PETRA IJBS VOL. 8, NO. 1, JUNE 2025: 63-76 DOI: https://doi.org/10.9744/petraijbs.8.1.63-76
E-ISSN 2621-6426

The Impact of Management Commitment on Firm Performance, The Mediating Role of Supply Chain Integration, Practices, and Green Supply Chain Management

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Abstract

The company's management always strives to enhance competitiveness by making business processes efficient and effective, while also paying attention to environmental protection. This study addresses the impact of management commitment on firm performance through supply chain integration, supply chain practices, and green supply chain management. The study employed a quantitative approach, and data collection was conducted among 80 manufacturing companies in Indonesia. The data were analyzed using partial least squares (PLS) with SmartPLS software version 4.0. The study results indicate that management commitment influences supply chain integration, supply chain practices, and the adoption of a green supply chain approach. Companies can optimize the role of external partners in supply chain integration, thereby influencing supply chain practices and the development of green supply chains. However, this study reveals that supply chain integration did not directly improve firm performance. Moreover, the results indicate that supply chain practices, such as building strategic partnerships and increasing information sharing, cannot directly improve firm performance. The company implements a green supply chain by evaluating environmental care programs, building awareness among customers to use environmentally friendly products, and consistently offering environmentally friendly products, which can improve firm performance. The practical contribution of research provides enlightenment to manufacturing industry practitioners, motivating them to commit to developing employees and enhancing their skills as human capital assets. Theoretical contribution to enriching the theory of the green environment in producing economic and environmental performance.

Keywords: Firm Performance, Management Commitment, Green Supply Chain Management, Supply Chain Integration, Practice.

1. Introduction

Globalization encourages companies to distribute products and services worldwide to optimize profits and reduce waste (Nguyen & Le, 2020). The awareness of manufacturing companies regarding the importance of supply chain management is increasing. The source of raw materials and semi-finished goods comes from different parts of the world, which are then processed and redistributed globally (Free & Hecimovic, 2021). Additionally, companies must adapt to environmental standards in each country where they operate (Nguyen & Le, 2020). With globalization encouraging widespread distribution, companies can improve their operational performance (Firmansyah & Siagian, 2022). Operational performance reflects the company's increased efficiency and effectiveness in dynamic business competition (Abdallah & Al-Ghwayeen, 2020). This improvement in operational performance is expected to position the company ahead of its competitors, thereby achieving long-term sustainability (Sangwan & Choudhary, 2018). To achieve this, companies must build an effective supply chain, recruit a competent workforce, allocate budgets optimally, and maintain good communication across all business lines (Leksono et al., 2020). By doing so, companies can offer high-quality products at a lower cost, thereby increasing customer satisfaction (Yu et al., 2021).

In supply chain management, companies must ensure that the flow of goods and information runs effectively from suppliers to customers (Oktapia & Tarigan, 2022). Downstream customer focus emphasizes meeting customer needs faster, more flexibly, and accurately (Siagian et al., 2023). This includes efficient distribution strategies, enhanced customer service, and tailoring products or services to meet market demand. Integration with distribution partners and retailers is also crucial in ensuring that products are available in the right locations and quantities, thereby increasing customer satisfaction and loyalty as a form of supply chain integration (Hartono et al., 2023). The balance between focusing on downstream customers and upstream suppliers is a key factor in creating an adaptive and sustainable supply chain (Siagian et al., 2022). Companies that successfully integrate these two aspects will be better equipped to respond quickly to market changes, enhance operational efficiency, and build supply chains that are more resilient to external disruptions.

Climate change, global warming, and limited natural resources are becoming significant challenges for

companies, as the scarcity of raw materials is becoming increasingly crucial (Setiawan & Tarigan, 2022). This condition has led to a shift in consumer preferences, with consumers now more inclined to choose environmentally friendly products made from recycled materials or those that naturally decompose (Dou et al., 2018). Implementing Green Supply Chain Management (GSCM) enables companies to compete by attracting customers who value environmental considerations, ultimately leading to improved operational performance (Adusei et al., 2023). GSCM aims to address environmental problems by enhancing the efficiency and effectiveness of the company's operations through energy and resource conservation (Abdallah & Al-Ghwayeen, 2020). Implementing GSCM also attracts customers who prefer companies with environmentally friendly policies (Sarkis, 2020; Kitsis & Chen, 2021). By optimizing the use of raw materials, companies can reduce waste as well as demonstrate social responsibility that can increase the value of their business (Wang et al., 2020).

In the face of a dynamic market, companies must adopt information technology (IT) that is constantly updated. IT plays a crucial role in facilitating supply chain integration, thereby enhancing the efficiency and effectiveness of company operations (Hiebl et al., 2017) and improving company performance (Tarofder et al., 2017). However, not all companies have been fully able to adopt IT to integrate their internal systems with external ones due to concerns related to significant investment risks without a guarantee of increased competitiveness (Hiebl et al., 2017). Top management commitment plays a role in providing the company's resources to implement GSCM (Sangwan & Choudhary, 2018). The primary responsibility of management is to respond to any opportunities and threats that arise in the market (Kitsis & Chen, 2021). One form of support for implementing GSCM is providing training to employees, explaining the urgency of applying this concept in business, and offering incentives for those who contribute to its success (Adusei et al., 2023). Effective supply chain integration is necessary for companies to deliver products to customers on time and at the correct location, thereby avoiding lengthy and inefficient distribution (Sarkis et al., 2020). One of the applications of GSCM in the industry is the use of environmentally friendly transportation in the distribution process and the selection of more sustainable raw materials (Habib et al., 2022). Top management's commitment to improving operational performance can be realized by implementing green supply chain management, which involves considering the environmental impact of business activities (Adusei et al., 2023).

