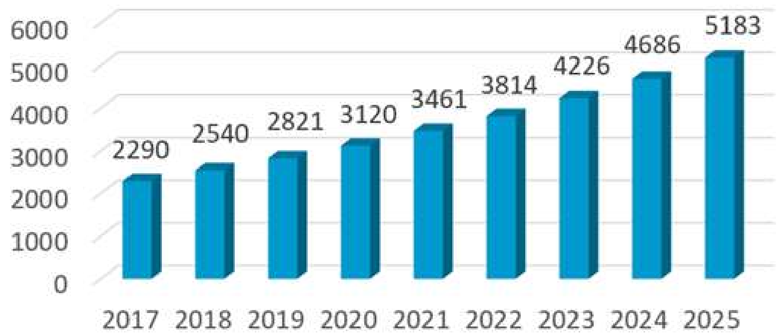

Fig 1.1 Demand Growth of Total Industrial Water Usage
Source: BPSDM PU, 2018

Despite the potential for profit in the water and wastewater treatment industry, industrial water treatment companies were up against stiff competition from local and foreign firms. According to data from the Indonesian Water Association, average business growth for industrial water treatment companies has been below five percent over the last five years (Indonesian water association, 2021)

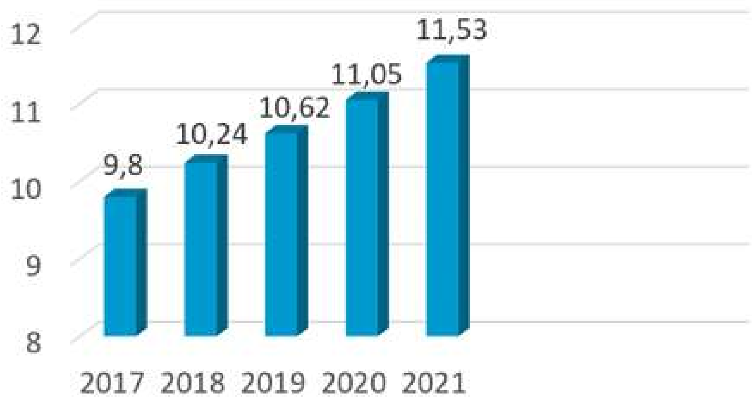

Fig 1.2 Average Business Growth of Industrial Water Treatment Company
Source: Indonesian Water Association, 2021

On digital era makes all information seamless and easy to be accessed. Water technology information became accessible and shifted its uniqueness from the customer's point of view. Thus the price is the primary driver for customer decision-making. However, the nature of the water technology business is based on services, and the business process is tailor-made based on customer requirements.

The number of water treatment companies in Indonesia is primarily due to the low entry barrier for this business, so competition among rivalry is high. However average business growth of water treatment companies for the last five years is below five percent, and it could be very low for some companies, despite, based on data of the industry's total water usage, having an annual growth of 10% through 2025.

Fig 1.3 Total Industrial Water Usage VS Average Business Growth of Industrial Water Treatment Company

Source: Author, 2022

According to Porter (1985), only the companies with competitive advantage can outperform rivalry, influenced by five forces factors, bargaining power of supplier, bargaining power of buyers, the threat of substitutions, threat of new entrants, and industry rivalry. On the other hand, according to Barney (1991), the resource-based logic suggests that if valuable resources (i.e., resources that are costly and difficult to imitate) are possessed by a few firms, those firms that can control these resources potentially generate sustained competitive advantage. Furthermore, Barney and Clark (2007) said that the 'Resource-Based View of the Firm' has emerged as one of the dominant perspectives used in strategic management. It addresses the fundamental research question of strategic management: Why do some firms persistently outperform others? Resource-Based Theory provides a considered overview of this theory from one of its critical thinkers. -; The 'Resource-Based View of the Firm' has emerged over the last fifteen years as one of the dominant perspectives in strategic management. It addresses the fundamental research question of strategic management: Why are some firms persistent?

Industrial water treatment companies must look at their competitive advantage to distinguish them from the competition. The capacity of a company to develop a dominant position over competitors is known as a competitive advantage (Porter, 1985; McGinnis and Vallopra, 1999). To get a competitive advantage, Porter (1985) advised businesses to pursue a cost leadership or differentiation strategy.

The Source of competitive strategy can be formulated either by market-based view (MBV) or resource-based view (RBV) strategy. Market-based view strategy is creating a valuable and unique position of a product or firm in the market through selecting a set of different activities (Porter, 1985); a firm is a collection of activities creating a unique position of products in the market. Whereas resource-based view strategy is the creation of VRIO’s resources so that firm can create value more effectively and efficiently than its current or potential competitors (Barney, 1991).

There is a vast body of literature on SCM strategies and technology, and scholars and practitioners have recently paid close attention to metrics adoption and performance monitoring. According to Gunasekaran et al. (2004), Supply Chain Management (SCM) has been a crucial part of competitive strategy, boosting organizational profitability and productivity. Strategic, tactical, and operational levels of supply chain management (SCM) are examined in this study. —(Cooper et al., 1997). The strategic (SSCM) level of SCM choices is the highest and affects the entire organization (Poirier and Reiter, 1996). Decisions should be made in line with the overall business plan. (Christopher, 2000). New product and service development, suppliers, manufacturing, customers, and all logistics are processes in SSCM (Simchi-Levi et al., 2008). Some research examines the connection between SSCM and CA. For instance, a study conducted among SCM specialists in the USA examined the effect of supply chain integration abilities on SCM performance (Eltantawy et al., 2009); Performance of supplier-customer relationships and supplier development techniques in Hong Kong electronics businesses (Li et al., 2012); and examining the connection between performance outcomes and the creation of partnerships for best practices in environmental SC, in a study with Korean businesses (Youn et al., 2013). These studies showed how SSCM had a favorable impact on the CA of the organizations studied, indicating that the more strategically well-structured a company's supply chain was, the better its performance metrics and CA relative to its competitors.

Firms that want to innovate their business models look at new ways to establish their value proposition and to create and capture value for their partners, suppliers, and customers. (Gambardella and McGahan, 2010; Teece, 2010; Bock et al., 2012; Casadesus-Masanell and Zhu, 2013). According to a large body of research, business model innovation is crucial for company survival, business performance, and as a source of competitive advantage (Demil and Lecocq, 2010; Chesbrough, 2010; Amit and Zott, 2012; Baden-Fuller and Haefliger, 2013; Casadesus-Masanell and Zhu, 2013).

Trust was recorded by Ratnawati and Kholis (2019) to positively affect loyalty, influence the overall satisfaction of existing customers, and attract the interest of new customers. Customers will view a service provider as trustworthy if they are pleased with the financial gains that result from their association with them (Sumaedi et al., 2015). Customer satisfaction will affect their level of assurance and motivation to participate in a cooperative firm.

1.2 Research Gap & Novelty

A lot of researchs in terms of competitive advantage previously showed that strategic supply chain management and business model innovation have a positive impact on competitive advantage. Other researchs also showed a positive impact of business model innovation as mediating factor between strategic supply chain management and competitive advantage. However, there is a minimal study about influencing variable of customer trust as moderating factor in the correlation between business model innovation and competitive advantage specific to water technology business; as mentioned earlier that the business process of water technology is tailor-made (customized) based on customer requirement and most of them are service business. This customer-centric model would have a unique reference that cannot be compared with previous in general.

Table Error! No text of specified style in document.**.1 List of Previous Related Research**

No	Author & Title of Research	Variable of Interest	Findings
1	Benjamin Tukamuhabwa, Mutebi & Rhona (2021) Competitive advantage in SMEs: Effect of supply chain management practices, logistics capabilities and logistics integration in a developing country	Supply chain management and competitive advantage	Supply chain management and logistics integration practices are strongly and favourably linked to a competitive advantage.
2	Joman Alzahrani (2018). The impact of e-commerce adoption on business strategy in Saudi Arabian small and medium enterprises	e-commerce and strategic management	e-commerce adoption impacts SMEs' methods, the significant factors that moderate and predict the relationship between e-commerce and business strategy.
3	Radomska, Wołczek and Aleksandra Szpulak (2019) Injecting courage into strategy: the perspective of competitive advantage	A risky strategy, competitive advantage, and revenue dynamics	a positive relationship between rugged design and firm performance, but no evidence of a mediating role of competitive advantage and dynamic growth in this relationship.
4	Filho and Moori (2017) The role of technological capabilities in the competitive advantage of companies in the Campinas, SP Tech Hub	Strategic supply chain management, technological innovation capabilities, and competitive advantage	The findings showed that strategic supply chain management impacts competitive advantage and technological capabilities.
5	Haron, Razali & Subar, Noradilah Abdul (2019)	Customers' satisfaction,	In Malaysia's cultural framework of Islamic banking,

	Service quality of Islamic banks: satisfaction, loyalty, and the mediating role of trust	loyalty, and trust in Islamic banks in Malaysia	trust can somewhat mediate the relationship between customer satisfaction and consumer belief.
6	Arasa & Gathinji (2014) The Relationship Between Competitive Strategies and Firm Performance: A Case of Mobile Telecommunication Companies in Kenya	Competitive strategies and performance of firms	The study found that competitive strategies such as cost leadership, differentiation, market focus, and strategic alliances significantly influence the firm's performance in a competitive environment.

Based on the table above, only limited information is known about the moderating role of customer trust to competitive advantage, so this study will focus on customer trust as moderating role to competitive advantage.

1.3 Problem Identification

As the largest economy in Southeast Asia, Indonesia has seen significant industrial and infrastructure development during the last five years. With a rapidly rising population and rapid industrialization, water consumption will skyrocket, particularly in industrial and agricultural applications, which are two key economic drivers in Indonesia and Southeast Asia.

In 2021, the industry's total water usage in Indonesia had risen to 3,461 MCM, with an annual growth of 10% since 2017 and forecasted to 2025 with the same development. This condition necessitates a more vital requirement to upgrade the industry's water supply and waste treatment systems.

The number of water treatment companies in Indonesia is mainly due to the low entry barrier for this business, so competition among rivalry is high. However average business growth of water treatment companies for the last five years is below five percent, and it could be very low for some companies; based on data, the industry's total water usage has an annual growth of 10% through 2025. According to Porter (1981), only companies with a competitive advantage can outperform rivalry influenced by five forces factors: bargaining power of suppliers, buyers, the threat of substitutes, the threat of new entrants, and industry rivalry. On the other hand, according to Barney (1991), the resource-based logic suggests that if valuable resources (i.e., resources that are costly and difficult to imitate) are possessed by a few firms, those firms that can control these resources potentially generate sustained competitive advantage.

As explained earlier, according to Gunasekaran et al. (2004), Supply Chain Management (SCM) has played a significant role in competitive strategy, increasing organizational profitability and productivity. Supply chain management (SCM) operates at three levels: strategic, tactical, and operational (Cooper et al., 1997). The highest level of SCM decisions is the strategic (SSCM), which is relevant to the entire organization (Poirier and Reiter, 1996). Decisions should reflect the company's overall strategy (Christopher, 2000). The processes in SSCM include developing new products and services, suppliers, manufacturing, customers, and all logistics (Simchi-Levi et al., 2008). Price/cost, quality, delivery dependability, product innovation, and time to market are the aspects of competitive advantage achieved through SCM techniques, according to Li et al. (2006), who examined many variables in earlier studies.

Innovation is another factor for a company to create a potential competitive advantage that differs from competitors by utilizing existing resources or creating new ones. According to a large body of research, business model innovation is crucial for company survival, business performance, and as a source of competitive advantage (Demil and Lecocq, 2010; Chesbrough, 2010; Amit and Zott, 2012; Baden-Fuller and Haefliger, 2013; Casadesus-Masanell and Zhu, 2013).

There is minimal study about influencing variables of customer trust as moderating role between business model innovation and competitive advantage. The initial goal of this study is to investigate the moderating effect of customer trust between business model innovation and competitive advantage and whether this moderating effect positively impacts this relation.

1.4 Research Questions

Based on the background analysis and problem identification above, this research would like to answer some problems that arise:

1. How does strategic supply chain management affect competitive advantage?
2. How does strategic supply chain management affect business model innovation?
3. How does business model innovation affect competitive advantage?
4. How does business model innovation significantly mediate strategic supply chain management to competitive advantage?
5. How does customer trust significantly moderate business model innovation toward competitive advantage?

1.5 Research Objective

The objective of the research is to understand the impact and relationship between factors as follows:

1. To evaluate the effect of strategic supply chain management on competitive advantage in industrial water treatment company
2. To evaluate the effect of strategic supply chain management on business model innovation in industrial water treatment company
3. To evaluate the effect of business model innovation on competitive advantage in industrial water treatment company
4. To evaluate business model innovation significantly mediating strategic supply chain management to competitive advantage

5. To evaluate business model innovation significantly moderated by customer trust toward competitive advantage.

1.6 Scope of The Study

This study identifies the stagnant business growth in water treatment companies from 2017 to 2021. This study will analyze the strategic supply chain management concerning the competitive advantage, strategic supply chain management to competitive advantage mediated by business model innovation, and the impact of customer trust as moderating effect of business model innovation and competitive advantage.

1.7 Significant of The Study

The finding of this research will contribute to:

A. Theoretical Contribution

1. To improve the body of knowledge on the moderating role of customer trust in the relationship between business model innovation and competitive advantage
2. This research encourages quantitative methods using PLS-SEM in the competitive advantage model.

B. Practical Contribution

1. To give insight to business owners on why the business growth stagnancy happens in the firm.

1. 8 Thesis Structure

This thesis is organized into six chapters with the following details:

Chapter I: Introduction

The requirements for an investigation are described in this section. The context of the study, problem definition, research questions, objectives, scope, and importance are all included.

Chapter II: Literature Review

This chapter emphasized the theoretical review that will direct the inquiry. Additionally, it displays the definition and findings of earlier research. Journals, newspapers, and other informational sources are used as literature sources to support the research.

Chapter III: Methodology

It will specify the sort of study, as well as the demographic and sampling methods, data analysis, and hypothesis testing.

Chapter IV: Data Analysis

Since data analysis is a crucial component of the study, this section discusses the specifics of data analysis. This section demonstrates how data is processed according to defined protocols, followed by analysing the data processors' output.

