



# Sustainable social supply chain practices and firm social performance: Framework and empirical evidence

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## ABSTRACT

Concerns about social sustainability issues such as child labour, inequality, excessive overtime, and abusive working and living conditions in developing countries' manufacturing sectors have prompted an urgent study on sustainable social supply chain practices. The social pillar of sustainability has then been unnoticed, favouring the more regularly discussed environmental and economic dimensions. This study aims to expand the social sustainability framework to investigate the impact of sustainable social supply chain practices on firm social performance. The electronic survey was conducted on firms that adopted sustainable social practices. The 144 data sets were received from manufacturing firms. The data were analysed using structural equation modelling with PLS-SEM to examine domains and outcomes of sustainable supply chain practices. The result found that social supply chain practices impact the firm's social performance. However, the results indicate that the social element of sustainable procurement does not affect the firm social performance. The results show social fairness challenged manufacturing firms to comply with sustainable production and distribution. Most manufacturing firms are still not aware of their role and social responsibility to develop the local suppliers and community. Sustainability framework has proposed to raise awareness of sustainable practices that drive firms to implement sustainable social supply chain practices and leverage social performance. By being socially responsible, firms can gain improved brand awareness, a favourable corporate reputation, increased sales, observed firm growth and enhanced customer loyalty.

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## 1. Introduction

Sustainable supply chain management (SSCM) has gained popularity in recent years, attracting the attention of both academics and industry. As concerns about social consequences and environmental protection have grown, SSCM adoption has become a topic of interest in the manufacturing sector (Moktadir et al., 2018; Dai et al., 2021). However, among the three aspects of sustainability, the social pillar of sustainability has been overshadowed by the more frequently discussed environmental and economic dimensions. Understanding how firms affect people and society is critical to social sustainability. According to

Fernando et al. (2022a), awareness of the green economy influences people's behaviour and well-being in society. Firms that prioritise social sustainability recognise the importance of interactions with people, communities, and society. As a result, social sustainability principles are increasingly being incorporated into firms' operations and supply chain management plans, making it an essential component (Mani et al., 2018; Tseng et al., 2021; Yavari and Ajalli, 2021). Social-oriented supply chain practice leads to sustainable development initiatives that concern socially inclusive, resource efficiency and productivity. Sustainable social supply chain management (S3CM) treats people well and improves their quality of life while generating incomes without compromising environmental degradation.

According to Affolderbach (2022), the initiative on the green economy has established during a post-financial crisis. The industry should address the environmental, economic and social problems while generating incomes. The green economy is achieved when all stakeholders perceive benefits from sustainability outcomes. More jobs are created

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based on renewable energy, clean technology and material efficiency. The upstream and downstream flow in the supply chain to support the sustainable development initiative can create new green-related job opportunities and better financial contribution to the country's GDP. The global supply chain involves many people from various countries and has a large aggregate to contribute toward a green economy.

To move toward a green economy, it is necessary to focus on solutions to social problems. Liu et al. (2019) argued that labour conflicts, safety, and other social issues have become more prevalent. However, these issues have not been thoroughly investigated in the literature. Firms are drawn to implement sustainable practices and policies for various reasons, including stakeholder satisfaction, enhanced reputation, and increased competitive advantages (Baah et al., 2021). For instance, Fernando et al. (2021) argued that firms must have a distinct value proposition to compete globally. Focusing on the social domain of sustainability can help a company stand out from the crowd. Firms that emphasise the social domain of sustainability prioritises society and customers over the company's interests. The company's strategy must be based on consumer needs and community development's interests. This strategy makes the firm distinct and difficult for competitors to replicate, as many only see customers and society as sources of profit.

In the past, conventional supply chain strategy did not prioritise sustainability elements in practice, such as sustainable development, whether from an economic, social, or environmental standpoint. Firms must now comply with sustainability requirements due to increased stakeholder pressure. According to Govindan et al. (2020), firms have been prompted to consider the social consequences of their actions, among other pillars. As a result, integrating sustainable social practices into a company's operations is critical. Satyro et al. (2022) argued that in a rush for efficiency, performance, and competitiveness, the human element was overlooked, with sustainability relegated to a secondary role. As a result, the social dimension has been undervalued and understudied. In developing countries, the manufacturing industry frequently encounters social issues. Consider the recent Top Glove incident, which involved forced labour abuses. It has demonstrated that human rights, safety, and welfare issues are always present (Ding et al., 2018). As a result, it is necessary to investigate business practices' impact on employee safety and welfare. Each supply chain member has a critical role in achieving the long-term goal of improving social responsibilities within the firms and toward the community across firms' supply chains, whether direct (employees, vendors, and customers) or indirect (government and non-governmental organisations). The supply chain members that practice socially responsible initiatives contribute directly to community development. Opposite to this, the government plays an indirect role in monitoring social responsibility practices with enforcement. The successful implementation of social responsibility can assist the firm in achieving the long term goals. For example, the employees' morale and productivity are improved when the company takes care of them as they care for customers. In the same vein, sustainability with a socially responsible focus built a strong corporate image, customer satisfaction, and retention.

To improve long-term competitive advantages, firms have shifted their focus from the environment and social and ethical sustainability (Rajesh et al., 2021). During the COVID-19 crisis, the semi-conductor industry failed to anticipate the rapid demand for chip-based devices required for socially distant communication (Hervani et al., 2022). It implies that firms are unprepared for the unprecedented crisis, necessitating an investigation into firms' social performance to ensure that their operations do not hurt individuals or the community. Furthermore, despite the importance of supply chain sustainability and resilience, firms require more comprehensive and effective performance evaluation methods (Negri et al., 2021; D'Amico et al., 2021), highlighting the need to assess a firm's social performance. Furthermore, customers are putting pressure on businesses to develop more environmentally friendly and socially responsible products (Raoufi

et al., 2017). This necessitates the development of sustainable products and does not harm customers. Aside from that, today's consumers care more about how products are made, distributed, and the materials utilised and procured in ethical and safe ways. For example, suppose end-customers oppose the use of child labour. In that case, firms risk losing customers if their products are not produced ethically and following sustainable methods, whether at the manufacturer level or through supply chain partners such as suppliers.