This study offers a significant contribution by developing an integrative model that links top management commitment, supply chain integration, supply chain practices, and green supply chain management (GSCM) to enhance operational performance. Unlike previous studies that often examine these variables in isolation, this research adopts a holistic approach by testing both direct and indirect effects through a sequential mediation framework. A key novelty lies in emphasizing the strategic role of top management in facilitating GSCM implementation, an area that remains underexplored in the current literature. By focusing on the manufacturing industry amid globalization pressures and increasing environmental demands, the study provides fresh empirical insights into how firms can build supply chains that are adaptive, efficient, and environmentally sustainable. The integration of managerial, operational, and environmental aspects in one comprehensive model distinguishes this research as a novel contribution to the field of modern supply chain management.

Based on the explanation in this introduction, the research objectives can be arranged as follows: first, testing management commitment plays a crucial role in enhancing supply chain integration, supply chain practices, and the implementation of green supply chain management. Second, testing the company's ability to implement supply chain integration impacts supply chain practice, green supply chain management, and company performance. Third, the impact of supply chain practice on implementing green supply chain management and company performance. Finally, green supply chain management improves the company's operational performance.

2. Literature Review

Supply Chain Management (SCM) is a strategic approach that integrates key business processes from initial suppliers to end customers, aiming to create added value through the coordinated flow of goods, information, and services (Siagian et al., 2022). This theory views SCM not merely as a logistics function, but as a comprehensive, cross-functional system involving planning, control, and decision-making across organizational boundaries throughout the supply chain (Yu et al., 2017). Effective implementation of SCM enables firms to enhance operational efficiency, reduce uncertainty, lower costs, and accelerate production and distribution cycles. By fostering collaboration among all stakeholders in the supply chain network, from raw material suppliers and manufacturers to distributors and end-users, companies can establish responsive, integrated, and agile flows of both materials and information (Al-Shboul et al., 2018). Moreover, SCM supports improved internal coordination across functions and strengthens external relationships with business partners (Hartono et al., 2023). With a foundation built on trust and transparency, firms can better position themselves to face increasing competitive pressures.

SCM is adopted as the overarching conceptual framework that explains the interaction of various strategic variables working together to achieve sustainable competitive advantage and improved firm performance (Adusei et al., 2023).

2.1. Management Commitment

Commitment management in supply chain management refers to top management's active role and full support in managing and optimizing the supply chain to increase efficiency and competitiveness (Hartono et al., 2023). This commitment plays a crucial role in determining strategic policies, allocating resources, and making decisions that have a significant impact (Siagian et al., 2023). Committed top management will ensure synergies between various departments within the company and supply chain partners, including suppliers and customers.

Top management commitment reflects management's involvement in planning, improving, and controlling the organization to increase competitiveness (Siagian et al., 2022). Top management is responsible for formulating company policies, ensuring they are correctly implemented, and communicating them effectively so the company can grow and improve its performance (Yusliza et al., 2019). Additionally, top management commitment is crucial in determining the company's goals, which are reflected in the decisions and actions taken. Management also ensures that employees are actively involved in implementing the decisions set by conducting continuous socialization (Chen & Kitsis, 2017).

The management's commitment also includes efforts to strengthen relationships with suppliers and customers, thereby building a more stable and collaborative supply chain. Kitis & Chen (2021) emphasized that management commitment can be realized by fostering a supportive work culture and providing the necessary facilities to implement the company's strategic programs (Tarigan et al., 2020). In facing the challenges of globalization and sustainability, companies with committed management will be better prepared to face market volatility, supply chain disruptions, and environmental sustainability demands.

2.2. Supply Chain Integration

Supply chain integration (SCI) refers to collaboration between various supply chain entities that aim to share information and coordinate decision-making to improve the company's profitability (Yu et al., 2017). Meanwhile, according to Wong et al. (2021), Supply Chain Integration (SCI) reflects how the flow of goods, raw materials, finished products, and information is processed and channeled effectively between organizations (Oktapia & Tarigan, 2022). In SCI, information is managed through the coordination of the company's supply chain activities (Yu et al., 2017) and the incorporation of the interpretation of available information (Srinivasan & Swink, 2015; Swink & Schoenherr, 2015), so that it can minimize obstacles in achieving the company's goals (Yu et al., 2019).

In an increasingly fierce global competition, companies must establish mutually beneficial relationships among supply chain entities, both internally and externally, to gain a competitive advantage (Yu et al., 2021). SCI itself is categorized into several aspects. Wong et al. (2021) divide it into three main categories: integration in information flow, cash flow, and company operations, including raw materials, finished goods after production, and services. Meanwhile, according to Sinnandavar et al. (2018), supply chain integration consists of three main components: supplier, internal, and customer integration.