Chapter V: Conclusion and recommendations

This section is the study's concluding chapter and outlines the complete analysis from beginning to end. The recommendations will help future researchers, academics, marketing, and board management in higher education institutions.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

Studies show a link between strategic supply chain management variables and competitive advantage, strategic supply chain management, and business model innovation, business model innovation and competitive advantage, as well as a link between business model innovation in a role for bridging the gap between strategic supply chain management and competitive advantage as mediating role. Few studies have known the effect of customer trust as a moderator between business model innovation and competitive advantage. However, the theory used in this study argues that customer trust moderates the correlation between business model innovation and competitive advantage. This study will analyze the relationship between strategic supply chain management and competitive advantage as mediating variables of business model innovation, as well as the influence of customer trust as a moderating variable between business model innovation and competitive advantage. This chapter will look at ideas linked to this study and past studies relevant to the study's goals.

2.2 Strategic Supply Chain Management (SSCM)

The relevance of logistics and supply chain management (SCM) practices and competencies in establishing enterprises' competitive advantage has been highlighted in recent empirical work (McGinnis et al., 2010; Aziz et al., 2020; Keskin et al., 2021). Building a competitive advantage will require SCM techniques, including information sharing, postponement, and strategic supplier partnerships, among others (Liet al., 2006; Afraz et al., 2021; Huo et al., 2021; Migdadi, 2021). Previous academic research indicates that developing distinctive logistics strategies and capabilities might help organizations gain a competitive advantage (Zhao et al., 2001; Mentzer et al., 2004; Gligor and Holcomb, 2012, 2014a, b; Sandberg and Abrahamsson, 2011; Day et al., 2015). Reports (e.g., World Bank study, 2017; JICA report, 2017) claim that logistics effectiveness and efficiency impact competitive priorities like pricing, availability, the smooth movement of goods and services, and achieving customer expectations. The literature suggests several logistical capability dimensions. However, a significant body of research concurs that information management, supply management, and demand management competencies are among the logistics capabilities required for establishing and enhancing competitive advantage (Mentzer et al., 2004; Gligor and Holcomb, 2012, 2014a, b). It is also asserted that the capacity to incorporate logistics capabilities throughout the supply chain might be a dynamic capability (Gligor and Holcomb, 2012, 2014a, b). Integrating logistical capabilities throughout the supply chain is thus a crucial component of competitive advantage from the dynamic capabilities perspective of the resource-based view (Gligor and Holcomb, 2012; Chang et al., 2021). Li et al. (2006) came to the conclusion that the following factors contribute to competitive advantage derived through SCM practices: price/cost, quality, delivery dependability, product innovation, and time to market. Strategic, tactical, and operational levels comprise supply chain management (SCM) (Cooper et al., 1997). The strategic (SSCM) level of SCM choices is the highest and affects the entire organization (Poirier and Reiter, 1996). The company's overarching strategy should be reflected in decisions (Christopher, 2000). The SSCM processes cover all logistics, suppliers, manufacturing, customers, and the development of new goods and services (Simchi-Levi et al., 2008).

2.3 Competitive Advantage (CA)

The ability of an organization to establish a defendable position against rivals is referred to as having a competitive advantage (Porter, 1985; McGinnis and Vallopra, 1999). To get a competitive advantage, Porter (1985) advised businesses to pursue a cost leadership or differentiation strategy. Later, several scholars proposed various competitive advantage dimensions. For instance, Koufteros et al. (1997) suggested five dimensions: premium price, value-to-customer quality, reliable delivery, and competitive pricing. According to Li et al. (2006), the most often utilised competitive advantage dimensions are price/cost, quality, delivery reliability, product innovation, and time to market.

2.4 Business Model Innovation (BMI)

Firms that want to innovate their business models look at new ways to establish their value proposition and to create and capture value for their partners, suppliers, and customers (Gambardella and McGahan, 2010; Teece, 2010; Bock et al., 2012; Casadesus-Masanell and Zhu, 2013). According to a large body of research, business model innovation is crucial for company survival, business performance, and as a source of competitive advantage (Demil and Lecocq, 2010; Chesbrough, 2010; Amit and Zott, 2012; Baden-Fuller and Haefliger, 2013; Casadesus-Masanell and Zhu, 2013). Given the increased prospects for new business models made possible by shifting consumer expectations, technology advancements, and deregulation, it is beginning to draw more attention (Casadesus-Masanell and Llanes, 2011; Casadesus-Masanell and Zhu, 2013). According to one strategy, various business models can be investigated through an evolutionary process of minor adjustments to the components of the business model (e.g., Demil and Lecocq, 2010; Dunford et al., 2010; Amit and Zott, 2012; Landau et al., 2016; Velu, 2016). The alternative, more practice-focused strategy asserts that new business models can be created through a revolutionary process by displacing current business models (e.g., Bock et al., 2012; Iansiti and Lakhani, 2014). Studies have examined several business models, including social business models (Hlady-Rispal and Servantie, 2016), digital business models (Weill and Woerner, 2013), service business models (Kastalli et al., 2013), business models driven by sustainability (Esslinger, 2011).

2.5 Customer Trust (CT)

Customers' endeavours to reduce risk are characterized by a paradigm called "trust" (Boonlertvanich, 2019). Sumaedi et al. (2015) stated that trust involves behavioral intention that signifies a customer's dependence on a service provider, and it requires vulnerability and uncertainty about the role of the provider. According to Ratnawati and Kholis (2019), trust has a beneficial impact on brand loyalty, and existing consumers' general satisfaction piques the curiosity of potential new customers. If customers are satisfied with the economic benefits that emerge from the customer–service provider relationship, they perceive the service provider as trustworthy (Sumaedi et al., 2015). Satisfaction will influence the customer's confidence and encouragement to contribute to the collaborative business. Customer–provider committed to the relationship is enriched by trust (Boonlertvanich, 2019). Trust is also defined as the belief that a service provider's statement or promise is reliable and the provider will meet its commitments in the customer–service provider relationship. The context of transaction costs economics in which trust appears, as considered by Ladeira et al. (2009), concerns governance structures in which transactions are made, and the agents' opportunistic behaviour arises. As a result, trust would be linked to opportunism because economic actors are zealously motivated by their objectives and self-interest (opportunistic behaviour). There is no such thing as pure trust, according to Williamson (1996). No transaction is not protected since it has some form of safeguard, whether contractual, legal, reputational, or institutional. In practice, there is a calculative trust which impacts the decision to cooperate or not. Because businesses would take action to protect the value of their knowledge to the greatest extent possible, it does not worry spontaneous collaboration.

2.6 The Effect of Strategic Supply Chain Management on Competitive Advantage

Gunasekaran et al. (2004) state that SCM has been a crucial element of competitive strategy, boosting organizational profitability and productivity. There is a vast body of literature on SCM techniques and technology, and scholars and practitioners have recently paid close attention to metrics adoption and performance monitoring. Two views have been established for performance measurements in the supply chain (SC). Based on the four conventional competitive criteria of cost, quality, flexibility, and delivery performance, the first one is concerned with its effect on operational performance (Ferdows and De Meyer, 1990). In the second, economic and market indicators such as market expansion, return on investment, sales expansion, and sales profit margin are used to evaluate financial success (Kaplan and Norton, 1992; Li et al., 2006).

Some research examines the connection between SSCM and CA. For instance, a study of SCM professionals in the USA examined the impact of supply chain integration skills on SCM performance (Eltantawy et al., 2009). Hong Kong electronics businesses' supplier development policies and the performance of their supplier-customer relationships (Li et al., 2012); and examining the connection between performance outcomes and the creation of partnerships for best practices in environmental SC, in a study with Korean businesses (Youn et al., 2013). These studies showed that SSCM had a favourable impact on the CA of the organizations studied, indicating that the better their supply chains were strategically organized, the better their performance metrics, and the better their CA relative to their rivals. Therefore, this study further validates that strategic supply chain management is a critical influence on competitive advantage, and the following hypothesis is proposed:

H1: Strategic supply chain management has a positive impact on competitive advantage

2.7 The Effect of Strategic Supply Chain Management on Business Model Innovation

To improve the long-term performance of the individual companies and the supply chain as a whole, SCM is defined as the systematic, strategic coordination of the traditional business functions and the processes that operate between these business functions within a specific company and across businesses within the supply chain (Mentzer et al., 2001). In this definition, business functions occupy a central role. By stating that companies must modify their buying methods to account for supply unpredictability, Kraljic (1983) made one of the first and most significant attempts to establish a supplier selection model. In order to foster tight cooperation with the suppliers, Kraljic (1983) recommended that SC policies be formed based on "the strategic relevance of purchasing" and "the complexity of the supply network". Later, Fisher's (1997) model claimed that industry-specific demand structures and the functional or inventive nature of products and services. This model also classified supply chains as either "responsive" or "efficient" and determined which kind best matches specific market layouts. Therefore, one of the first frameworks to be used for selecting a strategic supply chain in rapidly changing industries is Fisher's model. These industries frequently have short product life cycles, fluctuating demand, and a vast range of products. The "market-responsive SC approach" must be used with this model to "minimize stock-outs, forced markdowns, and obsolete inventory" (Fisher, 1997). Fisher (1997) suggests that once a corporation has chosen an innovative product, it can manage uncertainty by "finding sources of new data that can act as leading indicators, shortening lead times, and boosting the supply chain's flexibility". To quickly and effectively respond to the shifting market, such a market-responsive SC needs inventory buffers and up-to-date supply and demand data (Wong et al., 2006). Based on the above explanation, the following hypothesis is proposed:

H2: Strategic supply chain management has a positive impact on business model innovation

2.8 The Effect of Business Model Innovation on Competitive Advantage

With the development of the Internet over the past ten years, there has been a tremendous increase in the study of business models (Zott et al., 2011). Typically, a business model shows how a company creates or generates value and how it captures some of the value as profit, often called value capture by researchers (Teece, 2010). According to Casadesus-Masanell and Ricart (2010), the business model represents the business logic of a firm or, in Peter Drucker's words "theory of the business" (Drucker, 1994). Value creation is the process by which a business offers a variety of advantages to its clients. Value capture refers to a company's strategy for monetizing this value through its revenue model (Bowman and Ambrosini, 2000). The value dimension and the business model have both been added by Osterwalder and Pignuer (2010) as justifications for how a company develops, delivers, and captures value. Almost all industry experts, academics, and people concur that the idea of business model innovation is becoming more important, applicable, and relevant even though there is no single definition of a business model (Amit and Zott, 2012; Bashir et al., 2016). Business model innovation is a new type of innovation different from product or process innovation, according to researchers, academics, and top executives (Baden-Fuller and Mangematin, 2013; Björkdahl and Holmén; Massa and Tucci, 2014). Beyond doubt, the benefits linked with business model innovation outstrip any other form of innovation (Lindgardt et al., 2009; Schallmo and Brecht, 2010; and Snihur and Zott, 2013). Finding a unique approach to conducting business that rearranges value production and value-capturing processes have also been referred to as business model innovation (Björkdahl and Holmén, 2013; Massa and Tucci, 2014). Researchers also concur that even by modifying just one of a business model's parts or components, business model innovation can happen (Lindgardt et al., 2009; Demil and Lecocq, 2010; Abdelkafi et al., 2013). Based on the above explanation, the following hypothesis is proposed:

H3: Business model innovation has a positive impact on competitive advantage

2.9 The mediating effect of Business Model Innovation on Strategic Supply Chain Management to Competitive advantage

The mediating variable's purpose is to explain the impact of an (observed) relationship between an independent and dependent variable. According to Casadesus-Masanell and Ricart (2010), the business model represents the business logic of a firm or, in Peter Drucker's words "theory of the business" (Drucker, 1994). Value creation is the process by which a business offers a variety of advantages to its clients. Value capture refers to a company's strategy for monetizing this value through its revenue model (Bowman and Ambrosini, 2000). Thus, business model innovation will positively impact competitive advantage. On the other hand, Recent empirical literature has underlined the role of logistics and supply chain management (SCM) practices and capabilities in creating firms' competitive advantage (McGinnis et al., 2010; Aziz et al., 2020; Keskin et al., 2021). SCM practices such as strategic supplier partnership, customer relationships, information sharing, and postponement have been earmarked as vital for building competitive advantage (Liet al., 2006; Afraz et al., 2021; Huo et al., 2021; Migdadi, 2021).

According to the integrative method, value creation for service organizations may be integrated into a value chain for innovation that includes coming up with ideas, turning them into products, and sharing the processes and products, the organization has developed (Jacintho et al., 2018). A business should increase its innovation capacity to create and distribute technological advances across the organization, reinforce its competitive edge, and develop and commercialize new technologies (Cheng et al., 2012). Innovation can refer to new techniques for manufacturing goods and services or cutting-edge procedures (Filipescu et al., 2013). Thus, business model innovation is a mediator between strategic supply chain management and competitive advantage. Therefore, this study hypothesizes the following:

H4: Business model innovation has a significant effect in mediating strategic supply chain management to competitive advantage

2.10 The moderating effect of customer trust on business model innovation to Competitive advantage

Customers' endeavours to reduce risk are characterized by a paradigm called "trust" (Boonlertvanich, 2019). According to Sumaedi et al. (2015), building trust requires vulnerability and confusion about the provider's function and behaviour, indicating a customer's dependence on them. According to Ratnawati and Kholis (2019), trust benefits brand loyalty and existing consumers' satisfaction in general and piques the curiosity of potential new customers. Customers will view a service provider as reliable if they are pleased with the financial gains that result from their association with them (Sumaedi et al., 2015).

According to Ladeira et al. (2009), the governance structures in which transactions are performed are the setting of transaction costs economics in which trust originates, where the agents' opportunistic behaviour arises. Since there is a positive relationship between business model innovation and competitive advantage, this research believes there is an impact of customer trust as a moderating role between business model innovation and competitive advantage. Based on the above explanation, the following hypothesis is proposed:

H5: Business model innovation is significantly moderated by customer trust toward competitive advantage.