This argument aligns with Fernando et al. (2019), where manufacturers create long-term partnerships with suppliers. However, because supply chain relationships change, relationship engagement in sharing best practices and jointly reviewing innovative approaches for new product development are required to achieve sustainability goals. In addition, supplier mishap influences manufacturers (Mani et al., 2016a, 2016b); a well-known example is Apple's supplier Foxconn, which has seriously impacted Apple's brand image (Zimmer et al., 2017).

Globally, societal issues continue to be a struggle. Labour issues, gender equality, health, and human rights, to name a few, are among the issues that the United Nations (UN) is constantly addressing (United Nations, 2021). According to Zhao (2021), with the economy's rapid growth and increased competition, an increasing number of business leaders and academics recognise the importance of having a good and healthy human resource attitude. Despite this interest, work-health research has largely been decontextualized. As a result, traditional occupational health literature lacks a thorough understanding of how labour contributes to health disparities (Fujishiro et al., 2021).

The social aspect is an important factor in regulating supply chain processes and influencing labourers' health and safety in community improvement (Klassen and Vereecke, 2012). According to Hadi et al. (2021), the International Labour Organization (ILO) study 2020 highlights the challenge surrounding occupational safety and health (OSH) issues, estimating that approximately 2.78 million employees die each year (7500 workers per day) due to work-related accidents and illnesses worldwide. As a result, the greatest challenge is a lack of OHS disclosure (OHSD) in the industrial sector, which necessitates evidence to investigate the quantity and quality of OHSD in low and middle-income countries (Fan et al., 2020). Firms need to be responsible and follow safety standards to ensure zero issues with occupational accidents. The current practice on employees' health and welfare is urgently needed for the investigation.

Furthermore, gender equality has emerged as a critical issue, particularly during the COVID-19 pandemic, where women are disproportionately affected by the unemployment problem (Reichelt et al., 2021). Aside from that, labour issues have always been a major topic, with concerns about child labour, long working hours, and the use of hazardous products, to mention a few. It is in line with Shanmugasundar et al. (2021) findings that the importance of employees' safety, working environment, and security in all aspects of corporate activity has been an imperative discussion in the industry. However, ensuring well-being and safety is not only the responsibility of employers. A combined effort and commitment to health and safety programmes by both the employer and the employees necessitates effective occupational health and safety practices. With the pandemic affecting businesses worldwide, safety has become vital in ensuring a smooth transition to business operations while prioritising safety for employees and consumers. However, there is a limitation in the number of studies in this field.

Furthermore, ethical business conduct is worth investigating. Procuring materials ethically, for example, is critical, as is the process of acquiring goods and services that take into account the social impact of such purchases on communities while still providing value. Product-harm incidents may negatively impact a firm's image, reputation, and trustworthiness (Pangarkar et al., 2022). For instance, usage of harmful materials, chemicals exposure to employees and disposal of waste are closely related to the safety and health of employees (Kamali et al., 2018; Awasthy and Hazra, 2019). According to Sutherland (2016),

firms are becoming more engaged in social concerns by paying more attention to issues like corporate social responsibility (CSR), brand reputation, transparency, and the social dimension of sustainability. However, according to [Chen et al. \(2020\)](#), the paths through which corporate philanthropy influences business performance are unknown; thus, it is worth exploring whether corporate philanthropy is a self-serving or charitable deed. It is also notable that there is a fine line between encouraging healthy philanthropy inside businesses and seeking tax incentives. Firms actively involved in philanthropy typically benefit from the tax deduction and exemption. Each country has a different policy on philanthropy activities and social welfare. The objectives of this study are twofold:

- To conceptualize the social impact of sustainable supply chain practices.
- To examine whether sustainable social supply chain practices impact firm social performance in the manufacturing industry.

This study extends the literature on the development framework and sustainable social supply chain measurements with several justifications. (1) This study conceptualises the social domains of sustainability and its measurements to understand the complex assessment of the sustainable social supply chain practices. The previous studies overlooked the social pillar of sustainability and frequently discussed environmental and economic performance as outcomes of sustainable supply chain practices; (2) This study develops the social sustainability framework to investigate the relational outcome of sustainable social supply chain practices on firm social performance. This study argues that the social sustainability framework needs to integrate into firms' operations and supply chain management strategies. The framework improves corporate social responsibilities to benefit the community development; and (3) Concerns with social sustainability issues on human trafficking, child labour, inequality, excessive overtime, using hazardous materials, abusive working and living conditions in developing countries, this study argues that the outcome has triggered the urgent study on the sustainable social supply chain practices. The framework of firm social performance has contributed to United Nations (UN) Sustainable Development Goals (SDGs) initiative to improve good health and well-being, reduce inequality and promote responsible consumption and production.

The framework is utilised to improve the industry's awareness of social issues. The results have provided information on developing a sustainability strategy and generating positive outcomes if firms are socially responsible. By being socially responsible, firms can gain improved brand awareness, a favourable corporate reputation, increased sales, observed firm growth and enhanced customer loyalty. [Yıldızbaşı et al. \(2021\)](#) argued that the social aspect had been neglected in the past. It has gained little attention compared to economics and environmental domains. This study argues that establishing a sustainable social supply chain framework is urgent to avoid abuse of human rights in the workplace. It is the firms' responsibility to provide better societal benefits. Firms with best practices on the sustainable social supply chain benefit from an excellent corporate image and avoid unnecessary costs and productivity.