Yu et al. (2021) identified two main aspects in the measurement of Green Supply Chain Management (GSCM). The two are green supplier integration and green customer integration (Siagian et al., 2022). Supplier integration is evaluated based on several key indicators, including information exchange through an integrated network. This ordering system has been well-connected with suppliers, ensuring the stability of the supply of goods as needed, the participation of suppliers in the provision of goods, and the company's role in improving supplier capabilities to meet the needs of goods or services (Tarigan et al., 2020). Meanwhile, green customer integration involves exchanging information with customers through an integrated network, an ordering system that customers can access and utilize effectively, and the company's ability to meet customer needs consistently (Siagian et al., 2023). The level of customer involvement in the production process, customer participation in product design, and customer contributions to helping the company optimize the procurement of goods (Hartono et al., 2023).

2.3. Supply Chain Practice

Supply chain practice refers to a series of practical activities carried out by companies in the supply chain to improve performance and competitiveness along the supply chain flow (Tarigan et al., 2019). Implementing effective supply chain practices can enhance supply chain performance through various activities, including building strategic alliances, managing customer relationships, sharing information with business partners, and improving the quality of information shared both internally and externally (Gorane & Kant, 2016). According to Al-Shboul et al. (2018), supply chain practices include collaboration with suppliers, flexibility in

relationships, utilization of internet technology, customer orientation, lean manufacturing production, and structured internal integration and quality management. Furthermore, Supply chain management practice is divided into two main aspects: downstream, which focuses on customers, and upstream, which focuses on suppliers.

The dimensions of supply chain management practice encompass customer relationship management, supplier relationship management, goal alignment, and information sharing (Gandhi et al., 2017). Moreover, Sundram et al. (2018) stated that supply chain practices involve strategic partnerships with suppliers, good customer relationships, information sharing with business partners, information quality, postponement, shared vision agreements, and sharing of risks and benefits. Supply chain practice can also be categorized into three main parts: interaction with suppliers, internal company activities, and customer interaction (Play et al., 2018). According to Govindan et al. (2014), Supply Chain Practice encompasses four main dimensions within a company, namely Lean Practice, Total Quality Management, Just-In-Time, Cleaner Production, Resilient Practice, Flexible Resources, Supply Chain Risk Management, Flexible Transportation, and Green Practice. Supply chain practices can be effectively implemented through strategic partnerships, strong customer relationships, high-quality standards, and effective information sharing (Truong et al., 2017). Environmentally oriented supply chain practices are known as green supply chain management practices, which include supplier selection and evaluation, supplier inventory management, investment recovery, eco-friendly design and packaging, reverse logistics, and collaboration with customers on environmental aspects (Sundram et al., 2018).

2.4. Green Supply Chain Management

Green supply chain management (GSCM) is gaining more attention due to the issues of global warming and resource scarcity, which encourage companies to compete and achieve competitive advantages (Wilhelm et al., 2018). GSCM refers to a combination of operational processes that aim to reduce costs while improving environmental sustainability (Nguyen & Le, 2020). According to Habib et al. (2022), implementing GSCM enables a company to effectively mitigate its environmental negative impacts through various strategies, including green design, green purchasing, green manufacturing, green facilities, green transportation, and recycling. This process encompasses the entire supply chain cycle, from product design and raw material selection, through the manufacturing process, to product distribution to customers, and ultimately, product management at the end of its lifespan (Abdallah & Al-Ghwayeen, 2020).

According to Adusei et al. (2023), GSCM is divided into two main aspects: Internal GSCM and External GSCM. Internal GSCM refers to environmentally friendly practices initiated by all entities in the organization that are members of the supply chain. Meanwhile, external GSCM focuses on the company's efforts to meet customer needs by engaging suppliers in environmental sustainability practices (Basana et al., 2022). The implementation of GSCM is critical and should be carried out thoroughly at every stage of the supply chain to improve the company's operational efficiency and profitability (Khan & Yu, 2021). Given its crucial role in business sustainability, companies must conduct regular evaluations of GSCM implementation to ensure its effectiveness in supporting environmental and economic goals (Adusei et al., 2023).

2.6. Operational Performance

Firm performance is a way to increase efficiency by maintaining low inventory levels, enhancing product quality, expanding capacity, and improving the on-time delivery system to customers (Habib et al., 2022). Meanwhile, according to Abdallah & Al-Ghwayeen (2020), firm performance is all company activities related to the series that occur within the company, including productivity, quality, and customer satisfaction.

The firm's performance is crucial in measuring its efficiency and effectiveness compared to its competitors, allowing it to understand which direction to take (Sangwan & Choudhary, 2018). The company's ability is also assessed by its capacity to reduce the costs associated with it (Choi et al., 2018). Therefore, operational performance is also crucial for achieving effectiveness within the company, ensuring that the products produced meet the highest quality standards (Basana et al., 2022). Companies that manage processes effectively and efficiently can influence increasing profits (Truong et al., 2017). Firm performance reflects a company's ability to provide high-quality, low-cost products and increase customer satisfaction (Yu et al., 2021).

