

## Achieving A Competitive Advantage Supply Chain Management Practices and Responsiveness

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**Abstract:** Today's business environment is highly competitive and globalized, characterized by shorter product life cycles and demanding customers. As a result, supply chains must be responsive to changes in the marketplace to maintain and create a competitive advantage. While previous studies have acknowledged the advantages of effective supply chain management (SCM) in gaining a competitive edge, there remains a limited understanding of the implications of adopting various SCM practices. To address this gap, this conceptual study focuses on examining the relationship between SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) and both supply chain responsiveness and competitive advantage within the Malaysian timber industry. The study integrates the Resources Based View (RBV), Dynamic Capabilities theory, and Natural Resource-Based View (NRBV) theory.

**Keywords:** *Supply Chain Management Practices, Supply Chain Responsiveness, Competitive Advantage, Malaysian Timber Industry.*

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### 1. Introduction and Background

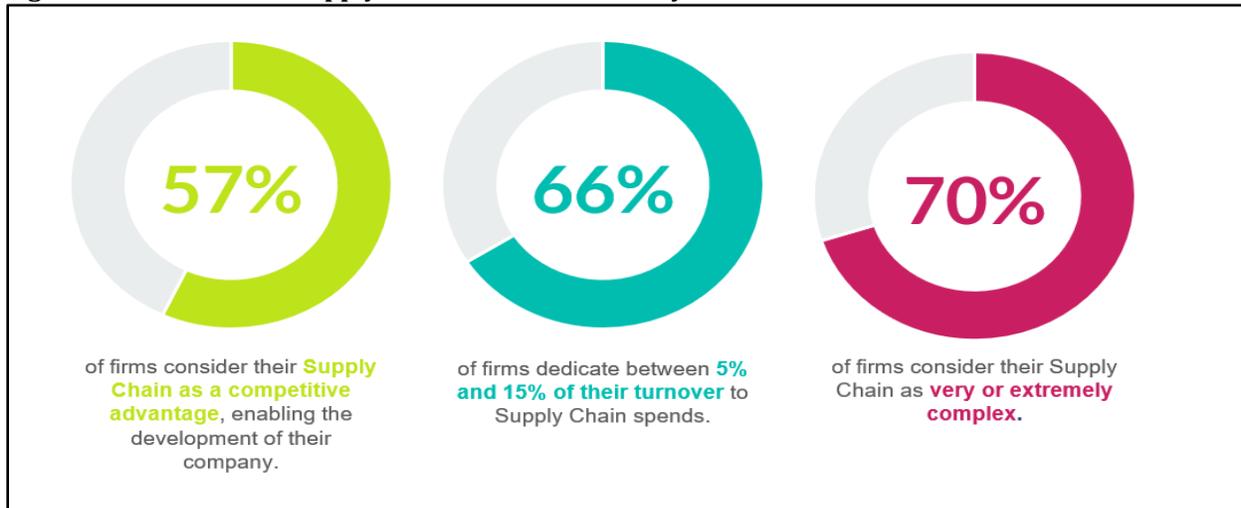
Modern company has undergone a tremendous transformation as a result of factors like supply chain network complexity, globalization, rapidly improving technology, and shorter product lifespans. In addition, shifting consumer preferences for innovative, affordable, fast-responding, and high-quality goods and services have intensified the need for company leaders and their supply chains to respond swiftly and decisively to preserve competitiveness on a local and international scale (Asamoah et al., 2021). Supply chain responsiveness refers to the ability of the supply chain to purposefully and promptly respond to consumer requests or changes in the marketplace (Gunasekaran et al., 2008; Nooraie, 2017). According to Kaviyani-Charati et al. (2022), companies that can adjust their strategies in response to changing demands and variances are well-positioned for success. This claim is supported by a study conducted by Nenavani and Jain (2023), which also makes an important argument regarding the importance of supply chain responsiveness in overcoming the challenges posed by uncertainty. The study found that supply chain responsiveness can act as a mitigating factor, reducing the adverse effects of supply network uncertainty on operational performance. Another study by Wu et al. (2017) reported that developing responsiveness capabilities drives businesses toward differentiation and gives them a competitive advantage. Companies that are responsive to market changes can swiftly adjust their business operations and processes, communicate information across organizational boundaries, and embrace new product and process technologies ahead of their competitors (Singh, 2015). Moreover, firms with higher levels of responsiveness are perceived as being better equipped to handle change, respond to unanticipated events with efficiency, and be well-prepared (Ahmed et al., 2019). Individual businesses now compete as supplier chains rather than as independent entities in the current global competitive landscape. Thus, to gain an advantage over the competition, responsiveness from all points of the chain of supply is crucial.