This study is organised into six sections. The second section develops the conceptual model, while the third section details the methodology and data collection. [Section 4](#) presents the analytic results, followed by a discussion of the findings in [Section 5](#). [Section 6](#) concludes with a conclusion and implications section.

## 2. Literature review

The Natural Resource-Based View (NRBV) Theory has been utilised to identify the main variables and justify hypothesis development. This study introduces the four elements of sustainable social practices

to predict firm social performance. [Seuring and Müller \(2008\)](#) defined SSCM as managing flows of information, material and capital through collaboration among supply chain networks while taking into account three dimensions of sustainable development (economic, social, & environmental). SSCM approaches are associated with eco-oriented design, remanufacturing, inventory planning and systems. In addition, the SSCM has incorporated reverse logistics, waste management, remanufacturing, recycling, energy efficiency, and reduced emissions ([Ramudhin et al., 2010](#); [Tseng et al., 2021](#)). [Chen and Kitsis \(2017\)](#) expand it to include the strategic development of relational capacities, driven by extrinsic and internal causes, to continuously improve the performance of all network members in all three dimensions. Yet, the SSCM has frequently overlapped with social focus on socially responsible supply chain management practices. Finally, [Nichols et al. \(2019\)](#) have proposed additional elements to comply with human rights, safety, ethics, equity, health and welfare, etc. Those elements need to be incorporated during a series of supply chain flows, including R&D, procurements, production and distribution. As a result, these variables should be investigated further in this study.

### 2.1. Theoretical underpinning

The NRBV has been extended based on resource-based theory (RBV), which includes the environmental concern to improve the firm competitiveness. The approach has guided the firms to utilise eco-oriented resources to strengthen their competitive advantage. The firms need to integrate eco-friendly practices into their organizational strategies. The business strategy driven by NRBV as the underpinning theory leads the firm to better sustainable capability and performance. We argue that the NRBV theory is relevant to explaining the complex relationship among multi-domains of sustainable social supply chain management (S3CM) and firm social performance. According to [Hart \(1995\)](#), the NRBV has been established based on three interconnected initiatives. The first initiative is pollution prevention. The firms need to monitor and consistently reduce the waste, emissions and pollution in each stage of the supply chain. Product stewardship is the second initiative to utilise the circular materials and reduce the environmental impact for business survival and competitiveness. The last initiative is sustainable development. The firms have played an essential role in managing energy efficiency and declaring the environment friendly in the product label. Consumers only buy green products when society is flourishing and public awareness of the environment grows. Sustainable development is an effort to bring the outcome of firm best practices to benefit consumers and society. The social impact has driven the firm to promote the importance of quality of life among stakeholders and make an effort to eliminate the ecological issues.

NRBV theory has been widely used in previous studies. For example, [Farooque et al. \(2022\)](#) found that the NRBV has relevant theory to test the linkage between circular supply chain management and financial performance. In a similar vein, [Mcdougall et al. \(2022\)](#) argued that NRBV has theoretically fit to explain the relationship between competitive benefits and supply chain in the circular operations. In addition, supported by NRBV theory, [Agyabeng-mensah et al. \(2020\)](#) concluded that in today's business world, businesses can only achieve exceptional, long-term performance and competitive advantage by simultaneously exploiting, conserving and maintaining healthy stakeholder relationships. However, we argue that insufficient evidence in the literature focuses on the firm's social performance. The NRBV studies that predict complex drivers of the sustainable social supply chain on a firm's social performance are scarce.

### 2.2. Firm social performance

Measuring firm social performance is tricky, yet businesses must do so. Firms' social missions toward sustainable companies could be fulfilled if social performance is adequately managed. According to

Strand (1983), societal performance is defined as a response to anticipated or current social needs. On the other hand, social performance was defined by Ullmann (1985) as the degree to which firms meet the wants, expectations, and demands of external communities other than internal parties who were directly related to the firm's goods and markets. This study conceptualised a firm social performance as the firm's ability to achieve social goals and ethical business conduct in six domains, including equity, ethics, health and welfare, human rights, philanthropy, and safety. Consequently, firms are not able to achieve social performance that will have a negative impact on potential consumers and society's perception, especially on the corporate images, low productivity, spending more cost on promotions, penalties, and loss of star employees and loyal customers.

Firms have begun reporting corporate social responsibility programmes as a sign that they are socially engaged, but the success of such programmes is difficult to assess (Ullmann, 1985). One of the difficulties in measuring firm social performance is the technicalities, such as how firms can track their employees' volunteer efforts. There is no obvious indication of where to begin and end measuring a firm's social performance, whether internally or externally. The way firms' achievements are contributed back to society and stakeholders is how Bachiller and Garcia-Lacalle (2018) measure social performance. Durden (2008) presented that for-profit companies are still looking for the best way to quantify social performance. As a result, many businesses concentrate on financial metrics. One factor is that assessing social performance is highly subjective (Stevens et al., 2015). There is no consensus on the measurements of firm social performance. Although the without clear consensus among scholars on the measurement of the firms' social performance, Ayton et al. (2022), Chardine-Baumann and Botta-Genoulaz (2014) and Mani et al. (2016a, 2016b) have done some groundwork. This study has extended their works on the domains of social performance, and the discussion is as follows:

### 2.3. Equity

Equity is all about corporate fairness and how it affects society. According to Lieder and Rashid (2016), social sustainability refers to the firm compliance with employee health, safety, improved social conditions, and equity requirements. The social sustainability characteristics should embed equity elements and ensure no special privileges and rights in the workplace (Mani et al., 2016a, 2016b). Worker diversity is essential for supply chain sustainability and performance (Carter and Jennings, 2004). We argue that gender, income, ethnicity, community, country, religion, and geographical discrimination should not be a barrier to providing equal opportunity. Social justice is crucial because it encourages and strives toward a society that embraces variety and fairness. More equity and variety in society are beneficial because they encourage opportunity, growth, and social well-being.