2.6. Relationship between research concepts

2.6.1. Management Commitment and Supply Chain Integration

The management's commitment reflects the full support of the company's leadership in ensuring that supply chain strategies and policies are implemented optimally. Meanwhile, supply chain integration (SCI) refers to the process of coordination and collaboration

among various parties in the supply chain to share information, manage resources, and make strategic decisions that improve the effectiveness of company operations (Tarigan et al., 2019). Management commitments play a crucial role in strengthening supply chain integration by ensuring the efficient distribution of resources, developing collaboration-based policies, and facilitating effective communication among suppliers, companies, and customers (Basana et al., 2024). The implementation of SCI is also supported through strategic planning, the integration of information systems, and the utilization of technology to enhance connectivity between business partners (Firmansyah & Siagian, 2022).

The success of SCI is highly dependent on the active role of management in establishing long-term relationships with suppliers and customers (Siagian et al., 2023). Management that is committed will encourage the creation of a work environment based on collaboration and innovation in the supply chain (Tarigan et al., 2020). Thus, SCI can run more effectively through synergy in information sharing, improving the quality of data obtained from business partners, and utilizing technology that enables a more efficient integration system (Hartono et al., 2023). Support from management is a key factor in determining the success of SCI implementation (Siagian et al., 2022). Based on the description above, the first hypothesis can be formulated as follows:

H_1: Management commitment has a positive effect on supply chain integration.

2.6.2. Management Commitment and Supply Chain Practice

Strong management commitment ensures supply chain policies are optimally implemented through strategic partnerships with suppliers, effective information sharing, technology integration, lean production, and total quality management concepts. With the full support of top management, companies can establish collaborative relationships with suppliers and customers, enhance supply chain flexibility, and leverage digital technologies to expedite decision-making processes and optimize operations (Tarigan et al., 2021). In addition, top management commitment is also necessary for allocating resources to invest in more efficient supply chain systems, such as inventory management automation and the implementation of green supply chain management, to reduce environmental impacts (Gandhi et al., 2017).

The implementation of supply chain practice is an important role of management commitment. Companies with a high level of management commitment can better manage risks in the supply chain, reduce uncertainty, and improve response to changes in market demand. This allows companies to reduce operational costs, accelerate production lead times, and improve the timeliness of product delivery to customers. Companies can enhance customer satisfaction and operational effectiveness, thereby strengthening their competitive advantage in global competition (Al-Shboul et al., 2018). Management commitment supports the implementation of supply chain practices and contributes directly to achieving better performance (Gonzalez et al., 2022).

Full support from management is key to ensuring optimal supply chain practices in supplier integration, internal coordination, and customer interaction (Sundram et al., 2018). Furthermore, the second hypothesis can be formulated as follows:

H_2: Management commitment affects supply chain practice.

2.6.3. Management Commitment and Green Supply Chain Management

Commitment within the organization is required at all levels, from management being responsible for supporting the implementation of Supply Chain Management (SCM) by providing the necessary resources (Yigitbasioglu, 2015). Commitment management must ensure the availability of natural resources, human resources, and other infrastructure so that the information technology (IT) system applied in the company's business processes can function optimally (Bukhari et al., 2022). The strategic role of commitment management also allows companies to implement Green Supply Chain Management (GSCM) more effectively than their competitors by designing policies that are not only oriented towards achieving business goals (Sangwan & Choudhary, 2018).

The implementation of GSCM must be carried out gradually so that every element in the company can understand the strategic goals to be achieved (Kitis & Chen, 2021). Consistent and sustainable management commitments are important in creating a more substantial and sustainable implementation of GSCM (Suryanto et al., 2018; Kitsis & Chen, 2021; Gonzalez et al., 2022). So the third hypothesis can be formulated as follows:

H_3: Management commitment has a significant impact on green supply chain management.

2.6.4. Supply Chain Integration and Supply Chain Practice

Supply chain integration refers to the coordination and collaboration between various entities in the supply chain, including suppliers, manufacturers, and customers, to enhance the flow of information and products and facilitate strategic decision-making (Gorane & Kant, 2016). Supply chain practice encompasses a

range of practical activities implemented within the supply chain to enhance company performance, including strategic partnerships with external partners (Setiawan & Tarigan, 2022). Supply chain integration is the primary basis for effectively implementing supply chain practice (Tarigan et al., 2020). Strong supply chain integration allows companies to implement more coordinated and efficient supply chain practices. Integration with external partners enables companies to establish strategic partnerships that are more efficient, focused on quality, speed, and cost (Tarigan et al., 2021). Meanwhile, internal integration enables the company to improve coordination between departments, thereby optimizing production and distribution operations. Integration with customer partners improves customer relationships by aligning marketing, distribution, and after-sales service strategies that are more responsive to market needs.

Supply chain integration strengthens the application of various elements in supply chain practice, such as information sharing and data transparency between suppliers and customers. This allows companies to make data-driven decisions in managing their supply chains (Basana et al., 2024). With an integrated information system, companies can enhance the quality of information shared both internally and externally, allowing supply chain practices to be applied more accurately and efficiently (Basana et al., 2022). Supply chain integration serves as the primary foundation for the success of supply chain practice (Govindan et al., 2014). Thus, the fourth hypothesis is formulated as follows:

H_4: Supply chain integration affects green supply chain practice.