Previously, researchers have uncovered several contributing factors that have the greatest impact on supply chain responsiveness as well as competitive advantage. Among these factors, the implementation of supply chain management (SCM) practices stands out as a vital recommendation. According to Singh and Verma (2018), supply chain management is a collection of strategies used to effectively integrate manufacturers, suppliers, warehouses, and retail locations so that goods are produced and distributed in the appropriate quantities, at the appropriate times, and to the appropriate locations to reduce system-wide costs while satisfying service level requirements. Encouraging enhanced performance among suppliers, manufacturers, distributors, and customers, SCM is a strategic strategy that emphasizes whole business-process excellence. SCM has evolved into a critical function for adapting to shifting market conditions and maintaining

competitiveness on the international stage. This is achieved by combining methods that cover the upstream and downstream aspects of the supply chain.

SCM practices have garnered widespread recognition as essential instruments for enhancing responsiveness and maintaining a competitive edge in a highly competitive market. Companies that understand the potential of supply chain management position themselves effectively and differentiate themselves from their competitors. A substantial amount of research has conclusively shown that effective SCM is a strategic strategy for gaining a competitive advantage and enhancing organizational performance. The findings of the studies by (Baqleh & Alateeq, 2023; and Cahyono et al., 2023) revealed that higher levels of SCM practices can result in an increased competitive advantage and improved organizational performance. Meanwhile, other studies by (Qrunfleh & Tarafdar, 2013; Sukati et al., 2012; Tarafdar & Qrunfleh, 2017) showed that a supplier relationship supports the cooperative production of novel, distinctive, and affordable commodities. Furthermore, Nimeh et al. (2018) found that strong customer relationships enhance delivery, quality, and flexibility. Sharing knowledge enhances quality, affordability, dependability of supply, product innovation, and speed to market Thatte et al. (2013). Rahman (2018) found that by preventing potential waste, postponement activities reduce the "bullwhip" impacts. Global businesses also highly value the contribution of SCM. According to a survey conducted by GEODIS (2017), 57% of companies think effective SCM gives them a competitive advantage, as illustrated in Figure 1.

**Figure 1: Geodis - 2017 Supply Chain Worldwide Survey**



**Source:** Geodis (2017).

Despite the scholars have recognized that effective SCM can lead to multiple benefits for business success, the literature on this topic is limited, and there is a lack of understanding regarding the implications of adopting and diffusing various SCM practices. According to a survey conducted by Alahmad (2021), there are worries that upper management may not fully comprehend how various SCM techniques affect supply chain performance and which practices have the biggest impacts. Additionally, research on the connection between SCM techniques and competitive advantage has yielded mixed results. While some studies such as those by Khanal & Tamang (2017), Sukati et al. (2012), and Thatte et al. (2013) have demonstrated that SCM practices have a positive impact on firm competitive advantage, other studies such as those by Banerjee & Mishra (2017) and Latunreng & Nasirin (2019), have found no relationship between information sharing and supply chain responsiveness. Consequently, further studies are needed to validate and establish this relationship. Additionally, the unique challenges in the Malaysian timber industry, such as bulky sizes, heavy, complex, and crafted nature products (Moore, 2022), and frequently geographically diversified manufacturing locations, present a complex set of supply chain obstacles that require optimized operations to achieve efficiency.