### 2.4. Ethics

Changes in the social, political, and economic environments have increased uncertainty about ethical and socially responsible behaviour (Shafer et al., 2007). Ethics refers to a person's moral judgments about right and wrong according to social values, norms and beliefs. Individuals or groups may make decisions within a firm, but the organisation's culture influences the accountable person who makes the decision. Ethical behaviour and corporate social responsibility can major impact a business's success. Firms that embrace ethical behaviour can attract people to their products, increasing sales and profits. Firms are embracing ethical behaviour as a means of assuming societal duties. Employees would also want to stay with the companies, lowering labour turnover and increasing productivity. One of a company's most valuable assets, and one of the hardest to restore, is its reputation; as a result, firms need to promote ethical behaviour as a social performance measure.

### 2.5. Health and Welfare

Another aspect of social performance that can be measured is health and welfare. When companies prioritise their employees' health and welfare, it demonstrates that they care about their employees' overall health and future. Mani et al. (2016a, 2016b) postulated that the ability to comply with health and welfare requirements could aid in attracting and retaining top employees. The OHSAS 18000 certificate can guide the firms to comply with occupational safety and health. The firms need to ensure all employees have met the hygiene, health and safety standard. Blanc et al. (2022) argued that the health and safety executive had ensured better engagement between central and project teams on the importance of safety at work in supply chain briefings. Health and safety compliance prevents occupational injuries and employees' social well-being.

### 2.6. Human rights

Everyone has fundamental human rights without exception. Ideally, there is no compulsion and exploitation to produce products or services. Labour rights have been protected and regulated by each country where the company operates. Including a decent workplace, diversity, equality, security, expressing themselves, living in dignity etc. Global companies that get support from supply chain networks from various vendors and countries must carefully comply with each country of origin's international regulations and standards. According to Clarke and Boersma (2017), the global supply chain has extraordinarily long chains where consumers are not able to recognise where the source of raw materials comes from and who is involved in producing the products they consume. The firms need to ensure that every process that involves the supply chain does not violate human values and rights. The firms should respect the people's rights, and when the abuse happens within the supply chain operation, the firms should find the right solution immediately (Nakamura et al., 2022).

Furthermore, working in such a stressful and inhumane environment may lead to individuals committing suicide or harming themselves. Employees should have the right to express their concerns and actively monitor and negotiate their working and living conditions due to such situations.

### 2.7. Philanthropy

According to Bacon and Pitcher (1985), philanthropy is identical to "goodness" and "affecting the well-being of men," and it is defined as the habit of doing good and the desire to do good. Although philanthropy is about doing good deeds and giving back to society, the firm always intends to carry out such an act driven by mimetic behaviour as per its competitors. There is a contrast between act and actor in reformulating reputation in reaction to the corporate donation (Godfrey, 2005). When judging philanthropic giving, stakeholders would consider the size of the philanthropic act or the anticipated impact of the charity activities it funds and the firm's purpose for donating. In particular, if giving is seen as stemming from a genuine concern for social welfare, donating to a worthwhile cause returns a reputational dividend in the form of an increase in the firms' morale.

### 2.8. Safety

COVID-19 and the resulting changes in mobility have impacted millions of people worldwide. Due to government restrictions on mobility and voluntary movement restrictions for health and safety concerns, millions of workers have been forced to work from home to ensure their safety (Baah et al., 2021). Before that, safety was always the issue concerning the workers and society due to business operations. According to Zhang and Yang (2016), the employees have the right to refuse to work if the working environment does not safe. Therefore, personal



health and work safety are prioritised other than other aspects, including profit and operational costs. We argue that safety has part of coercive pressure. It can come from government regulations and international standards. The manufacturing firms are encouraged to ensure the supply chain processes and operations govern and comply with occupational safety and health standards. However, internal workforces are not the only ones who need to be safe. It is also linked to how firms should treat their customers by ensuring their health and safety by providing safe, healthy, and nutritious products. Lu et al. (2012) argued that the firms should ensure that their products are safe from faulty, contaminated and hazardous materials. We argue that both internal and external safety concerns should be addressed adequately.

## 2.9. Social sustainable supply chain practices

Sustainability in the supply chain has covered sustainable production, design, and distribution practices to improve performance within the triple bottom line (Esfahbodi et al., 2017). One of the three pillars of a sustainable supply chain is the socially responsible supply chain, which critically affects a firm's long-term prospects. Therefore, a social-responsible sustainable supply chain is necessary for any progressive firm's performance. Seuring et al. (2022) postulated that S3CM could explain social sustainability phenomena. However, the digital transformation has increased uncertainty on S3CM and the global business into social and environmental risks. Therefore, the adoption of S3CM can impact the positive corporate image and improve firm sustainability. The previous scholars have defined the S3CM in various ways. For example, Mani et al. (2015) defined the social supply chain by addressing the social issues in the upstream to the downstream supply chain. Klassen and Vereecke (2012) postulated that human security, community development and well-being should be covered while the firms involved in producing products and services. Therefore, the supply chain practices need to meet the human need, which involves firms in the supply chain (Golobic et al., 2020).

From the global context, the supply chain activities become complex and social footprints and demand flow requires better attention (Davis-Sramek et al., 2022). The previous studies have examined sustainable social practices in various industries (e.g. the leather industry - Moktadir et al., 2018; the agri-food industry - Rueda et al., 2017). Yet it remains without consensus on how the social sustainability practices are measured. Govindan et al. (2020) found that the focus discussion on social sustainability was lacking and needed further exploration. We argue that the social sustainability outcomes need to be carefully conceptualised and tested empirically in a wide range of sectors.