2.11 Research Framework

This research will focus on the factors that impact the industrial water treatment business strategy. The effect of strategic supply chain management (SSCM) on Competitive Advantage (CA), the impact of strategic supply chain management (SSCM) on Business Model Innovation (BMI), the effect of Business Model Innovation (BMI) on Competitive Advantage (CA), as well as the impact of business model innovation (BMI) mediates the relationship between strategic supply chain management (SSCM) and Competitive Advantage (CA), and customer trust (CT) moderates the relationship between business model innovation (BMI) and competitive advantage (CA)

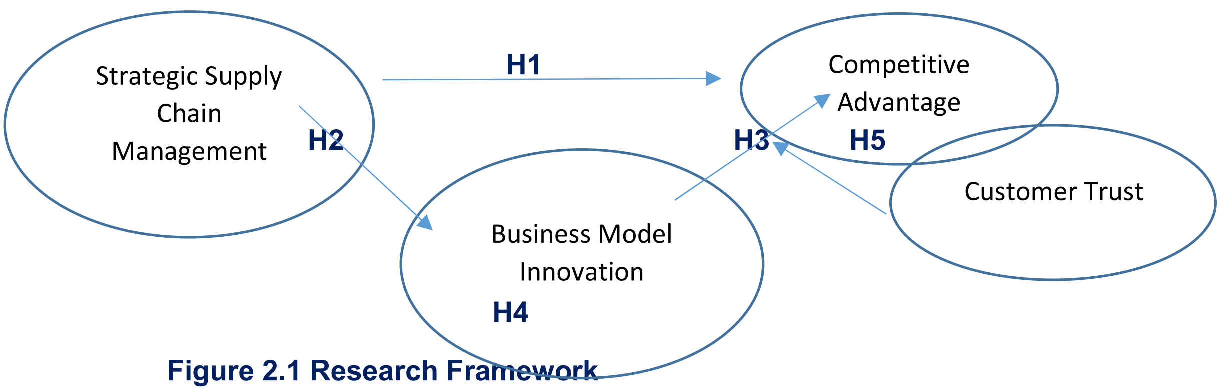

Figure 2.1 Research Framework

Source: Author, 2022

H-1: Strategic supply chain management has a positive impact on competitive advantage

H-2: Strategic supply chain management has a positive impact on business model innovation

H-3: Business model innovation has a positive impact on competitive advantage

H-4: Business model innovation has a significant effect in mediating strategic supply chain management to competitive advantage

H-5: Business model innovation is significantly moderated by customer trust toward competitive advantage.

CHAPTER III

RESEARCH METHODS

3.1 Research flow Chart

The methodologies and procedures used to accomplish the study's goals will be covered in this chapter, including the research design, sample size, population, sampling technique, research instrument, data collection strategy, data quality and dependability, and analytical instrument.

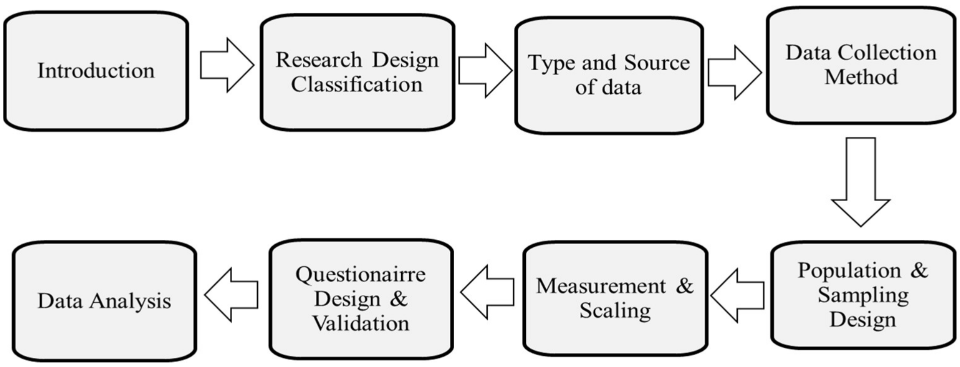

Figure 3. 1 Flow chart of the methodology

Source: Malhotra, N.K., 2010

3.2 Research Strategy

The Saunders Research Onion, which illustrates the steps necessary in creating research work, will be used as a model for this study (Saunders, Lewis, Thornhill, & Bristow, 2019). It has shown to be adaptable to almost any research methodology and may be applied in many circumstances (Becker, Bryman, & Ferguson, 2012). The model is illustrated in Fig 3.2.

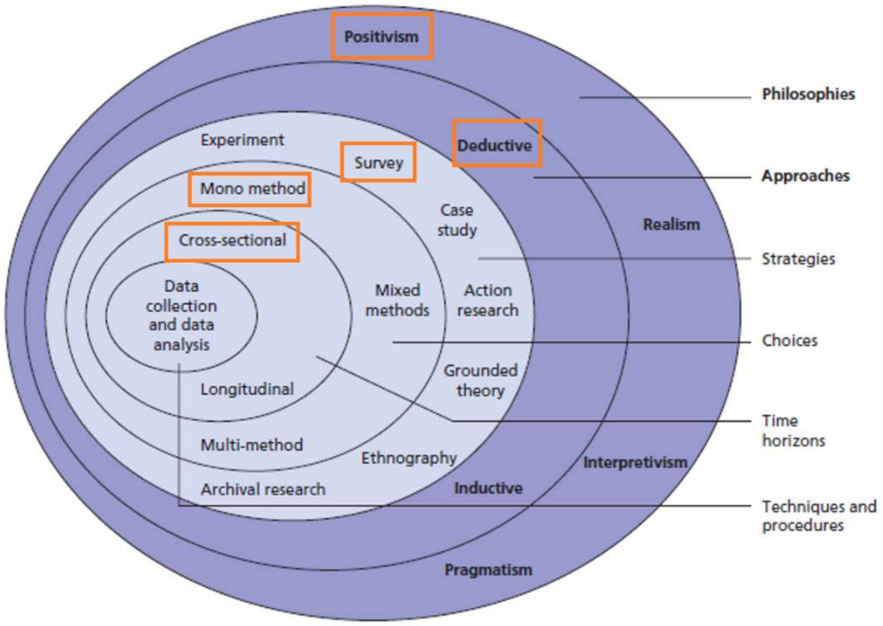

Figure 3. 2 Research Onion Diagram
Source: (Saunders et al., 2019)

From the outer to the inner layer, the research onion, which is an extension of the research methodologies tree, can be described as follows:

- Positivism is the first philosophy layer since it generates research questions and ideas that the researcher can test.
- The second layer is deductive because the initial emphasis is on applying comprehensive statistical analysis.
- In the third layer, the quantitative approach will measure the influence of business model innovation and customer trust on implementing strategic supply chain management to achieve a competitive advantage in industrial water treatment companies. This study will use a survey design, sampling a representative sample of the population to observe significant factors and gather a sizable amount of data to address the research question.
- In the fourth layer, the mono method from primary data will be used with multiple sources of the employee with C-level and one layer under C-level at industrial water treatment company with business growth below five percent at ten industrial water treatment companies, and their customer (end-user) who are the employee with C-level and one layer under C-level
- In the fifth layer, cross-sectional data will observe the influence of business model innovation and customer trust on implementing strategic supply chain management to achieve a competitive advantage in industrial water treatment companies only once. Forms of the target response are an employee with C-level and one layer under C-level at an industrial water

treatment company with business growth below five percent at ten industrial water treatment companies, and their customer (end-user) who are the employee with C-level and one layer under C-level

3.3 Type and Source of Data

Primary data and secondary data as information were used in this investigation. The phrase "primary data" refers to research data obtained directly from the source (rather than through intermediaries) in the form of individual opinions to solve research difficulties. Primary data for this study came straight from questionnaires filled out by respondents. Secondary data is research data obtained by searching for and collecting materials from businesses, such as books, reports, brochures, and other information.

Table 3. 1 Type and Source of Data

Type of Data	Description	Source of Data
Primary Data	Responses of respondents to SSCM, BMI, CT, and CA questionnaires	Respondent Internal Industrial water treatment company and external from customer (end-user)
Secondary Data	Materials by searching and collecting	Previous research, books, reports, and feedback from Google, IPMI, or the academic supervisor

3.4 Data Collection Method

For this study to be compelling within an acceptable timeframe, respondents will get questionnaires via an online form. A questionnaire is a group of written questions with a formula (Bougie & Sekaran, 2013). Google Forms will construct an online survey and send the results to selected respondents via WhatsApp. The questionnaire will be distributed as follow:

1. To the respondents from the population sample who are selected employees with C-level and one layer under C-level at industrial water treatment company with the business growth below five percent, this questionnaire is done to ten industrial water treatment companies.
2. Another questionnaire is distributed to the customer (end-user) respondents, the employee with C-level, and one layer under C-level.

In the questionnaire, closed-ended questions are employed; the Likert scale is frequently used as an interval scale to evaluate a person's intention, attitudes, perspectives, or perceptions concerning social phenomena. The response to a Likert scale question is given on a five-point scale. The researcher utilizes a scale range of 1-5 in this investigation, with each significant scale being as follows: “1” Strongly Disagree, “2” Disagree, “3” Neutral, “4” Agree, and “5” Strongly Agree. The sampling period is from July to Aug 2022.

3.5 Population and Sample

Rather than studying the entire population, the study is frequently undertaken on a subset of the issue. The survey is valuable and influential in determining responses to research questions through data gathering and analysis. A population is a vast collection of people with a lot in common. A subset of the population is referred to as a sample. Analyzing the study, the researcher would draw generalizable conclusions about the population of interest. In this research, the demographic is the employee with C-level and one layer under C-level at industrial water treatment companies with business growth below five percent, done against ten industrial water treatment companies, and their customer (end-user) who are the employee with C-level and one layer under C-level. Sampling is the method of choosing the correct research person, item, or event. In this research, the sampling technique used is non-probability purposive sampling. In non-probability sampling, the respondent has no known or predefined likelihood of being chosen as a sample subject in non-probability sampling (Bougie & Sekaran, 2016). In purposive sampling, the respondents have been selected with the following criteria 1) the industrial water treatment employee with C-level and one layer under C-level, 2) and their customer (end-user) who are the employee with C-level and one layer under C-level. Because this study uses PLS-SEM, there is a relationship between significant level, number of connections between constructs, and sample size in the direction of minimum coefficient of determination, according to (Joseph F Hair, Hult, Ringle, & Sarstedt, 2014). This study determines the sample size using Cohen Table (Table 3.2) and G Power analysis (Fig.3.3)

Table 3. 2 Cohen Table

Exhibit 1.7 Sample Size Recommendation a in PLS-SEM for a Statistical Power of 80%

Maximum Number of Arrows Pointing at a Construct	*Significance Level*											
	1%				*5%*				*10%*			
	Minimum R^2				Minimum R^2				Minimum R^2			
	0.10	*0.25*	*0.50*	*0.75*	*0.10*	*0.25*	*0.50*	*0.75*	*0.10*	*0.25*	*0.50*	*0.75*
2	158	75	47	38	110	52	33	26	88	41	26	21
3	176	84	53	42	124	59	38	30	100	48	30	25
4	191	91	58	46	137	65	42	33	111	53	34	27
5	205	98	62	50	147	70	45	36	120	58	37	30
6	217	103	66	53	157	75	48	39	128	62	40	32
7	228	109	69	56	166	80	51	41	136	66	42	35
8	238	114	73	59	174	84	54	44	143	69	45	37
9	247	119	76	62	181	88	57	46	150	73	47	39
10	256	123	79	64	189	91	59	48	156	76	49	41

Source: Cohen, J. A power primer. *Psychological Bulletin*, 112, 155–519.

As shown in Table 3.2 above, this study employs a 5% significance level, a minimum R^2 of 0.25 percent, and 4 (four) arrows pointing at the construct. The sample size for this study will be 65.

G Power analysis is the second widely used method to identify a social and behavioural research sample size (Erdfelder, Faul, & Buchner, 1996). Considering the f^2 values of at slightest 0.15 with a probability error of 5% and statistical power of 0.80, with a number of a predictor of 5, the required sample size calculated by G Power version 3.1.9.4 is 92 (Fig 3.3).

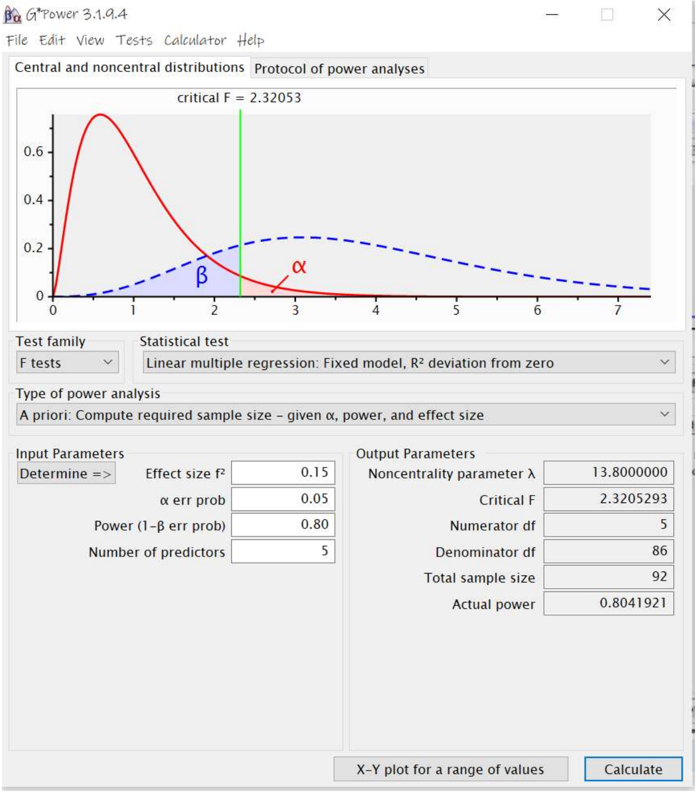

Figure 3. 3 G Power Sample Size Calculation

Source: Data processed by author's G Power software version 3.1.9.4 (2022)

Based on the Cohen Table and G Power analysis, it is determined that the sample size required for this research is a minimum of 100 samples

3.6 Questionnaire Design

There is only one portion of the questionnaires. The part covers questions about the current situation, ranging from 1 to 5, with descriptive analysis using a Likert scale of 1 to 5. It is created based on the study's operational factors.