2.6.5. Supply Chain Integration and Green Supply Chain Management

Supply Chain Integration refers to coordination and collaboration between various entities in the supply chain, including suppliers, manufacturers, and customers, to improve the flow of information, products, and services (Siagian et al., 2022). Green Supply Chain Management emphasizes the implementation of environmentally friendly practices within the supply chain. Effective supply chain integration enables a more seamless implementation of GSCM. Strong coordination between companies and business partners ensures that sustainability principles are applied consistently across the supply chain network (Suryanto et al., 2018). Supply chain integration companies can enhance transparency in sharing environmental information with suppliers and customers, allowing for more optimal application of green supply chain practices (Hartono et al., 2023). Supplier integration enables companies to select suppliers that adhere to high environmental standards and promote environmentally friendly practices throughout the production process (Siagian et al., 2023). Similarly, customer integration in SCI enables companies to understand customer preferences for more environmentally friendly products, allowing them to tailor their sustainability strategies to market demands.

Based on the description above, the five hypotheses are formulated as follows:

H_5: Supply chain integration influences the implementation of green supply chain management.

2.6.6. Supply Chain Practice and Green Supply Chain Management

Supply chain practice refers to strategic activities implemented within the supply chain related to environmental considerations to enhance company performance. A practical supply chain involves strategic partnerships with external partners, suppliers, and customers, leading to the implementation of green practices throughout the supply chain. Supply chain practices in sharing information aim to reduce the environmental impact of business activities (Suryanto et al., 2018). Effective supply chain practices support the implementation of GSCM by creating a more integrated and sustainability-oriented supply chain (Setiawan & Tarigan, 2022). Strategic partnerships allow companies to work closely with suppliers, implementing high environmental standards. Companies can collaborate with suppliers to utilize environmentally friendly raw materials or implement more efficient production processes (Al-Shboul et al., 2018). Companies can share sufficient information with business partners, which can help maintain environmental sustainability by optimizing resource use and reducing production waste. The application of technology in supply chain practice also contributes to supporting GSCM. Using integrated information systems allows companies to identify areas in the supply chain with a high environmental impact and implement remediation strategies (Gonzalez et al., 2022). Furthermore, the sixth hypothesis is formulated as follows

H_6: Supply chain practice affects green supply chain management.

2.6.7. Supply Chain Integration and Firm Performance

Implementing supply chain integration enables companies to enhance operational efficiency by transitioning from manual to automated business processes, leveraging more modern machines and technology. This automation process includes various stages, from product design and production to the distribution of

goods to customers (Basana et al., 2024). Automation also helps simplify processes that previously took a long time, thus increasing overall productivity (Siagian et al., 2023). Additionally, optimizing the use of raw materials reduces production waste and operational costs, enabling companies to enhance their resource management effectiveness (Truong et al., 2017).

System integration in supply chain management enables companies to increase the speed of goods distribution, thereby reducing uncertainty in the supply chain. Companies can optimize stock management by storing goods as needed, reducing excessive storage costs (Hartono et al., 2023). The efficiency gained from this integration also contributes to the company's increased competitiveness, as products can be processed and delivered faster and more efficiently than its competitors (Wong et al., 2021).

Based on the description above, the seventh hypothesis is proposed as follows:

H_7: Supply chain integration has a positive impact on the company's performance.

2.6.8. Supply Chain Practice and Firm Performance

Supply chain practice encompasses various operational strategies and activities that optimize supply chain efficiency, including strategic supplier partnerships, customer relationship management, information sharing, and efficient production systems such as lean manufacturing and total quality management (Gandhi et al., 2017). Supply chain practice allows companies to implement more efficient production strategies. Supply chain practices can reduce storage costs and minimize resource waste (Suryanto et al., 2018). The implementation of effective supply chain practices can increase operational flexibility, accelerate production cycle times, and enhance the accuracy of goods delivery to customers, all of which contribute to improved company performance (Govindan et al., 2014). Thus, the eighth hypothesis is formulated as follows:

H_8: Supply chain practices affect firm performance.

2.6.9. Green Supply Chain Management and Firm Performance

Implementing Green Supply Chain Management (GSCM) allows companies to improve the efficiency and effectiveness of their operations (Adusei et al., 2023). The impact of this implementation is evident in the improvement of the company's overall operational performance (Abdallah & Al-Ghwayeen, 2020). This advantage not only enhances competitiveness but also supports the company's long-term sustainability (Sangwan & Choudhary, 2018; Siagian et al., 2023). Implementing GSCM within a company enhances its operational performance (Siagian et al., 2022).

H_9: Green supply chain management has a positive effect on operational performance.

Based on the introduction, the literature review argument, and the description, the research model and relation between variables are illustrated in Figure 1.

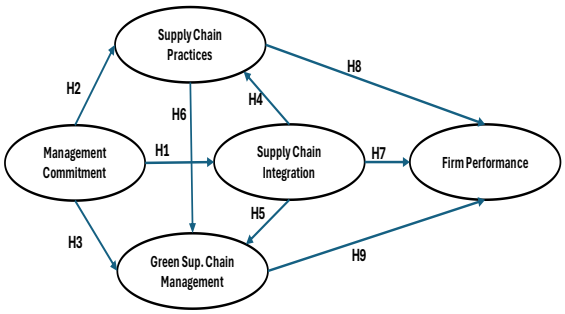

Figure 1. Research model

3. Methods

This type of research, which is used as causal quantitative research, aims to measure the magnitude of the influence of one variable on another. The management commitment measurement item is determined by adopting Kitis & Chen (2021) research, namely, the company has established a strategy that is appropriate for excellence (MC1), the company has set the proper steps in company development (MC2), the company motivates employees to make improvements (MC3), the company's management conducts programs that take the initiative for continuous improvement (MC4) and the company is committed to improving employee skills (MC5).