Morais and Barbieri (2022) have divided the three social issues according to supply chain priority; 1) remote social issues, 2) central social issues, & 3) peripheral social issues. The CSR and social supply chain have interchangeably been used in the literature and overlapped defined. In this study, we define the S3CM as ethically and responsibly supply chain practice to minimize and solve the social issues within internal and external companies. S3CM need to be adopted by all layers of supply chain members. The firms need to add sustainable value to each supply chain process, including procurement, design, production and distribution, benefit labour welfare, equity, health and safety, respect human rights, and actively contribute to community development and well-being.

## 2.10. Sustainable design

According to Raoufi et al. (2017), consumers are putting pressure on businesses to provide more sustainable products; hence, it forces firms to design sustainable and not harmful products. The influence of the end product on internal and external users is determined by sustainable design, which is an essential component of the social sustainability pillar. Furthermore, sustainable product design is gaining traction worldwide, and it is now defined as a multidisciplinary approach that

incorporates both product design and sustainability (Mehdi and Boudi, 2021). Years ago, the concept of making sustainable products was debated. Manufacturers, for example, are expected to design goods that utilise the least amount of resources and energy, promoting reuse, recycling, and recovery procedures, and hazardous commodities should be avoided or minimised during the manufacturing process (Zhu and Sarkis, 2006). It is because customers' comprehension of the relevance of sustainable design and its benefits to both humans and the environment is vital in adopting sustainable consumer behaviour (Horani, 2020). As a result, it is critical for manufacturers and supply chain partners to integrate sustainable practices into their operations.

In line with Wang et al. (2021), while manufacturers strive to do so on their own using internal sustainable design principles, suppliers' knowledge is increasingly being used in such efforts. The joint effort of manufacturers and suppliers would influence users' lives in need, which is the starting point for a human-centred design process that results in solutions that suit their needs. This technique leads to more gratifying products, processes, and surroundings that are better, safer, more pleasurable, more enduring, and liveable, closely linked to social improvement. Furthermore, Mehdi and Boudi (2021) posited that the product designer could spot environmental concerns in the product concept. The more efficiently the product can meet market expectations, it is crucial to discover, investigate, and prevent negative effects on the environment and impact on business performance. Typically, manufacturing activities starts from the design process. The safe design concept, in turn, ensures that employees and network systems are structured in a fair, secure, and enriching manner during product development. In addition, when creating a product, elements such as inclusion and equity, suitable work hours and time off, healthy work conditions, fair trade sourcing, and employee training must be considered. This indicates that despite knowledge of the growing importance of sustainable procurement practices, little is known about whether such activities improve a firm's social performance. We argue that sustainable design impacts the firms' social performance. The proper sustainable design considers the people's well-being and environmental impact as the priority and comply with social performance indicators such as equity, human rights, ethics, philanthropy, health and welfare and safety. Kolling et al. (2022) argued that the social focus of sustainability pillar to a better society. This study is postulated the review of literature into a few hypotheses.

**H1a.** : Sustainable design has a positive and significant impact on equity.

**H1b.** : Sustainable design has a positive and significant impact on ethics.

**H1c.** : Sustainable design has a positive and significant impact on health and welfare.

**H1d.** : Sustainable design has a positive and significant impact on human rights.

**H1e.** : Sustainable design has a positive and significant impact on philanthropy.

**H1f.** : Sustainable design has a positive and significant impact on safety.

## 2.11. Sustainable distribution

Sustainable distribution refers to any type of product movement that encompasses the end-to-end distribution process with the least environmental and social impact. This element is a developing societal concern that needs a proactive strategy linked to distribution and logistics (Ramos et al., 2014). Prior to that, Nikolaou et al. (2013) outlined some crucial indicators to reverse logistics systems, including policies to deal with all aspects of human rights, evaluation of the supply chain's

human rights performance, and employee training on practices concerning human rights. On the other hand, Ramos and Oliveira (2011) analysed unethical business conduct. They concluded that firms should prevent unethical behaviour by controlling fairness in workload arrangements to promote a sustainable strategy in terms of societal elements. To practice sustainable distribution, a widespread and practical use calls for sustainable distribution measures from the producer to the end-users (Singh et al., 2015; Yavari and Ajalli, 2021). Previous studies have investigated the impact of sustainable distribution on firm performance. However, the exploration is primarily concerning environmental issues.

Distribution or logistical channels have taken a new approach in today's digital world. Sustainable distribution consists of a firm's ability to adapt the sustainability principle and effectively manage the distribution channel and logistics activities. D'Amico et al. (2021) argued that a data-driven approach becomes an essential tool to incorporate digitalisation and support sustainable logistics development. Using the principle of sustainability, Melkonyan et al. (2020) explore the benefit of last-mile logistics and centralised distribution networks. It can lead to a crowd logistics concept and provide affordable logistics costs for customers. However, it is also vital for the supplier to have the same understanding of the distribution aspect expected by the manufacturer to conduct the same structure as manufacturing firms.

The vendor has contributed to the successful implementation of sustainable distribution. It is hand in hand with the firms to find the value-creating logistics processes, including upstream and downstream interconnections with end-users and suppliers (Johne and Wallenburg, 2021).