3.7 Measurement and Scaling

The research variables are rated on a five-point Likert scale ranging from "1" Strongly Disagree, "2" Disagree, "3" Neutral, "4" Agree, and "5" Strongly Agree for each statement. The form of a questionnaire design, the explanation, and measurement item for the variables are listed in the table below:

Table 3. 3 Operationalization of Variables

Variable	Definition	Question	Source
Strategic Supply Chain Management (SSCM) Lee, R (2021)	Vendor-managed inventory (VMI)	a. Your firm has built a VMI system infrastructure for continuous maintenance. b. Your firm actively uses the VMI system after persuading business parties and stakeholders of its importance. c. Your firm has improved work efficiency by using the VMI system. d. Your firm has increased productivity by using the VMI system.	Lee, R (2021)
	Enterprise replenishment planning (ERP)	e. Your firm has built an ERP system infrastructure for continuous maintenance. f. Your firm actively uses the ERP system after persuading business parties and stakeholders of its importance. g. Your firm has increased productivity by using the ERP system	
	Collaborative planning, forecasting, and replenishment (CPFR)	h. Your firm has built a CPFR system infrastructure for continuous maintenance. i. Your firm actively uses the CPFR system after persuading business parties and stakeholders of its importance.	

		j. Your firm has improved work efficiency by using the CPFR system. k. Your firm has increased productivity by using the CPFR system.	
	Warehouse Management System (WMS)	l. Your firm has built a WMS system infrastructure for continuous maintenance. m. Your firm actively uses the WMS system after persuading business parties and stakeholders of its importance. n. Your firm has improved work efficiency by using the WMS system. o. Your firm has increased productivity by using the WMS system.	
	Outsourcing (OS)	p. You have built an outsourcing infrastructure for continuous maintenance. q. Your firm actively uses outsourcing after persuading business parties and stakeholders of its importance. r. Your firm has improved work efficiency by using outsourcing. s. Your firm has increased productivity by using outsourcing.	
Business Model Innovation (BMI) Barjak et al. (2014).	Value Capturing	a. Introduced new products as a unique value proposition b. Presented new services as a new value proposition	Barjak et al. (2014).
	Value delivery	c. Starting to collaborate with new business partners	

		d. Shared new responsibilities with business partners	
	Value creation	e. Focused on an entirely new market segment f. Created new revenue streams g. Introduced a new pricing mechanism	
Customer Trust (CT) McKnight ht, (2002)	Disposition, Trusting Stance	a. I generally trust people unless they give me a reason not to trust them b. I give people the benefit of the doubt when I first meet them. c. My typical approach is to trust new acquaintances until they prove I should not trust them	McKnight ht, (2002)
	Disposition, Competence	d. I believe that most Industrial water treatments do an outstanding job at servicing their consumers e. Most industrial water treatments are very knowledgeable in servicing their consumers f. A large majority of industrial water treatment are competent in their area of expertise	
Competitive Advantage (CA) (Barney, 1991, Teece, 2007)	Resource Based Competitive Advantage	a. We have very competent human resources that differentiate us from the others. b. We have a unique way of working; competitors cannot replace that. c. We have long experience in the field, which makes it very valuable	(Barney, 1991, Teece, 2007)

	Dynamic Capability-Based competitive advantage	d. We often analyze the external environment to identify business opportunities e. We often reconfigure our resources to produce products and services that are more suited to changing market demands f. We ensure that the output generated from each job in one business line is synchronized with the work of other sections	
	Inter-Organizational Cooperation Competitive advantage	g. We have close cooperation with partners and other institutions in the network to improve its position in the competition h. We closely cooperate with network partners to create knowledge and capabilities as a source of competitive advantage. i. We have close cooperation with other local and overseas institutions in the network to create knowledge and capabilities as a source of competitive advantage.	

3.8 Reliability and Validity of the Instrument

On a small scale, the instruments' reliability and validity are assessed (30 samples). To avoid discriminatory questions, it attempts to guarantee that the instruments are good and that the respondents comprehend the questionnaire. Pilot testing is done on all questionnaire items to assess the instruments' reliability. The questionnaire should be pre-tested on small sample size (30 samples) to detect and minimize potential difficulties. The researcher additionally checks the questionnaire's measurable variables for reliability and validity.

The repetition and consistency of a survey are depicted by its reliability. The degree to which a measurement is devoid of bias (error-free) ensures that the size of the instrument remains consistent throughout time and among the various things in the instrument. In other words, the reliability of measurement indicates the stability and consistency with which the questionnaires measure the concept and helps assess the “goodness” of a measure (Bougie & Sekaran, 2016). Since reliability represents calculation accuracy, it clarifies and assesses internal consistency. The researcher applies Cronbach's Alpha (Cronbach, 1951) to the reliability test, evaluating the ratio level of data to gauge the consistency of the student's responses. For a high-quality outcome, the Cronbach's Alpha must be more than 0.7, or most researchers will deem it adequate (J. F. Hair, Babin, A. H. Money, & Samouel, 2003). This research uses Cronbach’s Alpha to calculate internal accuracy. Cronbach’s Alpha would reflect internal consistency by averaging all potential split-half reliabilities for a multiple-item size. It is also claimed that the scale with a coefficient of $\alpha \geq 0.70$ reflects strong reliability.

On the other hand, validity refers to how precise a measurement is or how precisely a score represents a concept (Kern, Romo, Kotbagi, & Muller, 2013). Pearson’s correlation measures validity. Pearson's correlation is a method for determining validity. Pearson's correlation determines the bivariate link's direction, intensity, and significance between all examined variables. Pearson's correlation will determine the degree to which a linear relationship between independent variables and a dependent variable is genuine. According to Pearson (1948), the validity of the link between the components is 0.3; thus, the Pearson Correlation must be greater than 0.3 to be regarded as legitimate.

3.9 Data Preparation, Analysis, and Model Evaluation

Following the conclusion of data processing, this study will proceed to the next step by analyzing the raw data.

1. Data Preparation

The data are processed and filtered to identify missing values, outliers, and values outside the expected range (Joseph F Hair et al., 2014). All questions in the online survey, created with Google Forms, were marked as mandatory or required to be completed before submission.

2. Descriptive Analysis

Raw data is referred to in descriptive analysis in a simpler format to use and analyze (Zikmund, Carr, & Griffin, 2013). The descriptive assessment calculates the mean, frequency distribution, and proportionate percentage of the demographic data provided by respondents in the questionnaire. The next phase examines the main trend and variance of all variables' mean range, standard deviation, and variance. The frequency distribution will be used to study outliers and normal distributions. The SPSS displays tests for skewness and kurtosis norms. Skewness and kurtosis are two components of normalcy. The symmetry of the distribution has to do with skewness; a skewed variable is a variable whose medium is not central. Kurtosis is related to a distribution's peaked-ness, either too high or flat a distribution (with short, thick tails) (with long, thin tails).

The values of skewness and kurtosis are zero when a distribution is normal. The skewness value could be positive, negative, or zero. If the skewness is positive, it indicates the scores clustered to the left or low value. If the skewness is negative, the scores are clustered at the high value or the right sight of the graph (Pallant, 2010). The negative kurtosis value indicates that the distribution curve is flat or that too many cases are extreme. In contrast, the positive kurtosis value shows that the data are grouped in the centre.

3. Model

This study uses SmartPLS 4 as software based on the Partial Least Square - Structural Equation Modeling (PLS-SEM). It's a technique for constructing a predictive model when there are a lot of variables colliding. It calculates the R2 value, which reflects the importance of the link between constructs. PLS-SEM is also suitable for describing research with not too many theories and uncertain forms of models (Gefen, Straub, & Boudreau, 2000). PLS-SEM may simply integrate reflecting and formative measurement models and can handle numerous structural or complicated models.

PLS-SEM had the advantage of simultaneously estimating the structural and measurement models (Chin, Marcolin, & Newsted, 2003). Secondly, if research was prediction-oriented or an extension of an existing theory, PLS-SEM modelling should be employed (Joseph F. Hair, Black, Babin, & Anderson, 2010). As a result, the current research was a correlational study in which the prediction was deemed more important than parameter estimate (Joseph F. Hair et al., 2010; Henseler, Ringle, & Sinkovics, 2009; Hulland, 1999). Thirdly, PLS-SEM has the confirmed ability to analyze data under the conditions of non-normality and in testing mediating effects. Finally, PLS-SEM excels at analyzing complex models (Chin et al., 2003) and (Joseph F. Hair et al., 2010). The model has to be evaluated for its measurement model evaluation and the structural model (Figure 3.4).

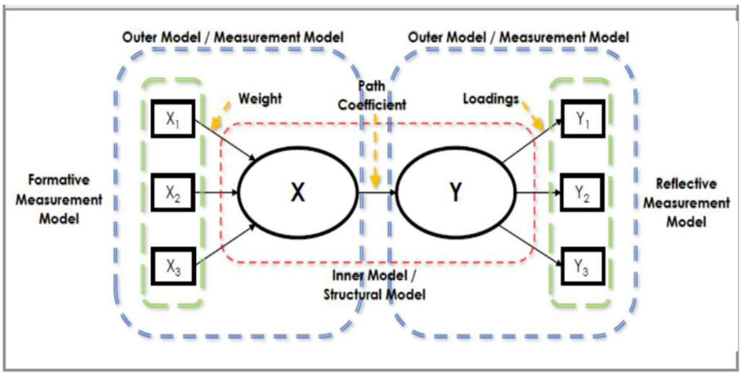

Figure 3. 4 PLS-SEM Model Example
Source: Basbeth, F& Ibrahim, M. A., (2017)

1. Evaluation of Measurement Model

The measurement model represents the relationship between the construct and the corresponding indicator variable (the outer model in PLS-SEM). There are criteria to estimate the measurement model: internal consistency reliability, convergent validity, and discriminant validity (J. Hair, Hult, M., Ringle, & Sarstedt, 2016).

a) Internal consistency

Cronbach's alpha is one of two measures for determining internal consistency reliability (representing a lower limit or producing a low-reliability value) and Composite Reliability (representing an upper limit or higher reliability value). The two measures vary between 0 and 1, with a higher value indicating a higher level of reliability. Cronbach's Alpha and Composite Reliability must be above 0.7 to be accepted.

b) Convergent validity

The degree to which a measure is positively associated with other measures of the same construct is known as convergent validity. The Outer Loading indicator and Average Variance Extracted are two metrics for evaluating the reflective construct's convergent validity (AVE). The construct must account for at least 50% of each indicator's variance. AVE defines the primary average value of the squared load of indicators related to construction. The square of the outer loading indicates how much variance is explained by the construct; therefore, the standard outer loading must be above 0.708. AVE value of 0.5 or higher indicates that, on average, the construct explains more than half of the variance of the indicator.

c) Discriminant validity

The degree to which a construct differs from other constructs is known as discriminant validity. The external load indicator in the related construction must be greater than other constructions' cross load (correlation). This criterion is generally considered somewhat liberal in establishing discriminant validity (Joseph F Hair et al., 2014). The HTMT would be a prediction of the accurate correlation between two constructs if they were highly reliable. The geometric mean of the average correlations of indicators measuring the same construct is HTMT, which is the mean of all correlations of indicators across constructs measuring different constructs. In conclusion, the HTMT ratio is the ratio of trait correlations to within-trait correlation and can be used to assess discriminant validity. A value of HTMT higher than 0.9 suggests a lack of discriminant validity (Joseph F Hair et al., 2014).

2. Evaluation of Structural Model

The structural model (called the inner model in PLS-SEM) represents the relationship between the independent and dependent variables. It shows the construction and path relationships between them in a structural model. As the path model develops, the order is from left to right. The variable on the left side of the path model is the independent variable, and the variable on the right side is the dependent variable. PLS-SEM estimates the parameters to maximize the explained variance of the endogenous latent variables. Models are evaluated in terms of how well they predict endogenous variables. The primary criteria for assessing a structural model in PLS-SEM are collinearity, path coefficient, Coefficients of Determination (R^2 value), and effect Size f^2. (Joe F Hair Jr et al., 2014)

a) Collinearity

A connected measure of collinearity is the Variance Inflation Factor (VIF). To assess collinearity, the author issues the VIF values of all predictor constructs in the structural model that need to be examined. Collinearity among the predictor constructs should not be a key concern in the structural model if the VIF score is less than 10. If VIF is greater than ten, then the predictor variables are highly correlated, indicating high levels of multicollinearity and is a matter of concern (Bowerman & O'Connell, 1990; Myers, 1990)

b) Path Coefficient

Path coefficient has a standardized value of approximately -1 and +1. The path coefficient close to +1 represents a strong positive relationship that is usually statistically significant. The path coefficient estimates are evaluated based on T-statistic values. T-statistic values are used to evaluate path coefficient estimations. The route coefficient estimation illustrates how strong a variable's effect on another variable is, as determined by the bootstrap process. If the t-value is more than 1.96 with a 5% error margin, the measurement items are significant (0.05) (Joe F Hair Jr et al., 2014).

c) Coefficient of Determination R^2

Coefficient of determination R2 is the most used measurement to evaluate the structural model. The coefficient represents the variances in the endogenous constructs explained by all the exogenous constructs. The coefficient is calculated as the squared correlation between a specific endogenous construct's actual and predicted value. The R^2 value is from 0 to 1, with a higher score indicating greater prediction accuracy. R^2 values of 0.75, 0.5, or 0.25 for an endogenous latent variable are described as substantial, moderate, or weak in marketing issues study (Joe F Hair et al., 2011).

d) Effect Size f^2

According to (J. Hair et al., 2016), the change in the R^2 value when a defined exogenous construct is excluded from the model can be used to determine whether the excluded construct has a substantive effect on the endogenous constructs, in addition to evaluating the R^2 values of all endogenous constructs. The f^2 effect size is a statistic that journal editors and reviewers increasingly support. Small, medium and large effects are represented by f^2 values of 0.02, 0.15, and 0.35, respectively, and no effect is represented by f^2 values less than 0.02. (Cohen et al., 1998) (Cohen et al., 1998).