Supply chain integration enables companies to synergize with external partners in resulting in improved company performance Christian et al. (2024) with the item that the company collaborates with partners in making appropriate decisions (SCI1), the company assists external partners in development (SCI2), the company empowers external partners in improving operations (SCI3), the company collaborates with external partners (SCI4) and the company shares knowledge with external partners (SCI5). The third variable is that supply chain practice is a best practice carried out by companies to increase company competitiveness. Supply chain practice in companies by adopting the research of Tarigan et al. (2021). with items that measure the company's ability to build strategic partnerships (SCP1), the company's ability to increase the level of information sharing (SCP2), the company's ability to implement quality information sharing (SCP3), and the company's ability to apply customer relationship management (SCP4). The fourth variable is green supply chain management, which is an effort made by compa-

nies to reduce or eliminate damage to the natural environment. The measurement items used in the measurement of GSC (Green Supply Chain) variables are adopted from the results of research from Adusei et al. (2023), namely: the company makes an evaluation program (GSC1), the company decides to care for the environment (GSC2), the products produced are environmentally friendly (GSC3), the supplier provides environmentally friendly materials (GSC4), and gives assurance to customers to consistently use environmentally friendly products (GSC5). The dependent variable is firm performance, which is measured in the company's operations with items adopted from

Truong et al. (2017), namely the company strives to reduce production costs (FP1), the company fulfills all customer orders (FP2), the company accelerates the company's production process in producing products (FP3), the company increases capacity to meet the production schedule (FP4) and the company can complete products according to demand within the set time limit (FP5).

The sample selection criteria included companies that had implemented information technology and were located in East Java, and the respondents were permanent employees with work experience and held at least a staff position in the manufacturing company. Data collection in this study was conducted through Google Forms questionnaires, which were distributed to respondents who met the research criteria. The questionnaire employs a Likert scale with a value range of 1 to 5, where one represents "strongly disagree" and five indicates "strongly agree." Data analysis uses SmartPLS software as a statistical tool.

Table 1. Descriptive analysis and outer model

Research Items	Mean	Factor loading	Cron. Alpha	Comp. Reliable.	AVE
Management Commitment (MC)	**3.717**		0.872	0.920	0.668
The company has established a strategy that matches excellence (MC1)	3.636	0.829			
The company sets the right step in the company's development (MC2)					
The company motivates employees to make improvements (MC3)	3.838	0.902			
The company's management conducts a program that takes the initiative for continuous improvement (MC4)	3.758	0.809			
The company is committed to improving employee skills (MC5).	3.374	0.784			
	3.980	0.739			
Supply Chain Integration (SCI)	**3.812**		0.930	0.930	0.782
The company works with partners in making appropriate decisions (SCI1)	3.798	0.837			
The company assists external partners in development (SCI2)					
The company empowers external partners in improving operations (SCI3)	3.758	0.885			
The company collaborates with external partners (SCI4)	3.859	0.881			
Knowledge sharing companies with external partners (SCI5)					
	3.818	0.899			
	3.828	0.920			
Supply Chain Practice (SCP)	**3.886**		0.868	0.875	0.716
The company's ability to build strategic partnerships (SCP1)	3.949	0.884			
The ability of delam companies to increase the level of information sharing (SCP2)	3.859	0.815			
The company's ability to implement quality information sharing (SCP3)					
The company's ability to apply customer relationship management (CRM)	3.879	0.843			
	3.859	0.843			
Green Supply Chain (GSC)	**3.800**		0.868	0.870	0.656
The company created the program evaluation (GSC1)	3.788	0.863			
The company decides to care for the environment (GSC2)	3.808	0.748			
The resulting products are environmentally friendly (GSC3).	3.667	0.847			
Suppliers provide eco-friendly materials (GSC4)	3.798	0.812			
Assuring customers to use environmentally friendly products (GSC5) consistently	3.939	0.775			
Firm Performance (FP)	**4.115**		0.917	0.920	0.752
The company is trying to reduce production costs (FP1)	4.222	0.890			
The company fulfills all customer orders (FP2)	4.101	0.823			
The company accelerates its production process in producing products (FP3)	4.182	0.865			
The company increased its capacity to meet the production schedule (FP4)					
The company can complete the product on demand within the set time limit (FP5)	4.131	0.905			
	3.939	0.851			

4. Result

The respondents' criteria in this study were derived from various manufacturing companies in the Java region, specifically those implementing an ISO 14000 environment-based quality management system. The profiles of the respondents collected can be described as 33 women (41%) and 47 men (59%). As directors/CEOs, eight people (10%), Managers 11 people (14%), Supervisors 16 people (20%), and staff 45 people (56%). Respondents who have work experience between 1 and 3 years are 39 people (49%), between 3 and 5 years are 14 people (17%), between 5 and 7 years are 11 people (14%), and the rest are more than 7 years, totaling 16 people (20%). Furthermore, data processing is carried out for descriptive analysis and outer model, as shown by the validity and reliability tests in Table 1.