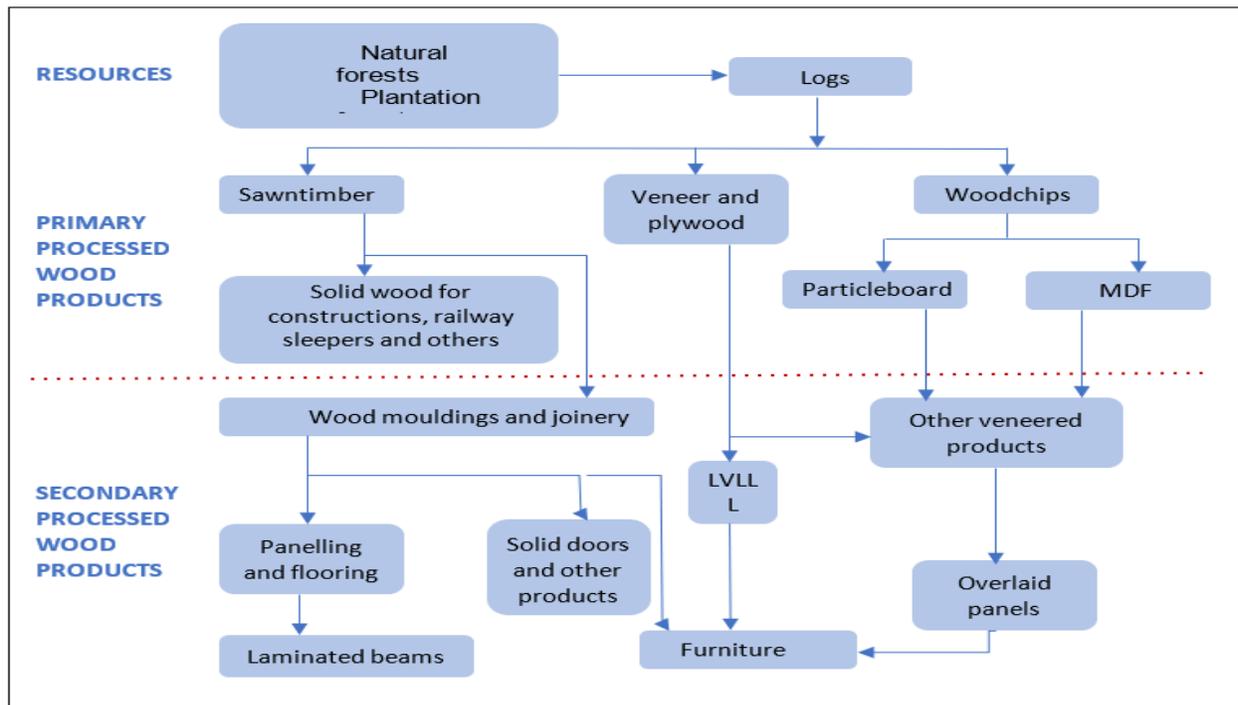
Therefore, this study seeks to fill this research gap and aims to achieve two main objectives: first, to examine the relationship between SCM practices (strategic supplier partnership, customer relationship, information

sharing, and postponement) and supply chain responsiveness in the timber industry in Malaysia, and second, to examine the relationship between SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) and competitive advantage in the timber industry in Malaysia. By examining these aspects, the study seeks to contribute valuable insights to the understanding of SCM's role and its impact on competitive advantage for Malaysian timber firms.