3.10 Hypothesis Testing

Hypothesis testing is used to determine how independent variables influence the dependent variable. The value of the influence of variables on one another is represented by the route coefficient (β). A one-sided t-test will determine whether or not a variable has a significant effect on the hypothesis when using PLS-SEM. Based on the bootstrap report, this study will see if there is a significant association between the variables evaluated. The number of bootstrap samples utilized must be at least 500, which is more significant than the number of valid observations in the original data set (J. Hair et al., 2016). The t-statistics and p-value are used to determine the importance of independent and dependent variables. The p-value in statistics is the likelihood of getting outcomes at least as extreme as the observed results of a statistical hypothesis test, given the null hypothesis is valid. The p-value, rather than rejection points, determine the lowest significance level at which the null hypothesis is rejected. A lower p-value indicates that there is more evidence supporting the alternative hypothesis. The hypothesis can be accepted if the t-value is more than 1.65 with a significance level of 5% and the p-value (probability value) is less than 0.05.

CHAPTER IV

DATA ANALYSIS

4.1 Introduction

The data analysis and results started with data treatment, involving missing values and outliers, data assessment, and data evaluation. SPSS (Statistical Package for Social Sciences) version 25.0 and SmartPLS 4 software are utilized for descriptive and inferential statistical findings. Furthermore, the model will be evaluated on its measurement and structural model. The conclusion will be reached after hypothesis testing is reported. The sequence of data analysis shown in Figure 4.1

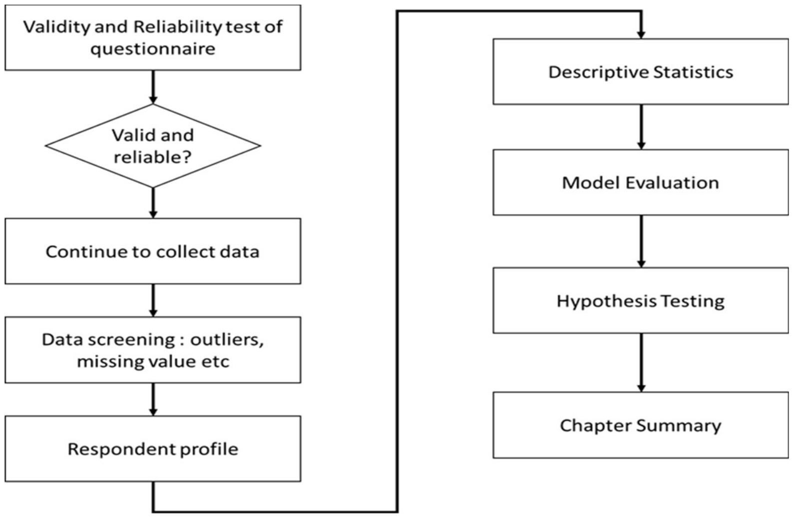

Figure 4. 1 Data Analysis Flow Diagram
Source: Author (2022)

4.2. Data preparation

Before looking at the fundamental descriptive statistics and frequency distributions of the data, it was screened and edited. All respondents completed the Google form strictly as intended, and no missing data was discovered. As indicated by the author, these processes detect missing data and outliers out of range (Joseph F Hair et al., 2010). The researcher utilizes the SPSS missing data function to double-check any overlooked data. Outliers were evaluated using SPSS to find extreme values within interval or ratio data (Joseph F. Hair et al., 2010). SPSS to check for outliers or extreme values within interval or ratio data (Joseph F. Hair et al., 2010) revealed no outliers in the respondent's answers.

4.3. Instrument Validity and Reliability

Pilot testing refers to a trial run of an instrument on a small scale to ensure the instruments are good and the respondents understand the items. First, to check the internal consistency (reliability), Cronbach's alpha reliability coefficients were used (Zikmund et al., 2013). As a result, the questionnaires were reliable, resulting in Cronbach's alpha values of 0.70 as a minimum reliability point (Sekaran & Bougie, 2010). Second, Pearson's Correlation is being utilized to distinguish the validity of the questionnaires. Pearson (1948) said 0.3 is the legitimacy of the relationship between the factors and to quality of their excellent run. The results of the validity and reliability of the instruments are shown in Table 4.1.

Table 4. 1 Validity and Reliability Test Result

Variables	**Items**	**Pearson's Correlation**	**Cronbach's Alpha**	**Validity Result- Pearson's Correlation > 0.3**	**Reliability Result- Cronbach's Alpha > 0.7**
Strategic Supply Chain Management (SSCM)	VMI1	.904**	0.986	Yes	Yes
	VMI2	.942**		Yes	
	VMI3	.906**		Yes	
	VMI4	.905**		Yes	
	ERP1	.888**		Yes	
	ERP2	.885**		Yes	
	ERP3	.876**		Yes	
	CPFR1	.886**		Yes	
	CPFR2	.916**		Yes	
	CPFR3	.911**		Yes	
	CPFR4	.915**		Yes	
	WMS1	.929**		Yes	
	WMS2	.895**		Yes	
	WMS3	.923**		Yes	
	WMS4	.916**		Yes	
	OS1	.856**		Yes	
	OS2	.864**		Yes	
	OS3	.879**		Yes	
	OS4	.889**		Yes	
Business Model Innovation (BMI)	VCap1	.931**	0.961	Yes	Yes
	VCap2	.926**		Yes	
	VD1	.917**		Yes	
	VD2	.896**		Yes	
	VCre1	.877**		Yes	
	VCre2	.885**		Yes	
	VCre3	.881**		Yes	
Customer Trust (CT)	DTS1	.876**	0.947	Yes	Yes
	DTS2	.863**		Yes	
	DTS3	.872**		Yes	
	DComp1	.913**		Yes	
	DComp2	.916**		Yes	
	DComp3	.896**		Yes	

Competitive Advantage (CA)	RB1	.923**	0.969	Yes	Yes
	RB2	.867**		Yes	
	RB3	.946**		Yes	
	DCap1	.859**		Yes	
	DCap2	.844**		Yes	
	DCap3	.868**		Yes	
	IO1	.903**		Yes	
	IO2	.938**		Yes	
	IO3	.933**		Yes	

Source: SPSS Report, 2022

As can be seen in Table 4.1, internal reliability values (Cronbach's alpha) for the variables: SSCM, BMI, CT, and CA are acceptable, with all values being significantly more than 0.7 (Zikmund et al., 2013). The Pearson correlation also confirmed that the questionnaires were valid, as recommended by Nunnally (1978), with a resulting coefficient of correlation of 0.30 as a minimum point of validity (Sekaran & Bougie, 2016).

4.4.Profile of Respondent

This study focuses on 1) employees at industrial water treatment companies with business growth below five percent and 2) customers from industrial water treatment companies. Sixty-five respondents have completed and submitted the questionnaire. Table 4.2 & 4.3 shows the demographic profile of responders.

Table 4. 2 Profile of Respondent from Employee of Industrial Water Treatment Company

Demographic Variable	Category	Percentage
Gender	Male	68%
	Female	32%
Age	20 – 25-year-old	0%
	26 - 30-year-old	0%
	31 - 40-year-old	37%
	>40-year-old	63%
Working Period	0 – 5 years	16%
	6 – 10 years	41%
	>10 years	43%
Role	Director	11%
	Manager	89%

Source: SPSS Report, 2022

The sample found that male respondents comprised most of the whole sample compared to female respondents (68 percent). Most respondents (43%) have worked for the company for more than ten years, and the majority age, above 40 years old, is 63%. And most respondents (89%) work in the position of manager.

Table 4. 3 Profile of Respondent from Customer of Industrial Water Treatment Company

Demographic Variable	Category	Percentage
Gender	Male	69%
	Female	31%
Age	20 – 25-year-old	0%
	26 - 30-year-old	7%
	31 - 40-year-old	41%
	>40-year-old	52%
Working Period	0 – 5 years	21%
	6 – 10 years	48%
	>10 years	31%
Role	Director	10%
	Manager	90%

Source: SPSS Report, 2022

Male respondents from the customer made up most of the whole sample compared to female respondents (69 percent). Most respondents (52%) have age above 40 years, and most respondents (48%) have worked for the company for six to ten years. And most respondents (90%) work in the position of manager.

4.5 Descriptive Statistics

The descriptive analysis describes and summarises the data set's main characteristics and variables from the respondents' perspective, which is provided in Table 4.4. The dependent variable is Competitive Advantage (CA), and the independent variables Strategic Supply Chain Management (SSCM), Business Model Innovation (BMI), and Customer Trust (CT) were measured on 5-point Likert scales.

Table 4.4 Descriptive Statistics

	SSCM	BMI	CT	CA
Mean	3.9028	3.9011	3.859	3.9521
Std. Deviation	.847	.793	.680	.753
Skewness	-.851	-.981	-.734	-.867
Kurtosis	-.812	-.323	-.517	-.67

Source: SPSS Report 2022

Competitive Advantage (CA) has the highest mean (3.9521), followed by Strategic Supply Chain Management (3.9028), Business Model Innovation (3.9011), and Customer Trust (3.859), as shown in Table 4.4. The data was not normally distributed for all variables shown by the frequency distribution of variables; for example variable Strategic Supply Chain Management (SSCM) in Fig. 4.2

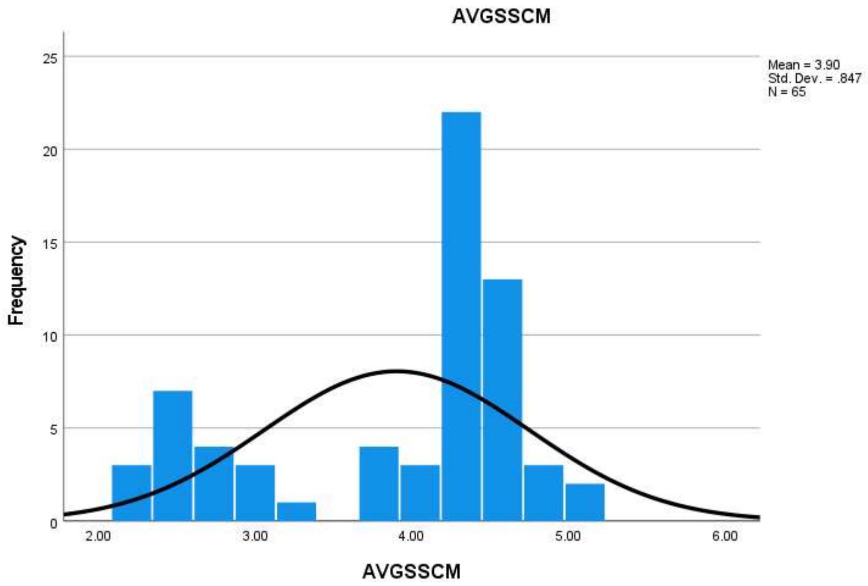

Figure 4. 2 Mean Value Distribution of Strategic Supply Chain Management (SSCM)

Because SmartPLS4's regression algorithm is based on non-parametric statistics, the data does not need to be evenly distributed. A bell shape is typical for normally distributed data, with the mean value at the graph's center. The distribution of SSCM data is depicted in Fig. 4.2, with some data on the right-hand side of the curve scoring five and some data on the left-hand side of the curve scoring 2–3.5, suggesting that the data are not normally distributed.

The dependent variable, competitive advantage (CA), will be examined using normally distributed data, as shown in Fig 4.3. The graph shows that most of the data is on the right-hand side of the curve, scoring 5, and some data is on the left-hand side, scoring 2.0 to 3.0, with a mean value of 3.9521, showing that the data is not normally distributed.

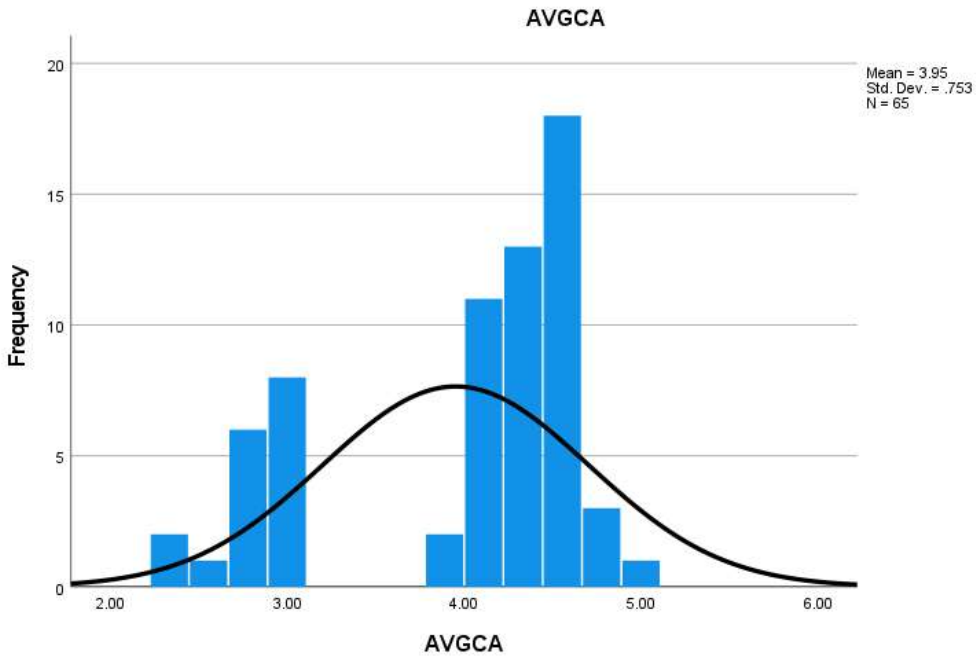

Figure 4. 3 Mean Value Distribution of Competitive Advantage (CA)

Source: SPSS Report, 2022

4.6. Measurement Model Evaluation

As shown in Fig. 4.4, this study's research model can be evaluated in two ways: 1) The measurement model and 2) the structural model. The criteria for establishing construct validity and reliability must be met to evaluate the measurement model. The researcher must examine this study's indicators' outer loading (dimension). Figure 4.4 shows that all outer loading of the variables is greater than 0.7, indicating that the condition has been met. The internal consistency or reliability of the variables is the second criterion that must be assessed, which can be done using measure composite reliability and Cronbach's alpha coefficient tests. Because it does not presume equal indicator loadings, composite reliability is thought to be better for PLS (Hair et al., 2014; Wilden et al., 2013).