Table 2 shows that the outer model test set, which underwent a validity test, met the requirements, with all measurement items having a value greater than 0.500. The reliability test, as indicated by the Cronbach's alpha and composite reliability values, exceeds 0.700, and the AVE (Average Variance Extracted) value exceeds 0.500. Furthermore, the discriminant validity test is conducted by evaluating the values of the Fornell and Larcker criteria, as shown in Table 2. Table 2 shows that the square root of the AVE value for each variable (in bold on the diagonal) is greater than the correlation between the variables, indicating that the validity of the discrimination of each indicator is qualified.

Thus, the measurement model from this study met the criteria, allowing the inner model to be tested again. The results of the inner model processing are shown in Figure 2 and Table 3.

The hypothesis test result is shown in Table 3 and Figure 2. All hypotheses are proposed as all the t-statistic values are greater than 1.96, the cut-off value, or the p-values are less than 0.05, the cut-off value. The first hypothesis states that management commitment influences supply chain integration, with a path coefficient of 0.706 and a t-statistic of 11.401 (>1.96). The second hypothesis states that management commitment affects supply chain practices, with a path coefficient of 0.449 and a t-statistic of 4.441 ($p < 0.05$). Similarly, the third hypothesis states that management commitment influences the green supply chain, with a path coefficient of 0.348 and a t-statistic of 3.393 (>1.96). Moreover, the fourth hypothesis suggests that supply chain integration impacts supply chain practice, with a path coefficient of 0.354 and a t-statistic of 3.237 (>1.96). The fifth hypothesis states that supply chain integration affects the green supply chain, with a path coefficient of 0.271 and a t-statistic of 2.919 (>1.96).

Additionally, the sixth hypothesis examines the impact of supply chain practices on the green supply chain, with a path coefficient of 0.315 and a t-statistic of 2.754 ($p < 0.05$). The eighth hypothesis examines the influence of supply chain practices on firm performance, with a path coefficient of 0.387 and a t-statistic of 3.621 ($p < 0.001$). The last hypothesis, the ninth hypothesis, states that the green supply chain influences firm performance, with a path coefficient of 0.562 and a t-statistic of 5.754 (>1.96).

Table 2. Forner-Larcker criteria test results

Variable	1	2	3	4	5
Firm Performance (1)	**0.867**				
Green Supply Chain Management (2)	0.773	**0.810**			
Management Commitment (3)	0.742	0.750	**0.815**		
Supply Chain Practices (4)	0.744	0.727	0.699	**0.846**	
Supply Chain integration (5)	0.726	0.719	0.706	0.671	**0.884**

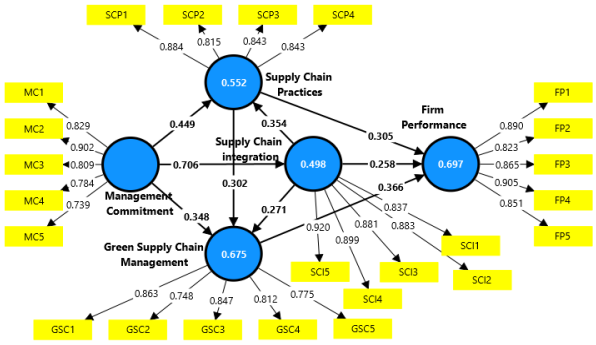

Figure 2. Results of the analysis and research model

Table 3. Results of the research hypothesis test

Hypothesis	Path Coefficient	T Statistics	P Values
Management commitment → supply chain integration (H1)	0.706	11.401	0.000
Management commitment → supply chain practices (H2)	0.449	4.441	0.000
Management commitment → green supply chain management (H3)	0.348	3.393	0.001
Supply chain integration → supply chain practices (H4)	0.354	3.237	0.001
Supply chain integration → green suply chain management (H5)	0.271	2.919	0.004
Supply chain practices → green suply chain management (H6)	0.302	2.911	0.004
Supply chain integration → firm performnace (H7)	0.258	2.241	0.025
Supply chain practices → firm performnace (H8)	0.305	2.480	0.013
Green suply chain management → firm performnace (H9)	0.366	2.814	0.005

5. Discussion

The first hypothesis was supported in this study. Management commitment improves the firm's performance. A company's commitment to making strategic

decisions effectively enhances supply chain integration, resulting in stronger cooperation with partners and improved operational efficiency. This finding aligns with previous studies (Tarigan et al., 2019; Basana et al., 2024; Siagian et al., 2023; Tarigan et al., 2020; Hartono et al., 2023; Siagian et al., 2022). The second hypothesis states that management commitment enhances the supply chain practices. Companies can strengthen supply chain practices, foster strategic partnerships, and improve information sharing by implementing strategies focused on excellence and committing to workforce development. This finding aligns with previous studies, which have confirmed that management commitment can improve a firm's performance (Tarigan et al., 2021; Gandhi et al., 2017; Al-Shboul et al., 2018; Gonzalez et al., 2022; Sundram et al., 2018).