## 2. Literature Review

**Malaysian Timber Industry SCM:** The timber industry in Malaysia has grown significantly over the past few decades and has grown to be an important global business. Over the past 20 years, this sector has been a key factor in Malaysia's economic growth. The business produces a wide range of commodities, including sawn wood, veneer, panel goods (including plywood, particleboard, chipboard, and fiberboard), moldings, builder joinery and carpentry (BJC), furniture, and furniture components. (Wood-Based and Furniture, 2021). Malaysian companies are largely in the industry, with small and medium-sized enterprises accounting for approximately 80–90% of these businesses (Overview of Timber Sector of Malaysia, 2021). According to the Malaysian Timber Industry Board's report, nearly 193,000 people are employed directly or indirectly across the industry's supply chain (MTIB, 2021). As of 2020, there were a total of 1,901 timber mills located throughout Malaysia, with 1,565 located on the peninsula, 236 in Sarawak, and 100 in Sabah, as per the same report. In 2022, Malaysian timber product exports totaled RM25.212 million, with wooden furniture contributing 44.2 percent, plywood 13.2 percent, sawn timber 10.6 percent, BJC 5.5 percent, logs 3.7 percent, and molding 3.7 percent of the figure (MTIB, 2023). According to the report, the top five Malaysian timber export markets are America, Europe, Asia, Africa, and Oceania/Pacific with export values of RM8,479.37 million, RM2,216.30 million, RM12,903.28 million, RM333.38 million, and RM1,279.69 million, respectively.

**Figure 2: Timber Supply Chain**



Source: NEPCon (2016).

As depicted in Figure 2, the Malaysian timber supply chain is a complex and varied system that incorporates several interconnected stages, each contributing to the manufacture of a variety of wood products (NEPCon, 2016). In the upstream activities, the process begins with the extraction of timber from Malaysia's rich and diverse forests. Once harvested, the logs are transported to processing facilities, where they are subjected to a variety of treatments. This involves the debarking, cutting, and shaping to produce primary products

including sawn timber, veneer, plywood, woodchips, solid wood, particle board, and MDF (Medium-Density Fiberboard). These primary products are then moved to the downstream segment of the supply chain, where they are subjected to secondary manufacturing processes to add value and transform them into a diverse range of completed products, such as high-quality furniture, flooring, panels, doors, and various other items for both local and international markets.

This supply chain structure highlights the relationships between different sub-sectors. The effectiveness of operations, product quality, profitability, and customer satisfaction can all suffer greatly from any disruptions in the global supply chain. Uncertainty in the availability of raw materials, demand changes, market volatility, the political environment, and transportation all has extremely detrimental impacts. The company must connect its decisions with those made within its chain of customers and suppliers to implement SCM in the timber industry. This procedure calls for the organization to manage its relationships with both its customers and suppliers effectively. Therefore, Hoogstra-Klein and Meijboom (2021) suggest that careful management of the wood product supply chain is necessary for designing an effective model for supply chain design. It is critical to enhance the connectivity and efficiency between value chain actors, such as forest owners, wood dealers, wood manufacturers, and end consumers (Saadun, 2022). Thus, the right set of SCM practices for timber organizations ought to be considered, and data aggregation techniques for the extensive data set should be employed.

**Competitive Advantage:** Li et al. (2006) refers to competitive advantage as an organization's ability to create a defensible position over its competitors. According to Thatte and Agrawal (2017), a company's competitive advantage comprises distinctive competencies that set them apart from rivals and provide them an edge in the market. The study of competitive advantage has received a lot of research interest due to current worries about the better performance levels of businesses in today's changing market. Thatte (2007) asserts that the development of great capabilities has given rise to competitive advantage, which is used to produce customer value and obtain cost and/or differentiation advantages, resulting in market share and profit performance. Prior researchers cited price/cost, quality, dependability of delivery, speed to market, and product innovation as significant competitive capabilities (Li et al., 2005; Sukati et al., 2011; Thatte et al., 2013; Thatte & Agrawal, 2017; Vokurka et al., 2002). On the other hand, Khanal and Tamang (2017) included additional competitive factors such as safety, flexibility, labeling, packaging, insurance, and documentation. Meanwhile, Al-tarawneh (2020) employs cost-based advantage, product-based advantage, and service-based advantage as competitive advantage constructs. Based on the above literature, the five dimensions of competitive advantage capabilities chosen for this study are price/cost, quality, delivery dependability, product innovation, and time to market.