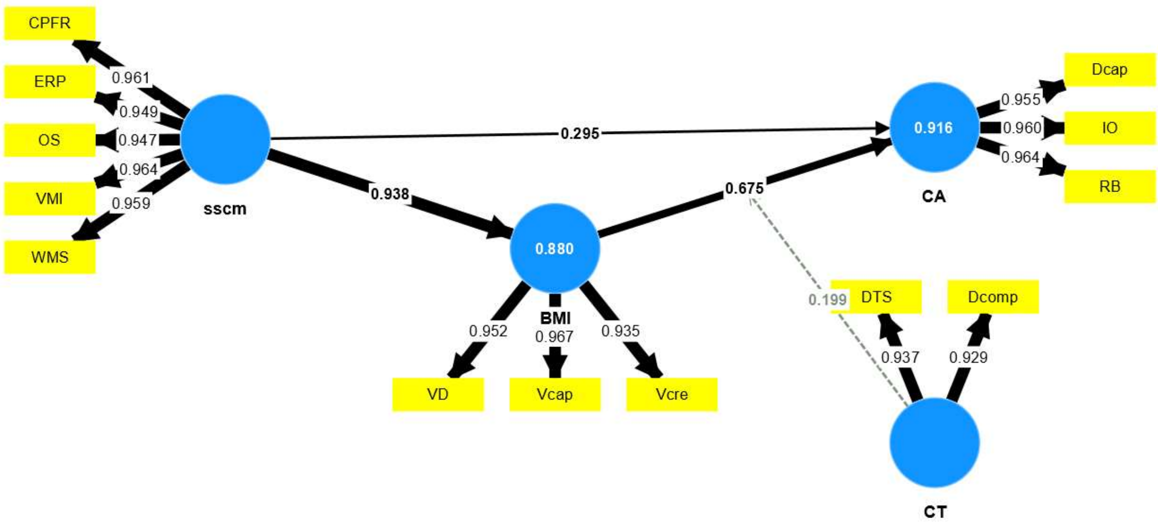

Figure 4. 4 Research Model

Source: PLS-SEM Report, 2022

Table 4.5 summarizes Cronbach's alpha value for all four variables, Strategic Supply Chain Management (SSCM), Business Model Innovation (BMI), Customer Trust (CT), and Competitive Advantage (CA) are greater than 0.70, indicating that the model is internally consistent. All four constructs, SSCM, BMI, CT, and CA, have Composite Reliability (CR) values greater than 0.7. This finding demonstrates that the measuring model is highly reliable.

Table 4.5 Construct Validity and Reliability

	Items	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Strategic Supply Chain Management (SSCM)	Vendor-Managed Inventory (VMI)	0.964	0.976	0.977	0.914
	Enterprise replenishment planning (ERP)	0.949			
	Collaborative planning, forecasting, and replenishment (CPFR)	0.961			
	Warehouse Management System (WMS)	0.959			
	Outsourcing	0.947			

	(OS)				
Business Model Innovation (BMI)	Value Capturing (VCap)	0.967	0.948	0.948	0.906
	Value Delivery (VD)	0.952			
	Value Creation (VCre)	0.935			
Customer Trust (CT)	Disposition, Trusting Stance (DTS)	0.937	0.851	0.853	0.871
	Disposition, Competence (DComp)	0.929			
Competitive Advantage (CA)	Resource Based Competitive Advantage (RB)	0.964	0.957	0.957	0.921
	Dynamic Capability-Based competitive advantage (DCap)	0.955			
	Inter-Organizational Cooperation Competitive advantage (IO)	0.960			

Source: PSL-SEM Report, 2022

Convergent Validity is the third requirement. It occurs when a measure positively correlates with another measurement of the same variable. Convergent validity was tested using the average variance extracted (AVE). AVE should be greater than 0.50 to show convergent validity (Joe F Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). The AVE values for all constructs are over 0.50, as shown in Table 4.5, indicating convergent validity.

Discriminant Validity is the fourth criterion for assessing a measurement model. It demonstrates that a construct's uniqueness from other constructs has been empirically established (Joe F Hair Jr et al., 2014). Examining the Fornell-Larcker criterion was used to confirm discriminant validity. Larcker's Fornell criterion was based, as shown in Table 4.4, on establishing evidence for the constructs' discriminant validity. The AVE square root of each construct should be bigger than its highest correlation with any other construct, according to Fornell-criteria.

Table 4.6 Fornell-Larcker Criterion Evaluation

	Business Model Innovation	**Competitive Advantage**	**Customer Trust**	**Strategic Supply Chain Management**
Business Model Innovation	0.952			
Competitive Advantage	0.939	0.959		
Customer Trust	0.869	0.875	0.933	
Strategic Supply Chain Management	0.938	0.920	0.878	0.956

Source: PLS-SEM Report, 2022

4.7. Structural Model Evaluation

Evaluating the structural model consists of assessing for collinearity issues (VIF), path coefficient (β), coefficient of determination (R^2), and the effect sizes (f^2) (Hair et al., 2014). The R Squared (R^2) coefficient of determination assesses the dependent variable's variance to the change in the independent variable. The R^2 score ranges from 0 to 1, with a higher number suggesting greater precision. R^2 values of 0.25, 0.5, or 0.75 for an endogenous variable can be viewed as weak, moderate, or significant (Joe F Hair et al., 2011).

Table 4.7 Coefficient of Determination (R^2)

	R Square
Business Model Innovation	0.880
Competitive Advantage	0.916

As seen in Table 4.7, the R^2 of Competitive Advantage has the highest precision level (0.916); it is a significant level and close to 1 as an indication of great prediction accuracy to evaluate the structural model and for Business Model Innovation (0.880).

The second criterion for structural model evaluation is the path coefficient, which shows the correlation between two variables, ranging from -1.00 to 1.00. A correlation of 0 shows no relationship at all, a correlation of 1.0 indicates a perfect positive correlation, and a value of -1 shows a perfect negative correlation. As shown in Table 4.8, the effect of business model innovation (BMI) on competitive advantage (CA), demonstrated by the path coefficient (β) (0.675), indicates a strong effect. A strong influence was also shown on the impact of strategic supply chain management (SSCM) on business model innovation (BMI) with a path coefficient (β) (0.938). A medium effect was shown from strategic supply chain management (SSCM) on competitive advantage (CA) with a path coefficient (β) (0.295). The path coefficient (β) for moderating the effect of customer trust (CT) on the correlation between business model innovation (BMI) on competitive advantage (CA) shows a medium effect (0.199). A small result of the path coefficient (β) (0.190) is indicated by the correlation between customer trust (CT) to competitive advantage (CA).

Multicollinearity is the third criterion for evaluating structural models. If VIF is greater than ten, the predictor variables are highly correlated, indicating high levels of multicollinearity and a matter of concern (Bowerman & O'Connell, 1990; Myers, 1990). Because all the VIF values are less than 10, there are no collinearity issues, as seen in Table 4.8. The fourth criterion in structural model evaluation is the f^2 values, which look at a predictor variable's relative effect on an independent variable (Hair et al., 2014). The f^2 value indicator translates to effect sizes of 0.02, 0.15, and 0.35 for modest, medium, and large impact (Cohen, 1988). The results in Table 4.8 shown for the current study that the model has a small f^2 on the effect of customer trust (CT) to competitive advantage (CA) (0.090) and strategic supply chain management (SSCM) to competitive advantage (CA) (0.104). A medium f^2 (0.171) is for moderating the effect of customer trust (CT) on the correlation between business model innovation (BMI) on competitive advantage (CA). Large f^2 (0.544) is shown for business model innovation (BMI) to competitive advantage (CA), and large f^2 (7.365) is also demonstrated by strategic supply chain management (SSCM) to business model innovation (BMI).

Table 4.8 Path coefficient, VIF, and f^2

Effect	Path Coefficient	VIF	f^2
Business Model Innovation → Competitive Advantage	0.675	9.927	0.544
Customer Trust → Competitive Advantage	0.190	4.723	0.090
Strategic Supply Chain Management → Business Model Innovation	0.938	1	7.365
Strategic Supply Chain Management → Competitive Advantage	0.295	9.945	0.104
Customer Trust X Business Model Innovation → Competitive Advantage	0.199	3.242	0.171

Source: PLS-SEM Report, 2022

4.8Hypothesis Testing

SmartPLS4 was utilized as the final step in the data analysis to test the hypothesized associations by calculating the significance of the path coefficients using bootstrapping computations. The bootstrapping method determines the significance of path coefficients by producing empirical t-values that are significant at a given probability of error if they are greater than the critical value (t distribution values). The following crucial values were used in this study for two-tailed tests: 1.65 (significance level= 5%) (Hair et al., 2014).

The hypothesis was tested using the bootstrapping test, which calculates empirical t-values bigger than the critical value to determine the importance of path coefficients (t distribution values). At a given likelihood of error, the coefficient is considered significant. The bootstrap samples should be 5000, according to Hair et al. (2014). The bootstrapping approach in SmartPLS4 was used to test hypotheses and to examine the relevance of path coefficients and t-values. The t-value with two-tailed is 1.65, and the p-value is 0.05 (at 5%). (Hair et al., 2014). Table 4.9 summarizes the findings

Table 4. 9 Hypothesis Testing Result

H	Effect	Path Coefficient	T Statistics	p Values	Result
H1	Strategic Supply Chain Management → Competitive Advantage	0.295	2.300	0.011	H1 Supported
H2	Strategic Supply Chain Management → Business Model Innovation	0.938	47.492	0.000	H2 Supported
H3	Business Model Innovation → Competitive Advantage	0.675	5.669	0.000	H3 Supported
H4	Strategic Supply Chain Management → Business Model Innovation → Competitive Advantage	0.634	5.846	0.000	H4 Supported
H5	Customer Trust X Business Model Innovation → Competitive Advantage	0.199	2.016	0.022	H5 Supported

Source: PLS-SEM Report 2022

All hypotheses were found to be supported, as shown in Table 4.9. The effect of Strategic Supply Chain Management (SSCM) on Business Model Innovation (BMI) has the highest path coefficient (β) (0.938) with a t-value (47.492) that is greater than 1.65 and a p-value (0.000) less than 0.05 (at = 5%). The moderating effect of customer trust (CT) on the correlation between business model innovation (BMI) on competitive advantage (CA) has the smallest path coefficient (β), as evidenced by the path coefficient (0.199) with a t-value (2.016) and p-value (0.022) less than 0.05 (at = 5%).

The path coefficient (β) (0.295) for Strategic Supply Chain Management (SSCM) on Competitive Advantage (CA) indicates that the effect is considerable, as indicated by the t-value (2.300) and the p-value (0.011). As a result, according to Joseph F Hair Jr, Hult, Ringle, and

Sarstedt (2016), the effect is significant, and H1 is supported. As a result, Strategic Supply Chain Management (SSCM) has a good and considerable impact on Competitive Advantage (CA).

The path coefficient (β) (0.938) for Strategic Supply Chain Management (SSCM) on Business Model Innovation (BMI) indicates that the effect is considerable, as indicated by the t-value (47.492) and the p-value (0.000). As a result, Strategic Supply Chain Management (SSCM) has a good and considerable impact on business model innovation (BMI). As a result, H2 is supported.

The path coefficient (β) (0.675) for Business Model Innovation (BMI) on competitive advantage (CA) indicates that the effect is considerable, as indicated by the t-value (5.669) and the p-value (0.000). As a result, business model innovation (BMI) has a good and considerable impact on competitive advantage (CA). As a result, H3 is supported.

The path coefficient (β) (0.634) for mediating the effect of Business Model Innovation (BMI) to the relation of Strategic Supply Chain Management (SSCM) on Competitive Advantage (CA) indicates that the effect is considerable, as indicated by the t-value (5.846) and the p-value (0.000). As a result, Business Model Innovation (BMI) has a good and considerable impact as mediating factor of Strategic Supply Chain Management (SSCM) on Competitive Advantage (CA). As a result, H4 is supported.

The t-value (2.016) and p-value (0.022) indicate that there is sufficient evidence to support H5 that Customer Trust (CT) moderates the effect between Business Model Innovation (BMI) and Competitive Advantage (CA). Path Coefficient (0.199), T-values (2.016), and p-value (0.022) for this correlation suggest that there is sufficient evidence that Customer Trust (CT) moderates the effect of Business Model Innovation (BMI) on Competitive Advantage (CA).

4.9 Discussion on Findings

1) The effect of strategic supply chain management on competitive advantage

The first objective of the research is to understand how strategic supply chain management (SSCM) effects on competitive advantage (CA). According to the SmartPLS4 study, the path coefficient of strategic supply chain management (SSCM) on competitive advantage (CA) is medium (0.295) and positively significant. The t-value (2.300) and p-value (0.011) indicate a statistically significant effect. The strategic supply chain management (SSCM) indicator with the highest outer loading (0.964) showed by vendor-managed inventory (VMI), followed by other indicators such as collaborative planning, forecasting, and replenishment (CPFR) with outer loading (0.961), warehouse management system (WMS) (0.959), enterprise replenishment planning (ERP) (0.949) and outsourcing (OS) (0.947). The outer loading value shows the correlation between the indicator and its construct. An indicator with a low loading value indicates that the indicator does not work on the measurement model. These findings above show the argument that strategic supply chain management (SSCM) is an important component of competitive strategy, contributing to increased productivity and organizational profitability (Gunasekaran et al., 2004). This result confirms the study of Arasa and Gathinji (2014), who found that competitive strategies such as cost leadership, differentiation, market focus, and strategic alliances asserted significant positive influence on the performance of the firm in a competitive environment

2) The effect of strategic supply chain management on business model innovation

The second objective of the research is to understand how strategic supply chain management (SSCM) effects on business model innovation (BMI). Based on the PLS-SEM algorithm report with SmartPLS4, finding that correlation of strategic supply chain management (SSCM) on business model innovation (BMI) has the highest path coefficients (0.938), it shows the correlation between two variables has a strong effect. T-values (47.492) and p-value (0.000) indicate a statistically significant effect of strategic supply chain management (SSCM) on business model innovation (BMI) with a positive effect. All indicators on both constructs, SSCM and BMI, have outer loading greater than 0.7, indicating that the correlation between the indicator and its construct is working on the measurement model. This result confirms the study of Fisher (1997), who further advises that upon identifying an innovative product, a company can manage uncertainty by “finding sources of new data that can serve as leading indicators, that cutting lead times and increasing the supply chain’s flexibility.”