As safety is one of the societal issues, Gallo et al. (2021) have illustrated a support tool that calculates the time window during which products were exposed to harmful conservation temperatures and the influence on the product's life cycle and transportation-related carbon emissions. Despite many social issues that firms, customers and society have faced in a developing country, the impact of social performance is not commonly discussed among practitioners and scholars. Evans et al. (2022) found that community has influential power on a firm's corporate social performance. This study argues that the adoption of sustainable distribution assists the firm to achieve a significant impact on the firm social performance. It means that when the firms consider the energy-saving and green packaging in operations, it leads to environmental concern and better health, welfare, and product safety for consumption. In sum, this study argues that measurements of social issues were not widely explored in sustainable distribution. This study proposes the following hypotheses to be tested:

**H2a.** : Sustainable distribution has a positive and significant impact on equity.

**H2b.** : Sustainable distribution has a positive and significant impact on ethics.

**H2c.** : Sustainable distribution has a positive and significant impact on health and welfare.

**H2d.** : Sustainable distribution has a positive and significant impact on human rights.

**H2e.** : Sustainable distribution has a positive and significant impact on philanthropy.

**H2f.** : Sustainable distribution has a positive and significant impact on safety.

## 2.12. Sustainable procurement

The traditional procuring approach indicates that economic indicators were mostly the only criteria used to select vendors and suppliers.

However, today's emphasis on social and environmental concerns and stakeholder pressure has turned the focus away from profits and sustainability (Kumar et al., 2014). According to Kannan (2021), sustainable procurement introduces sustainability concepts into the procurement process using the triple bottom line method. Meehan and Bryde (2011) argued procurement is vital for sustainability since norms and practices must be extended beyond the confines of an organisation's activities by integrating end-to-end supply chains, which involve suppliers. Kalkanci et al. (2019) posited that inclusive sourcing necessitates collaboration with supply chain partners, leading to suggestions for adopting sustainability practices from other functions. Evolving sustainable development indicators for procurement, using comparatively more advanced environmental practices as a foundation to show how these elements impact socioeconomic and focusing on drivers that cause people to lose interest could result in changes in procurement behaviour. The result is inconsistent. The relationship between sustainable practices in the supply chain does not always directly improve financial performance (Esfahbodi et al., 2017). Besides cost, sustainable procurement usually becomes the first concern when the firms select the materials and vendors.

Sustainable procurement is an essential component of sustainable social practices since it aims to reduce or eliminate harm to people and the environment in the present and future; however, it must be properly managed. It is evident in a study conducted by Zaidi et al. (2021), who argued that developing countries are far behind in implementing sustainable procurement processes due to a lack of knowledge, policies, and training. Loosemore et al. (2021) outlined the drivers of social procurement implementation in Australian construction projects; however, the focus was not on how this practice would link to a firm's performance. The firms can benefit from this social procurement implementation in various ways, such as improved brand reputation, increased consumer loyalty, and lower product liability risk. Still, the social pillar of sustainable procurement, which is also closely linked to consumer safety, addresses society's impact through labour rights and compensation. It is in keeping with a firm's moral need to be responsible and a growing expectation by using sustainable purchasing practices consistent with social values and standards. Rodriguez-Plesa et al. (2022) argue that sustainable procurement involves intention and implementation activities to improve the community's social well-being. Sustainable procurement impacts the firm's social performance, including philanthropy, human rights, and ethics. This study proposes the following hypotheses based on the previous findings in the literature:

**H3a.** : Sustainable procurement has a positive and significant impact on equity.

**H3b.** : Sustainable procurement has a positive and significant impact on ethics.

**H3c.** : Sustainable procurement has a positive and significant impact on health and welfare.

**H3d.** : Sustainable procurement has a positive and significant impact on human rights.

**H3e.** : Sustainable procurement has a positive and significant impact on philanthropy.

**H3f.** : Sustainable procurement has a positive and significant impact on safety.

## 2.13. Sustainable production

Sustainable production consists of systems of production that integrate concerns for the long-term viability of the environment, worker health and safety, the community, and the economic life of a particular firm (Quinn et al., 1998). De Ron (1998) defined sustainable production

as an industrial production that generates products that meet today's societal requirements and desires without threatening future generations' ability to meet their own needs and ambitions. This is accomplished by taking all aspects of a product's lifespan. The industry has been driven to fulfil customer demand and generate profit. However, the industry also needs to create wealth for society and promotes long-term economic progress. The stakeholders should balance sustainable production and consumption by emphasizing resource and energy efficiency. Sustainable production can lead to a quality of life and a higher standard of living. Unfortunately, environmental pollution and carbon dioxide emissions have put pressure on the industry to practice sustainable production (Khattak et al., 2022). R. Zhao et al. (2012) and Z. Y. Zhao et al. (2012) indicated that safety concerns the end consumers and directly impacts the operators that manufacture the products if toxic materials are used during the manufacturing process. Ding et al. (2021) argued that eco-friendly with cost-saving technologies are enablers of sustainable production. However, previous studies did not look at the other elements of social issues. This study argues that sustainable production impacts the firm social performance. This study proposes the hypotheses as follows.

**H4a.** : Sustainable production has a positive and significant impact on equity.

**H4b.** : Sustainable production has a positive and significant impact on ethics.

**H4c.** : Sustainable production has a positive and significant impact on health and welfare.

**H4d.** : Sustainable production has a positive and significant impact on human rights.

**H4e.** : Sustainable production has a positive and significant impact on philanthropy.

**H4f.** : Sustainable production has a positive and significant impact on safety.

#### 2.14. Theoretical framework

Fig. 1 shows the multiple domains of sustainable social supply chain practices on firm social performance. By relying on the firm's NRBV, the framework is conceptualised. The framework proposes that increasing the adoption of sustainable social practices improves a firm's social performance, addressing equity, ethics, health and welfare, human rights,

philanthropy, and safety. Sustainable design practices, for example, have inimitable characteristics and rely on Hart's NRBV to describe the relationship between social performance and design. Adopting sustainable development strategies is investigated to see if they lead to a sustainable competitive advantage and enhance social performance. This study also intends to rely on product stewardship by prioritising resources in multiple domains such as sustainable design, distribution, procurement, and procurement practices throughout the firm's supply chain ecosystem. Social issues such as equity and ethical business conduct, advocating for human rights, health and welfare, safety aspect and contributing back to society through philanthropy are addressed. This study has responded to the Govindan et al. (2020) calls for further investigation on balancing social supply chain practices and performance improvement using NRBV as the underpinning theory.