**Supply Chain Responsiveness:** Responding to market shifts is critical to a company's success in today's turbulent market. Supply chain responsiveness refers to the supply chain's ability to adapt swiftly and effectively to client requests or changes in market dynamics (Gunasekaran et al., 2008; Nooraie, 2017). Thatte and Agrawal (2017) emphasize the importance of an organization's ability to quickly manufacture products to meet changing customer expectations, including changes in product volume, mix, product variations, and new product launches. According to Yu et al. (2018), a responsive supply chain may aid manufacturers in better comprehending and responding to consumer demands, enabling them to provide customers with more value at the most affordable price. Previous studies have shown that being responsive offers major advantages for firms, including shortened cycle times, increased profitability, and transportation efficiency (Omoruyi & Akuoma, 2020; Singh et al., 2015; Singh & Sharma, 2014). To meet customer demands, every link in the supply chain must be able to provide the good or service on time and reliably. Thatte (2007) classified supply chain responsiveness into three dimensions: (1) operational system responsiveness, (2) logistic process responsiveness, and (3) supplier network responsiveness. Operational system responsiveness measures how fast a company adapts to changes in the volume and mix of the products that consumers need, as well as how quickly a company reacts to urgent customer demands (Asamoah et al., 2021). Logistic process responsiveness refers to a company's capacity to adapt its outbound transportation, distribution, and warehousing systems to changes in customer demand (Thatte & Agrawal, 2017). Meanwhile, supplier network responsiveness enhances the ability of a firm to swiftly introduce new products in response to customer needs (Sukati et al., 2012). Therefore, the supply chain responsiveness variable in this study covers operating system responsiveness, logistic process responsiveness, and supplier network responsiveness, as

employed by previous researchers (Khanal & Tamang, 2017; Omoruyi & Akuoma, 2020; Sukati et al., 2012; Thatte, 2007; Thatte et al., 2013).

**SCM Practices:** Tarigan et al. (2019) define SCM practices as a practical activity carried out by businesses throughout the supply chain flow to improve their performance. The practices included operational functions and major activities in the company that affect the effectiveness and efficiency of the supply chain (Sandhu et al., 2013). A well-designed supply chain performance assessment system should take into account not just the focal firm's capabilities and performance traits, but also those of its supply chain partners. These procedures essentially involve the upstream and downstream segments of the supply chain, which are focused on suppliers and customers, respectively. Jie and Gengatharen (2019) identified lean, customer relationship management, strategic alliances, information sharing among partners, and information sharing quality. Meanwhile, Al-Shboul et al. (2018) classified seven main SCM techniques, including supplier flexibility, supplier collaboration, internet technology, customer focus, quality management, lean manufacturing, and integrated internal integration. Whereas Khalil et al. (2019) considered supplier strategic alliances, lean techniques, innovation, information-sharing levels, and quality as essential variables in the SCM approach. Additionally, postponement is acknowledged as a significant SCM practice that influences business performance (Nouri et al., 2020; Qrunfleh & Tarafdar, 2013; Tarafdar & Qrunfleh, 2017). Collectively, the literature discusses SCM approaches from a variety of angles with the underlying objective of improving organizational performance. After a thorough analysis and synthesis, it was discovered that strategic supplier partnerships, customer interactions, information sharing, and postponement were the SCM methods that previous studies employed the most frequently. As a result, these four practices were chosen for investigation in this study.

Previous empirical studies (Sukati et al., 2011, 2012; Thatte et al., 2013) have demonstrated the significant role of strategic supplier partnerships, customer relationships, information sharing, and postponement in enhancing supply chain responsiveness. Strategic supplier partnerships have been proven to facilitate the development of differentiated, creative, and cost-effective goods (Qrunfleh & Tarafdar, 2013; Sukati et al., 2012; Tarafdar & Qrunfleh, 2017). Responsive suppliers can provide raw materials and components promptly and reliably, enhancing manufacturing processes and ensuring on-time delivery (Asamoah et al., 2021). As such, organizations that aim to maximize their customer value and profits should put extra effort into building strong supplier partnerships (Rana, 2020). Additionally, Thatte et al. (2013), research indicates that a well-managed customer relationship can decrease uncertainty and lead time, improving the responsiveness of the supply chain. According to research by (Nimeh et al., 2018), close customer interactions increase the organization's overall responsiveness by enhancing quality, flexibility, and delivery performance. To improve responsiveness, the Williams et al. (2013) study also shows that supply chain managers frequently look for information that offers more visibility into factors driving both supply and demand.