3) The effect of business model innovation on competitive advantage

The third objective of the research is to understand how business model innovation (BMI) effects on competitive advantage (CA). According to the SmartPLS4 study, the path coefficient of BMI on CA is (0.675), showing a strong correlation between BMI and CA. T-values (5.669) and p-value (0.000) indicate a statistically significant effect of BMI on CA with a positive effect. All indicators in business model innovation (BMI) have outer loading, which is greater than 0.7, indicating that the correlation between the indicator and its construct is working on the measurement model. The indicator with the highest outer loading (0.967) showed value capturing (VCap), followed by other indicators such as value delivery (VD) (0.952) and value creation (VCre) (0.935). These findings show that business model innovation has been described as the process of finding a novel way of doing business which results in reconfiguring value creation and value capturing mechanisms (Björkdahl and Holmén, 2013; Massa and Tucci, 2014).

4) The significant effect of business model innovation in mediating strategic supply chain management to competitive advantage

The fourth objective of the research is to understand how business model innovation (BMI) significantly effects in mediating strategic supply chain management (SSCM) to competitive advantage (CA). Based on the PLS-SEM algorithm report with SmartPLS4, the correlation of BMI as mediating effect on SSCM to CA has high path coefficients (0.634), showing the correlation between variables has a strong effect. T-values (5.846) and p-value (0.000) indicate a statistically significant effect of BMI as a mediator on SSCM to CA with a positive effect. According to Hair Jr, Hult, Ringle, and Sarstedt (2016), the effect is considerable; because t-values of >1.65, and p-values of less than 0.05 (at = 5%), thus, the hypothesis is supported, implying that BMI has statistically significant on positive effect as a mediator on strategic supply chain management (SSCM) to competitive advantage (CA). The size of mediating effect can be calculated by dividing the direct effect by the total effect. Both direct and total effect are provided in the algorithm report in SmartPLS4. The direct effect of strategic supply chain management (SSCM) on competitive advantage (CA) (0.929) and the indirect effect of SSCM→ BMI→ CA (0.634), which give total effect (1.563), therefore mediating effect of 40.56%. The number means that BMI amplifies

40.56% of the SSCM impact on competitive advantage. Accordingly, industrial water treatment companies should prioritize business model innovation to gain a more significant competitive advantage. This finding shows the integrative approach suggests that value creation for service organizations may be embedded in an innovation value chain, consisting of generating ideas, converting them into products, and disseminating practices and products obtained by the organization (Jacintho et al., 2018).

5) Business model innovation is significantly moderated by customer trust toward competitive advantage.

The fifth objective of the research is to understand how business model innovation (BMI) is significantly moderated by customer trust (CT) toward competitive advantage (CA). Based on the PLS-SEM algorithm report with SmartPLS4, the correlation of CT as moderating effect on BMI to CA has path coefficients (0.199), showing the correlation between variables has a medium effect. It is sufficient evidence that customer trust (CT) moderates the effect of business model innovation (BMI) on competitive advantage (CA). T-values (2.016) and p-value (0.022) indicate a statistically significant effect of CT as a moderator on BMI to CA with a positive effect. All indicators on those constructs, BMI, CT, and CA, have outer loading, which is greater than 0.7, indicating that the correlation between the indicator and its construct is working on the measurement model. These findings show that trust/ customer trust has a positive effect on loyalty, may influence the overall satisfaction of existing customers, and can attract the interest of new customers (Ratnawati and Kholis, 2019). If customers are satisfied with the economic benefits that emerge from the customer–service provider relationship, they perceive the service provider as trustworthy (Sumaedi et al., 2015).

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1 Conclusions

The primary goal of this research is as follows: 1) to evaluate the effect of strategic supply chain management (SSCM) on competitive advantage (CA). With t-values (2.300) and p-value (0.011) suggested that the correlation between variables has a statistically significant positive impact.

2) to evaluate the effect of strategic supply chain management (SSCM) on business model innovation (BMI). It is shown by the result of the t-value (47.492) and p-value (0.000), which reveals that the correlation between SSCM and BMI has a statistically significant positive impact.

3) to evaluate the effect of business model innovation (BMI) on competitive advantage (CA). The t-value (5.669) and p-value (0.000) result suggests that the correlation between BMI and CA has a statistically significant positive impact.

4) to evaluate business model innovation (BMI) significantly mediating strategic supply chain management (SSCM) to competitive advantage (CA). The correlation between variables has a t-value (5.846) and p-value (0.000); the findings suggest that BMI has statistically significant in mediating SSCM on CA with a positive impact.

5) to evaluate business model innovation (BMI) significantly moderated by customer trust (CT) toward competitive advantage (CA). The indicators that describe variable CT are disposition trusting stance and disposition competence and having a t-value (2.016) and p-value (0.022). The findings suggest that CT is statistically significant in moderating BMI on CA with a positive impact. With t-values of >1.65, and p-values of less than 0.05 (at = 5%), according to Hair Jr, Hult, Ringle, and Sarstedt (2016), the effect is considerable.

All five hypotheses were accepted based on the results and parameters from the data analysis utilizing PLS-SEM. Business model innovation and customer trust all modify the relationship between strategic supply chain management and competitive advantage in the firm, with statistically significant and positive impact

5.2 The implication of the Study

5.2.1 Theoretical Contribution

Numerous studies have been undertaken to analyze competitive advantage. The study adds to the body of knowledge by looking at SSCM as an independent variable of CA, how BMI mediates this correlation, and how CT as a moderator significantly affects the correlation between BMI and CA. The inclusion of business model innovation (BMI) and customer trust (CT) to the body of knowledge on the competitive advantage (CA) adds to the body of knowledge by establishing that business model innovation (BMI) has a significantly positive effect in mediating correlation between strategic supply chain management (SSCM) and competitive advantage (CA) and customer trust (CT) also have a significantly positive effect in moderating business model innovation (BMI) on competitive advantage (CA)

5.2.2 Practical Implication

Strategic supply chain management supports competitive advantage. Furthermore, we can have a beneficial influence between strategic supply chain management and competitive advantage by business model innovation as a mediator. And the correlation between business model innovation on competitive advantage also can be positively moderated by customer trust, even with Path Coefficient (0.199), which is sufficient evidence; however, customer trust (CT) can be said moderates the effect of business model innovation (BMI) on competitive advantage (CA). Customer trust (CT) is not a predictor; it is just a moderating variable that can reinforce or weaken the relationship between business model innovation (BMI) and competitive advantage (CA). Because before there was customer trust (CT) as moderating variable, the relationship between business model innovation (BMI) and competitive advantage (CA) was already significant, and customer trust (CT) itself also significant as moderating variable.

5.3 Limitation of the Study

This study identifies the low average business growth (below 5%) of water treatment companies in Indonesia for the last five years, 2017-2021. This study analyses the strategic supply chain management concerning the competitive advantage mediated by business model innovation and the correlation between business model innovation and competitive advantage moderated by customer trust. This study is limited to one mediator effect, business model innovation (BMI), and does not cover the company's other internal resources as variables.

5.4 Recommendation for Future Study

Based on the current study's findings and techniques, there are specific recommendations for further research, as stated in the study's limitations. By using any other internal resources as a different variable, further research can test whether the effect of customer trust (CT) as moderating variable will have the exact correlation as this research or not, shown by the path coefficient. The different variables being used and different results on path coefficient, especially in correlation with customer trust (CT), can be used for the company to justify the action to be taken to improve the competitive advantage through the different variables. A larger sample size may result in a more representative sample to achieve a more generalizable outcome. Hair et al. (2007) argued that longitudinal studies, rather than cross-sectional periods, better investigate cause-and-effect interactions between variables over time because longitudinal studies can more precisely show the results. After all, they have more period data that can represent the whole cycle between specific periods.

6. Reference

Abdelkafi N, Makhotin S and Posselt T (2013), *"Business Model Innovations for Electric Mobility – What Can Be Learned from Existing Business Model Patterns?",* International Journal of Innovation Management, Vol. 17, No. 1, pp. 1-41.

Afraza, M., Bhattia, S., Ferraris, A. and Couturier, J. (2021), *"The impact of supply chain innovation on competitive advantage in the construction industry: evidence from a moderated multimediation model"*, Technological Forecasting and Social Change, Vol. 162, doi: 10.1016/j.techfore. 2020.120370

Ali Latif, Mohammad., Nikou, Shahrokh., Bouwman, Harry (2021*), Business model innovation and firm performance: Exploring causal mechanisms in SMEs*, Technovation Volume 107

Amit, R. and Zott, C. (2012), *"Creating value through business model innovation",* MIT Sloan Management Review, Vol. 53 No. 3, pp. 41-49.

Arasa, M., & Gathinji, S. (2014). *Competitive Strategies and Firm's Performance in Telecommunication Industry in Kenya*. Unpublished MBA project): Strathmore University.

Aziz, A., Memon, A. and Ali, S. (2020*), "Logistics capability, logistics outsourcing and firm performance in manufacturing companies in Pakistan*", Journal of Asian Finance, Economics and Business, Vol. 7 No. 8, pp. 435-444.

Baden-Fuller C and Mangematin V (2013), *"Business Models: A Challenging Agenda*", Strategic Organization, Vol. 11, No. 4, pp. 418-427

Baden-Fuller, C. and Haefliger, S. (2013), *"Business models and technological innovation",* Long Range Planning, Vol. 46 No. 6, pp. 419-426.

Barney, J. (1991). *Firm resources and sustained competitive advantage*. Journal of Management, 17(1), 99–120.

Bashir M, Yousaf A and Verma R (2016), *"Disruptive Business Model Innovation: How a Tech Firm is Changing the Traditional Taxi Service Industry",* Indian Journal of Marketing, Vol. 46, No. 4, pp. 49-59

Becker, S., Bryman, A., & Ferguson, H. (2012). *Understanding research for social policy and social work*. Bristol: Policy Press.

Benjamin Tukamuhabwa, Mutebi & Rhona (2021*), Competitive advantage in SMEs: Effect of supply chain management practices, logistics capabilities and logistics integration in a developing country*

Björkdahl J and Holmén M (2013), "Editorial: *Business Model Innovation: The Challenges Ahead"*, International Journal of Product Development, Vol. 18, Nos. 3-4, pp. 213-225.

Bock, A.J., Opsahl, T., George, G. and Gann, D.M. (2012), *"The effects of culture and structure on strategic flexibility during business model innovation*", Journal of Management Studies, Vol. 49 No. 2, pp. 279-305.

Boonlertvanich, K. (2019), *"Service quality, satisfaction, trust, and loyalty: the moderating role of main-bank and wealth status"*, International Journal of Bank Marketing, Vol. 37 No. 1, pp. 278-302.

Bougie, & Sekaran. (2013). *Research Methods for Business: A skill Building Approach*. New York: John Wiley & Sons.

Bougie, & Sekaran. (2016). *Research Methods for Business: A skill Building Approach*. New York: John Wiley & Sons.

Bowman C and Ambrosini V (2000), "*Value Creation Versus Value Capture: Towards a Coherent Definition of Value in Strategy"*, British Journal of Management, Vol. 11, No. 1, pp. 1-15.

BPSDM PU, (2018), *Proyeksi Kebutuhan Air dan Identifikasi Pola Fluktuasi Pemakaian Air*, https://bpsdm.pu.go.id/center/pelatihan/uploads/edok/2018/11/920dd_2._Proyeksi_Kebutuhan_Air_dan_Identifikasi_Pola_Fluktuasi_Pemakaian_Air.docx.pdf.

Casadesus-Masanell, R. and Llanes, G. (2011), *"Mixed source"*, Management Science, Vol. 57 No. 7, pp. 1212-1230.

Casadesus-Masanell, R. and Ricart, J.E. (2010), *"From strategy to business models and onto tactics"*, Long Range Planning, Vol. 43 Nos 2-3, pp. 195-215.

Casadesus-Masanell, R. and Zhu, F. (2013), *"Business model innovation and competitive imitation: the case of sponsor-based business models",* Strategic Management Journal, Vol. 34 No. 4, pp. 464-482.

Chang, C., Lu, C. and Lai, P. (2021), *"Examining the drivers of competitive advantage of the international logistics industry"*, International Journal of Logistics Research and Applications. doi: 10.1080/13675567.2021.1915263.

Chesbrough, H. (2010), *"Business model innovation: opportunities and barriers*", Long Range Planning, Vol. 43 Nos. 2-3, pp. 354-363.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). *A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion/Adoption Study*. *Information Systems Research*, *14*, 189–217.

Christopher, M. (2000), *"The agile supply chain: competing in volatile markets",* Industrial Marketing Management, Vol. 29 No. 1, pp. 37-44, doi: 10.1016/S0019-8501(99)00110-8.

Cohen, S., Frank, E., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltuey, J. M. (1998*). Types of stressors that increase susceptibility to the common cold in healthy adults*. *Health Psychology*, *17*, 214–223.

Cooper, M.C., Lambert, D.M. and Pagh, J.D. (1997), *"Supply chain management: more than a new name for logistics"*, The International Journal of Logistics Management, Vol. 8 No. 1, pp. 1-13, doi: 10.1108/09574099710805556

Cristina Francisco, Lara., Rocha, Welington (2018), *Open-book accounting and trust: influence on buyer-supplier Relationship*, Emerald Publishing Limited, Vol 53 No.4

Day, M., Lichtenstein, S. and Samouel, P. (2015), *"Supply management capabilities, routine bundles and their impact on firm performance*", International Journal of Production Economics, Vol. 164, pp. 1-13

Demil, B. and Lecocq, X. (2010), *"Business model evolution: in search of dynamic consistency"*, Long Range Planning, Vol. 43 Nos 2-3, pp. 227-246

Drucker P F (1994), *"The Theory of the Business",* Harvard Business Review, Vol. 72, No. 5, pp. 95-104

Dunford, R., Palmer, I. and Benveniste, J. (2010), *"Business model replication for early and rapid internationalisation: the ING direct experience*", Long Range Planning, Vol. 43 Nos 5-6, pp. 655-674.