Similarly, the third hypothesis is also supported in this study. Companies that prioritize environmental initiatives and sustainability programs enhance their green supply chain, leading to increased adoption of environmentally friendly materials and processes. This result confirms previous studies that propose the same hypothesis (Yigitbasioglu, 2015; Bukhari et al., 2022; Sangwan & Choudhary, 2018; Kitis & Chen, 2021; Suryanto et al., 2018; Gonzalez et al., 2022). The fourth hypothesis is that the formulation of supply chain integration affects supply chain practice. Supply chain integration, formed in collaboration with partners, enables the making of informed decisions and the sharing of knowledge with external partners, ultimately producing a robust supply chain practice. The results of this study align with those of previous research (Gorane & Kant, 2016; Tarigan et al., 2020). (Tarigan et al., 2021; Basana et al., 2024; Basana et al., 2022; Govindan et al., 2014).

The fifth hypothesis is that the formulation of supply chain integration affects the green supply chain as much as it is accepted. The company's supply chain integration is formed by empowering external partners to enhance operations, evaluate programs, and produce environmentally friendly products, thereby improving the green supply chain. The results of this study support previous research (Siagian et al., 2022; Suryanto et al., 2018; Hartono et al., 2023; Siagian et al., 2023). Furthermore, the sixth hypothesis, which posits that supply chain practices affect the green supply chain, is also supported by this research. Supply chain practices by companies, which involve applying customer relationship management and building strategic partnerships, can improve green supply chains. The results of this study confirm previous studies (Suryanto et al., 2018; Al-Shboul et al., 2018; Gonzalez et al., 2022).

The seventh hypothesis, which posits that the formulation of supply chain integration affects firm performance, is supported by the empirical data of this study. These results demonstrate that the company's ability to assist external partners directly enhances its firm performance. These results also confirm previous studies (Basana et al., 2024; Siagian et al., 2023; Truong et al., 2017; Hartono et al., 2023; Wong et al., 2021). The following is the eighth hypothesis, which states that supply chain practice affects firm performance. Supply chain practice in the Company. Supply chain practice is formed in companies that produce green supply chains to improve firm performance. This research aligns with previous studies (Gandhi et al., 2017; Suryanto et al., 2018; Govindan et al., 2014). The ninth hypothesis states that the influence of the green supply chain affects firm performance. The company's green supply chain, by producing environmentally friendly products and demonstrating its concern for the environment, can enhance firm performance. These results confirm previous research (Adusei et al., 2023; Abdallah & Al-Ghwayeen, 2020; Sangwan & Choudhary, 2018; Siagian et al., 2022, 2023).

Although this study offers significant contributions to understanding the role of management commitment in enhancing firm performance through supply chain integration, supply chain practices, and green supply chain management, several limitations must be acknowledged. First, the sample size is relatively small, involving only 80 manufacturing firms in Indonesia, specifically located in East Java. This limitation may reduce the generalizability of the findings to the broader population of manufacturing firms, both within Indonesia and in other countries with different industrial characteristics. Second, data collection was conducted online via Google Forms, which is prone to respondent bias and lacks control over the conditions under which the questionnaires were completed. Third, the use of a cross-sectional research design only captures relationships at a single point in time, preventing the study from exploring temporal dynamics or drawing robust causal inferences. Additionally, this study did not incorporate potential moderating variables such as firm size, industry type, or level of technology adoption, which may influence the strength and direction of the examined relationships.

Considering these limitations, several future research directions are proposed to enrich the understanding of the relationships among management commitment, supply chain integration, supply chain practices, green supply chain management, and firm performance. First, future studies should consider using larger and more diverse samples across various industrial sectors and geographic regions to enhance the generalizability of results. Second, adopting a longitudinal research design would allow scholars to investigate the evolving nature of these relationships over time and

capture more accurate causal effects. Third, firm performance measurement should be complemented with objective indicators such as financial reports, operational efficiency metrics, and customer satisfaction scores to increase the validity of the findings. Moreover, future research could explore the influence of moderating variables, such as supply chain complexity, organizational culture, or digital capability, to better understand the conditions under which management commitment most effectively contributes to sustainable supply chain performance. By adopting a more comprehensive approach, future studies can offer deeper theoretical insights and practical implications for building adaptive, sustainable, and strategically committed supply chains.

5. Conclusions

This study aims to analyse the influence of management commitment on firm performance through the mediation of supply chain practices, supply chain integration, and green supply chain management. The results of the analysis can be summarized as follows: Management commitment to improving firm performance, supply chain practices, supply chain integration, and green supply chain management are key factors in enhancing firm performance. The results of this study provide insight to practitioners, especially at the management level, that company performance is greatly influenced by management commitment. In the context of supply chain management, management commitment is vital, especially in adopting approaches such as implementing supply chain management, integrating with external parties, and adopting environmentally friendly concepts, which are currently a global issue that business practitioners inevitably want to address. The company's ability to build supply chain integration by collaborating with partners in making informed decisions, engaging with external partners, and sharing knowledge enhances supply chain practices and promotes green supply chains. However, it does not have a direct impact on firm performance. The practical contribution of research is to enlighten company management and to be committed to motivating employees and improving skills as human capital assets. Company managers must establish adequate internal integration and involve external partners to focus on the company's internal needs, thereby making theoretical contributions to enrich the theory of green environments in producing economic and environmental performance.

6. Acknowledgments

The authors thank DRPM and Higher Education Indonesia for providing the postgraduate grant to fund this research, as per decision letter 0459/E5/PG.02.00/2024, contract number 109/E5/PG.02-OO.PL/2024 and 002/SP2H/PT/LL7/2024 and SP2H/PT/LPPM-UKP/2024

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