The improvement of relationships and interactions between supply chain partners depends strategically on information exchange (Hasibuan et al., 2020). Through sharing information with upstream parties, firms can improve their planning, reduce their inventory, prevent stockouts, and ensure more accurate and timely supplier deliveries (Thatte et al., 2009). Additionally, Mbhele (2016) highlights the positive impact of, real-time information sharing in encouraging better communication and improved supply chain coordination, leading to enhanced connectivity, responsiveness, and agility, while also mitigating the bullwhip effect. However, the studies by (Banerjee & Mishra, 2017; Latunreng & Nasirin, 2019) found no link between information sharing and supply chain responsiveness. Apart from that, the postponement strategy has served as a tool to integrate customer demand into manufacturing operations by incorporating new trends like customization, digitalization, modularization, standardization, and the formation of an interconnected supply chain (Moradlou & Backhouse, 2016). It has been established that postponement significantly affects the effectiveness of supply chain operations (Jiang et al., 2018). As a result, it is hypothesized that:

**H1:** SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) have a significant effect on supply chain responsiveness.

On the other hand, SCM practices were also found to have a significant effect on a firm's competitive advantage. Numerous recent studies have demonstrated the strong link between strategic supplier partnerships and competitive advantage (Abdali et al., 2018; Dumitrache et al., 2016; Keawkunti et al., 2020;

Prabusankar, 2017; Quynh & Huy, 2018) as well as performance (Al-Shboul et al., 2017; Gandhi et al., 2017; Reklitis et al., 2021). Collaboration on innovation and information exchange within the supplier-buyer relationship have been identified as important aspects of gaining a competitive advantage (Jha et al., 2021; Mabrouk, 2020). Additionally, Thongrawd et al. (2020), state that maintaining long-term customer relationships is critical in today's corporate landscape. Firms can better understand their consumers' interests and loyalty by acquiring reliable customer information, resulting in optimized operations and accurate demand prediction (Bhat & Darzi, 2016). Latunreng and Nasirin (2019) observed that strong customer relationships assist organizations in being more agile in generating various products quickly and adapting to the specific needs of their target customers.

Furthermore, a recent study by Baah et al. (2021) highlighted the significant impact information sharing has on supply chain visibility, collaboration, agility, and competitiveness. Focused businesses may swiftly resolve issues with pricing, quality, and quantity by exchanging knowledge with supply chain partners, meeting customer expectations and adapting to market changes (Feizabadi et al., 2019). Fornah and Nyoman Pujawan (2020) identify critical practices such as advising suppliers in advance of impending changes that may harm their relationship and communicating information with them about basic business activities. In addition, the study by Rahman (2018) discovered that the implementation of postponement has produced several advantages, such as increased service levels, decreased inventory holding costs, shortened lead times for customers, and quicker deliveries. In certain manufacturing settings, the postponement strategy, specifically the made-to-forecast hybrid technique, has proven to deliver a major competitive advantage (Akinc & Meredith, 2015). Chiu et al. (2016) showed that employing the postponement technique, in conjunction with component commonality and quality assurance, results in cost reductions and shorter cycle times. Therefore, it is hypothesized that:

**H2:** SCM practices (strategic supplier partnership, customer relationship, information sharing, and postponement) have a significant effect on competitive advantage.