Eltantawy, R.A., Giunipero, L. and Fox, G.L. (2009), "*A strategic skill based model of supplier integration and its effect on supply management performance"*, Industrial Marketing Management, Vol. 38 No. 8, pp. 925-936, doi: 10.1016/j.indmarman.2008.12.022

Esslinger, H. (2011), *"Sustainable design: beyond the innovation-driven business model",* The Journal of Product Innovation Management, Vol. 28 No. 3, pp. 401-404.

Ferdows, K., De Meyer, A., 1990*. Lasting improvements in manufacturing performance: In search of a new theory*. Journal of Operations Management, 9 (2), 168-184.

Filho and Moori (2017), *The role of technological capabilities in the competitive advantage of companies in the Campinas, SP Tech Hub*

Fisher, M.L. (1997), *"What is the right supply chain for your product?",* Harvard Business Review, Vol. 75 No. 2, pp. 105-116.

Gambardella, A. and McGahan, A.M. (2010), *"Business-model innovation: general purpose technologies and their implications for industry structure*", Long Range Planning, Vol. 43 Nos 2-3, pp. 262-271.

Gefen, D., Straub, D., & Boudreau, M.-C. (2000). *Communications of the Association for Information Systems*. *AIS Journals*, *4*.

Gligor, D.M. and Holcomb, M. (2014a), "*The road to supply chain agility: an RBV perspective on the role of logistics capabilities"*, The International Journal of Logistics Management, Vol. 25 No. 1, pp. 160-179.

Gligor, D.M. and Holcomb, M.C. (2012), *"Understanding the role of logistics capabilities in achieving supply chain agility: a systematic literature review", Supply Chain Management*: An International Journal, Vol. 17 No. 4, pp. 438-453.

Gligor, M. and Holcomb, M. (2014b), *"Antecedents and consequences of integrating logistics capabilities across the supply chain"*, Transportation Journal, Vol. 3 No. 2, pp. 211-234.

Gunasekaran, A., Patel, C. & McGaughey, R. E. (2004). *A framework for supply chain performance measurement*. Int. J. Production Economics, 87(2004), 333-347. http://dx.doi.org/10.1016/j.ijpe.2003.08.003

Hair, J. F., Babin, B., A. H. Money, & Samouel, P. (2003). *Essentials of Business Research Methods*. New Jersey: John Wiley & Sons.

Hair, Joseph F, Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling*. California: Sage Publication.

Hair, Joseph F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis A Global Perspective*. London: Pearson.

Haron, Razali., Abdul Subar, Noradilah., Ibrahim, Khairunisah (2020), *Service quality of Islamic banks: satisfaction, loyalty and the mediating role of trust*, Emerald Publishing Limited, Vol 28 No.1

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). *The use of partial least squares path modeling in international marketing*. Bingley: Emerald Group Publishing Limited.

Hlady-Rispal, M. and Servantie, V. (2016), "Business models impacting social change in violent and poverty-stricken neighbourhoods: a case study in Colombia", International Small Business Journal, Vol. 35 No. 4, pp. 1-22.

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*(2), 195–204.

Huo, B., Haq, M. and Gu, M. (2021), *"The impact of information sharing on supply chain learning and flexibility performance"*, International Journal of Production Research, Vol. 59 No. 5, pp. 1411-1434, doi: 10.1080/00207543.2020.1824082.

Indonesian Water Association. (2021, Jan 28), *Inovasi dan perkembangan bisnis air industri Indonesia*. https://idwa.or.id/

Jacintho, J. C., Silva, M. T., and Luzo, M. C. M. (2018), *"The innovation process in hospital services: a case study in an occupational therapy"*, Brazilian Journal of Operations & Production Management, Vol. 15, No. 2, pp. 322-329.

Jay B. Barney and Delwyn Clark (2007), *Resource-based Theory: Creating and Sustaining Competitive Advantage*, London: Oxford University Press, 2007.

JICA report (2017), *"Japan international cooperation agency project for master plan on Logistics in Northern Economic Corridor", Kenya and Uganda*, Final report, available at: https:// openjicareport.jica.go.jp/pdf/12291779_01.pdf.

Joman Alzahrani (2018), *The impact of e-commerce adoption in business strategy in Saudi Arabian small and medium enterprises*

Kaplan RS, Norton DP 1992. *The balanced scorecard: measures that drive performance*. Harvard Business Review, 71-79.

Kastalli, I., Van Looy, B. and Neely, A. (2013), *"Steering manufacturing firms towards service business model innovation"*, California Management Review, Vol. 56 No. 1, pp. 100-123.

Kern, L., Romo, L., Kotbagi, G., & Muller, I. (2013*). Résultats de l'étude sur l'activité physique et les comportements alimentaires chez les étudiants de Bordeaux*. *Paper Presented at the 10ème Assisses Sport, Prévention & Santé , Bordeaux.*

Keskin, H., Ayar S¸enturk, H., Tatoglu, E., G € €olgeci, I., Kalaycioglu, O. and Etlioglu, H.T. (2021), *"The simultaneous effect of firm capabilities and competitive strategies on export performance: the role of competitive advantages and competitive intensity",* International Marketing Review. doi: 10.1108/IMR-09-2019-0227.

Koufteros, X.A., Vonderembse, M.A. and Doll, J. (1997), *"Competitive capabilities: measurement and relationships",* Proceedings Decision Science Institute, Vol. 3 No. 1, pp. 1067-1068.

Kraljic, P. (1983), *"Purchasing must become supply management*", Harvard Business Review, Vol. 61 No. 5, pp. 109-117.

Ladeira, W.J., Araújo, C.F. and Costa, J.C. (2009), "A questão da confiança na TCT e nos estudos de redes sociais: aproximações e contradições", Sinergia, Vol. 13 No. 1, pp. 51-58. [Links]

Landau, C., Karna, A. and Sailer, M. (2016), *"Business model adaptation for emerging markets: a case study of a German automobile manufacturer in India*", R&D Management, Vol. 46 No. 3, pp. 480-503.

Lee, Rok (2021), *The Effect of Supply Chain Management Strategy on Operational and Financial Performance*, Mdpi Journal

Li, S., Ragu-Nathan, B., Ragu-Nathan, T.S. and Rao, S.S. (2006), *"The impact of supply chain management practices on competitive advantage and organizational performance",* International Journal of Management Science, Omega, Vol. 34 No. 2, pp. 107-124.

Li, W., Humphreys, P.K., Yeung, A.C.L. and Cheng, T.C.E. (2012), *"The impact of supplier development on buyer competitive advantage: a path analytic model",* International Journal of Production Economics, Vol. 135 No. 1, pp. 353-366, doi: 10.1016/j.ijpe.2011.06.019

Lindgardt Z, Reeves M, Stalk G and Deimler M S (2009), *"Business Model Innovation; When the Game Gets Tough, Change the Game"*, The Boston Consulting Group, Boston, MA.

Massa L and Tucci C L (2014), *"Business Model Innovation", in M Dodgson, D M Gann and N Phillips (Eds.)*, The Oxford Handbook of Innovation Management, pp. 420-441, Oxford University Press, Oxford, UK.

McGinnis, M.A. and Vallopra, R.M. (1999), *"Purchasing and supplier involvement in process improvement: a source of competitive advantage"*, Journal of Supply Chain Management, Vol. 35 No. 4, pp. 42-50.

McGinnis, M.A., Kohn, J.W. and Spillan, J.E. (2010), *"A longitudinal study of logistics strategy: 1990- 2008"*, Journal of Business Logistics, Vol. 31 No. 1, pp. 217-235

Mentzer, J.T., Min, S. and Bobbitt, L.M. (2004*), "Toward a unified theory of logistics",* International Journal of Physical Distribution and Logistics Management, Vol. 34 No. 8, pp. 606-627.

Mentzer, J.T.; DeWitt, W.; Keebler, J.S.; Min, S.H.; Nix, N.W.; Smith, C.D.; Zacharia, Z.G. *Defining Supply Chain Management*. J. Bus. Logist. 2001, 22, 1–25. [CrossRef]

Migdadi, M. (2021), *"Knowledge management, customer relationship management and innovation capabilities"*, Journal of Business and Industrial Marketing, Vol. 36 No. 1, pp. 111-124.

Osterwalder A and Pigneur (2010), *Business Model Generation*, John Wiley & Sons Inc., p. 281, Hoboken, New Jersey.

Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS*. Maidenhead: McGraw Hil.

Poirier, C.C. and Reiter, S.E. (1996), *Supply Chain Optimization, Building the Strongest Total Business Network*, Berrett-Koehler, San Francisco, CA.

Porter, M. (1985). *Compettitive Advantage*. New York: Free Press.

Porter, M.E. (1985*), Competitive Advantage: Creating and Sustaining Superior Performance*, Free Press, New York, NY

Rachinger, Michael., Rauter, Romana., Müller, Christiana., Vorraber, Wolfgang., Schirgi, Eva (2018), *Digitalization and its influence on Business Model Innovation*, Emerald Publishing Limited, Vol 30 No.8

Radomska, Wołczek and Aleksandra Szpulak (2019), *Injecting courage into strategy: the perspective of competitive advantage*

Ramdani, Boumediene., Binsaif, Ahmed., Boukrami, Elias (2019), *Business model innovation:a review and research agenda*, Emerald Publishing Limited, Vol 22 No.2

Ratnawati, A. and Kholis, N. (2019), *"Measuring the service quality of BPJS health in Indonesia: a sharia perspective"*, Journal of Islamic Marketing, Vol. 11 No. 4, pp. 1-23.

Rezaei, Jafar., Ortt, Roland., Trott, Paul (2017), *Supply chain drivers, partnerships and performance of high-tech SMEs*, Emerald Publishing Limited, Vol 67 No.4

Sabet, Ehsan., Yazdani, Nahid., De Leeuw, Sander (2016), *Supply chain integration strategies in fast evolving industries*, Emerald Publishing Limited, Vol 28 No.1

Sandberg, E. and Abrahamsson, M. (2011), *"Logistics capabilities for sustainable competitive advantage",* International Journal of Logistics Research and Applications: A Leading Journal of Supply Chain Management, Vol. 14 No. 1, pp. 61-75

Saunders, M. N., Lewis, P., Thornhill, A., & Bristow, A. (2019). *Research Methods for Business Students" Chapter 4: Understanding research philosophy and approaches to theory development*. In *Research Methods for Business Students* (pp. 128–171). Pearson Education.

Schallmo D and Brecht L (2010), *"Business Model Innovation in Business-to-Business Markets: Procedure and Examples"*, pp. 12-15, Proceedings of the 3rd ISPIM Innovation Symposium: Managing the Art of Innovation: Turning Concepts into Reality, Quebec City, QC, Canada.

Simchi-Levi, D., Kaminsky, P. and Simchi-Levi, E. (2008), *Designing and Managing the Supply Chain: concepts*, Strategies, and Case Studies, McGraw-Hill; Irwin, Boston, MA.

Sixel, Alexandre., Öztürk, Canan., (2019*), Business Model Innovation in Start-ups A qualitative study on Business Model Innovation in the context of Technology Start-ups in Sweden,* Jönköping International Business School, Jönköping University

Snihur Y and Zott C (2013), *Legitimacy Without Imitation: How to Achieve Robust Business Model Innovation,* in 35th DRUID Celebration Conference, June, pp. 1-35.

Sordi Schiavi, Giovana., Behr, Ariel (2018*), Emerging technologies and new business models: a review on disruptive business models,* Emerald Publishing Limited, Vol 15 No.4

Sumaedi, S., Juniarti, R.P. and Bakti, I.G.M.Y. (2015), "*Understanding trust and commitment of individual saving customers in Islamic banking: the role of ego involvement*", Journal of Islamic Marketing, Vol. 6 No. 3, pp. 406-428.

Teece, D.J. (2010), *"Business models, business strategy and innovation*", Long Range Planning, Vol. 43 Nos 2-3, pp. 172-194.

Velu, C. (2016), *"Evolutionary or revolutionary business model innovation through coopetition? The role of dominance in network markets"*, Industrial Marketing Management, Vol. 53 No. 1, pp. 124-135.

Verma, Rajesh., Bashir, Makhmoor (2016), *Business model innovation: Scale development & validation*, IJABER, Vol. 14, No. 7, (2016)

Waterindonesia. (2019), *The second edition of water Indonesia*, https://www.waterindonesiaexpo.com/About-Us/About-WATER-INDONESIA

Weill, P. and Woerner, S.L. (2013), "*Optimizing your digital business model*", MIT Sloan Management Review, Vol. 54 No. 3, pp. 71-78.

Williamson, O.E. (1996), *The Mechanisms of Governance*, Oxford University Press, New York, NY. [Links]

Wong, C.Y., Arlbjørn, J.S., Hvolby, H.-H. and Johansen, J. (2006*), "Assessing responsiveness of a volatile and seasonal supply chain*", International Journal of Production Economics, Vol. 104 No. 2, pp. 709-721.

World Bank report (2017), *Skills to Support the Transport and Logistics Sector; Toward Productive, Efficient and Competitive Transport and Logistics Sector in Uganda,* Washington, DC, available at: https://openknowledge.worldbank.org/handle/10986/28945.

Youn, S., Yang, M.G., Hong, P. and Park, K. (2013), *"Strategic supply chain partnership, environmental supply chain management practices, and performance outcomes: an empirical study of korean firms"*, Journal of Cleaner Production, Vol. 56, pp. 121-130, doi: 10.1016/j.jclepro.2011.09.026.

Zhao, M., DrOge, C. and Stank, P. (2001), € "*The effects of logistics capabilities on firm performance: customer-focused versus information-focused capabilities",* Journal of Business Logistics, Vol. 22 No. 2, pp. 91-107.

Zikmund, W. G., Carr, B. J. B. J. C., & Griffin, M. (2013). *Business Research Method*. Fort Worth: Dryden Press.

Zott, C., Amit, R. and Massa, L. (2011), "*The business model: recent developments and future research*", Journal of Management, Vol. 37 No. 4, pp. 1019-1042