### 3. Methods

Using an electronic survey, this study employed a quantitative approach. The primary benefit of sending the electronic survey is that large geographic areas could be covered with minimum costs and shortest time. The target population was identified based on manufacturing firms registered with the Federation of Malaysian Manufacturers (FMM) 2021 directory. The primarily targeted respondents in this study are in managerial positions. Therefore, this study's unit of analysis is firm as the organizational unit, with the primary respondents being managing directors and executives at the strategic level to represent their respective organisations. Firm as unit analysis can provide comprehensive feedback on how effective the S3CM has been implemented and impact the firm social performance.

Stratified random sampling, a type of probability sampling, is applied to achieve the research objectives. This sampling approach was selected because it is the most efficient, as it effectively samples all groups and allows for comparison. By applying stratified random sampling, the population is divided into meaningful segments (Fernando and Wah, 2017). Since the sample is heterogeneous with various sector sectors in the manufacturing industry, we conducted the survey using the stratified random sampling approach (Fernando et al., 2022b). Some steps were taken to select the respondent using a stratified random sampling technique. First, the FMM directory was observed to find information on the firm involved in sustainability practices. Next, we randomly contacted their willingness to participate in the survey. Then, the top management, which represents the firm, was classified as stratification with certain sample size.

We have attached a cover letter to the questionnaire to get more support from the industry. It explained the purpose and description.

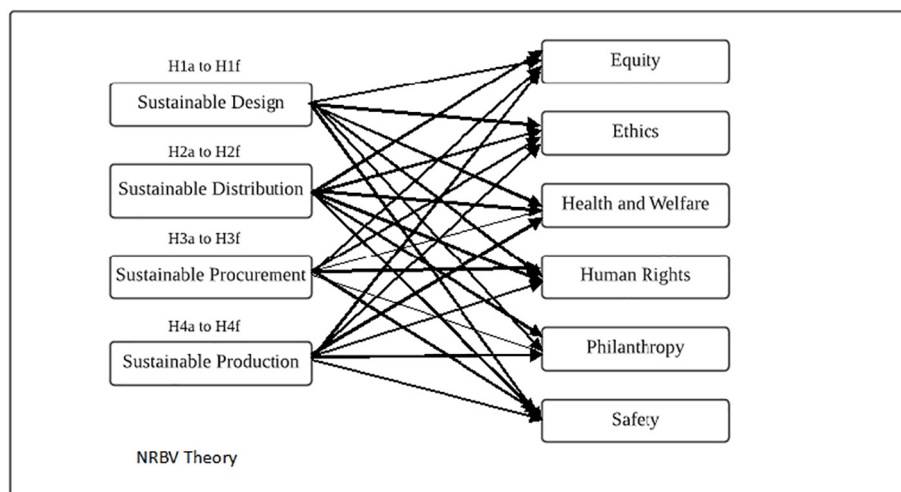


Fig. 1. Theoretical framework.

We have designed a questionnaire section and requested the necessary response to avoid missing data. Thus, respondents must answer each question in each area before going to the following questions or sections. Filtered questions about whether firms adopt sustainable social practices and how firms evaluate the importance of social development initiatives were added. If these questions were not answered, respondents could not move on to the next question. After receiving the questionnaire, all responders are given a two-week grace period to complete it and submit it online. One week after the first mailing date, follow-up calls and emails are made to guarantee a higher data collecting response rate. On the other hand, missing data responses are not included in the analysis.

This study has adapted the set of measurements from previous studies. For example, sustainable social practices were adapted from Lu et al. (2012) and Marshall et al. (2015). In addition, we have adapted measurement indicators for equity from Das (2017), Lu et al. (2012) for ethics, and Mani et al. (2016a, 2016b) for health and welfare as well as human rights. Besides, measurement indicators were adapted from Chardine-Baumann and Botta-Genoulaz (2014) for philanthropy and safety from Lu et al. (2017). We have conducted the pre-test to ensure the adapted measurement items meet content validity requirements. Based on the feedback from the pre-test, the industry participants have requested a simple and easy-to-understand statement in the questionnaire. Therefore, we have amended the unnecessary and lengthy statement for the actual survey. IBM SPSS 25 was deployed for the demographic data, while the model validity and hypothesis testing utilised PLS-SEM 3.3.3. This study argues that PLS-SEM has more accurate prediction power to examine the complex research framework and answer the research objectives. Moreover, PLS-SEM can assist us in extending the concept of firm social performance.

#### 4. Results

A soft copy of the questionnaire was provided to seven hundred respondents in this study. One hundred and forty-four people completed the electronic survey and returned them, resulting in a 20.6% response rate. Table 1 shows the respondents' profiles representing the firms

**Table 1**  
Firm profile.

Demographic	Categories	Overall	
		Frequency	Percentage
Type of industry	Automotive	21	14.6
	Chemical	12	8.3
	Electrical/Electronics	61	42.4
	Food and Beverages	22	15.3
	Industrial Machine	4	2.1
	Rubber		
	Medical/Pharmaceutical	16	11.1
	Metal	4	2.8
	Oil and Gas	5	3.5
Type of product	Consumer Product	34	23.6
	Industrial Product	110	76.4
Ownership status	American-based Firm	16	11.1
	European-based Firm	15	10.4
	China-based Firm	3	2.1
	Japanese-based Firm	12	8.3
	Local and Foreign Joint Venture	37	25.7
Most important social responsibility activities of your firm	Malaysian Fully Owned	61	42.4
	Building a safe and secure work environment	51	35.4
	Local community development	17	11.8
	Promote charitable giving	13	9
	Promote environmentally friendly products to society	31	21.5
	Promote fair business activities	21	14.6
	Promote volunteering in the community	11	7.6

participating in the survey when measuring sustainable social supply chain methods in achieving firm social performance.