### 3. Research Methodology

This study is hypothesis testing research since it attempts to test the hypothesis developed based on previous research in the context of the timber industry in Malaysia. Many studies conducted earlier have proven the effect of SCM practices on firm performance. According to Golicic et al. (2005), a quantitative approach is frequently selected to test the theory in a fresh study environment when the phenomenon of interest has been extensively characterized and recorded through prior research. It enables researchers to formulate a formal theory by looking at the "big picture" to generate a more comprehensive explanation of the phenomenon. All Malaysian timber enterprises make up the study's population, and MTIB-registered Malaysian wood-based businesses served as the sample frame (MTIB, 2022). As of January 2021, the list reveals 849 active wood-based businesses. To choose companies from the sampling frame, the researcher used the stratified random sampling technique. According to Kotzab et al. (2005), the survey strategy enables the efficient collection of large amounts of data. Most frequently, questionnaires are used to collect uniform data that can be easily compared by researchers.

Particularly when a significant number of elements from diverse geographic regions are to be reached, the development of the questionnaire and the selection of relevant questionnaire items are crucial. Saunders et al. (2016) claim that the questionnaire design has an impact on the response rate, reliability, and validity of the data. As such, it must be carefully constructed to be a reliable data-collection tool. Sekaran and Bougie, (2016) stress three areas to concentrate on while constructing the questionnaire to minimize bias in the study. It first relates to how the questions are phrased, then to how the variables will be categorized, and lastly to the overall look of the questionnaire. To assign numbers to object characteristics, a scale is necessary. A scale is a method that separates people depending on how they differ from one another on the research variable. Scaling requires creating a continuum for each instrument used. The interval scale will be used in this study to assess respondents' opinions and perceptions. Each instrument is graded on a seven-point Likert scale to achieve accurate results. The labels are anchored by 1= Very strongly disagree, 2 Strongly Disagree, 3 Disagree, 4= Neutral, 5 Agree, 6 Strongly Agree, and 7= Very Strongly Agree.

The validity and reliability of an empirical investigation are also determined by the right formulation of

measuring items for a construct. Substance validity, which argues that the measurement items in an instrument should predominantly reflect the substance of a construct, is the primary condition for a good measure (Thatte, 2007). For each construct, the study's first set of questions was derived from previous research. Then an expert and a potential respondent will both validate its contents. During these procedures, the necessary revisions will be made, and the viability of conducting the study will be established. The surveys will then be given out to the selected respondents by the supplied sample frame. According to Saunders et al. (2016), structured observation, structured interviews, and self-administered questionnaires are the three survey methods that are most frequently used to collect quantitative data. An electronic or online questionnaire is determined to be the most acceptable approach for the present study due to time and financial constraints. After collecting the data, it will be analyzed initially using SPSS software, followed by the PLS-SEM method to conclude.

#### 4. Theoretical and Managerial Implications

This study provides substantial theoretical contributions by studying the Resource-Based View (RBV) theory in the context of SCM and its impact on supply chain responsiveness and competitive advantage in the Malaysian timber sector. It extends RBV by including the Natural Resource-Based View (NRBV) to address environmental concerns and encourage sustainable practices. The study also incorporates the Dynamic Capabilities Theory, emphasizing the significance of supply chain responsiveness for adaptability and proactive resource adjustment. The findings provide useful insights for refining SCM practices and increasing the competitive advantage of Malaysian timber enterprises, laying the groundwork for future study in this field.

From a managerial standpoint, the study assists both strategists and communities in the forestry business. It introduces new techniques and technologies to aid and promote effective supply chain management. Supply chain managers can obtain a better grasp of the tools and operational practices used by businesses, allowing them to evaluate initiatives for broader SCM adoption. Finally, this study enables the timber industry to improve its supply chain relationships and strategic decision-making, resulting in improvements and long-term benefits.

#### 5. Conclusion

This concept paper examines SCM procedures, the responsiveness of the supply chain, and the competitive advantage of the Malaysian timber sector. To strengthen the firm's competitive edge, it merges the activities on the upstream and downstream ends of the supply chain. Future studies on SCM and competitiveness in the lumber industry will build on the findings of this paper. For managers, it offers helpful information that will help them make wiser choices and raise the performance of the sector as a whole. The ultimate objective is to comprehend how SCM procedures might assist Malaysia's timber sector in becoming more effective and prosperous.

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