The results found that the majority of respondents are in the middle to upper management positions, such as senior manager/head of the department (41.7%), general manager/managing director (15.3%), R&D manager (9.7%), environmental health and safety (EHS) manager (18.8%), and chief executive officer (2.8%). In addition, we found various types of manufacturing sectors participated in the study. The company profile shows in Table 1. Most firms have participated in the survey came from the electric and electronics sector (42.4%), followed by food and beverages (15.3%), automotive (14.6%), medical/pharmaceutical (11.1%), chemical (8.3%), oil and gas (3.5%), metal (2.8%) and industrial machine rubber at 2.1%. One hundred ten firms produced industrial products (76.4%), and 34 firms produced consumer products (23.6%). Malaysian fully owned firms were the major respondents (42.4%), followed by local and foreign joint venture firms (25.7%), American-based firms (11.1%), European-based firms (10.4%), Japanese-based firms (8.3%) and a handful number of China-based firms (2.1%). With regards to the most important social responsibilities of the firms, building a safe and secure work environment is the most important responsibility (35.4%), followed by promoting environmentally friendly products to society (21.5%), promoting fair business activities (14.6%), local community development (11.8%), promoting charitable giving (9%) and promoting volunteering in the community (7.6%).

**Table 2**  
Results of convergent validity.

Item	SFL	Composite reliability	Average variance extracted (AVE)
EQT1	0.992	0.981	0.944
EQT2	0.965		
EQT3	0.957		
ETH1	0.955	0.943	0.847
ETH2	0.885		
ETH3	0.920		
HAW1	0.905	0.963	0.868
HAW2	0.953		
HAW3	0.954		
HAW4	0.915	0.981	0.946
HRT1	0.967		
HRT2	0.968		
HRT3	0.982	0.934	0.779
PHL1	0.852		
PHL2	0.916		
PHL3	0.906	0.973	0.878
PHL4	0.855		
SDG1	0.965		
SDG2	0.953	0.916	0.731
SDG3	0.931		
SDG4	0.864		
SDG5	0.967	0.944	0.808
SDT1	0.832		
SDT2	0.881		
SDT3	0.826	0.978	0.937
SDT4	0.879		
SFY1	0.863		
SFY2	0.912	0.987	0.938
SFY3	0.929		
SFY4	0.889		
SPC1	0.988	0.978	0.937
SPC2	0.965		
SPC3	0.951		
SPR1	0.962	0.987	0.938
SPR2	0.980		
SPR3	0.964		
SPR4	0.969	0.987	0.938
SPR5	0.969		

Note: SFL = standardized factor loadings; SDG = Sustainable Design; SDT = Sustainable Distribution; SPC = Sustainable Procurement; SPR = Sustainable Production; EQT = Equity; ETH = Ethics; HAW = Health and Welfare; HRT = Human Rights; PHL = Philanthropy; SFY = Safety.



We have presented the convergent validity results in Table 2. Convergent and discriminant validity were used to assess the validity of measurement constructs. The cut-off values for all standardized factor loadings were greater than 0.70. Then, we have utilised the cut-off value of 0.70 for the Composite Reliability (CR) (Hair et al., 2019). The average Variation Extracted (AVE) evaluates variance using indicators relative to measurement error. It is suggested by Hair et al. (2019) that the AVE cut-off value must be more than 0.50. We can conclude that a convergent validity condition was established in this research model ( $SFL > 0.70$ ;  $CR > 0.70$ ;  $AVE > 0.50$ ).

Henseler et al. (2015) recommended the HTMT ratio approach for discriminant validity. It is necessary to assess constructs and avoid the highly related domain triggering multicollinearity issues. The results show that HTMT scores are within the acceptable range ( $\leq 0.85$ ). The HTMT values were ranged from 0.153 to 0.783 (Table 3). We can conclude that there is enough evidence to establish reflective constructs in the research model.

With 144 samples, we have tested the research hypotheses. The bootstrapping procedure was deployed, and tests the relational for each variable in the theoretical framework with 5000 subsamples. We have examined an assessment of the confidence intervals prior to hypothesis testing with a 95% confidence level. The estimation of the interval level uses lower and upper bounds. The approved  $t$ -value cut-off is greater than 1.65 (direct path). Table 4 shows the results of hypothesis testing.

The relationship between sustainable design and firm social performance has been tested and postulated in hypotheses H1a to H1f. The relationship between sustainable design and equity was supported and significant ( $\beta = 0.354$ ;  $t$ -value = 2.825). We found that the relationship between sustainable design and ethics compliance was positive and significant ( $\beta = 0.561$ ;  $t$ -value = 4.105). H1a and H1b are accepted.

H1c depicts the relationship between sustainable design and health and welfare. The result shows negative relationship and not significant ( $\beta = -0.042$ ;  $t$ -value = 0.539). H1c is rejected. H1d predicts the relationship between sustainable design and human rights. The result shows H1d was supported ( $\beta = 0.18$ ;  $t$ -value = 1.953). H1e depicts the relationship between sustainable design and philanthropy performance. We found that the relationship is not significant ( $\beta = 0.21$ ;  $t$ -value = 1.621). H1e is rejected. The H1f is accepted and empirically proves that sustainable design and safety compliance are positively interconnected ( $\beta = 0.298$ ;  $t$ -value = 2.737).

The following hypotheses are about the relationship between sustainable distribution and firm social performance. H2a, which predicted a correlation between sustainable distribution and equity compliance. We found that the result was insignificant ( $\beta = 0.11$ ;  $t$ -value = 1.399). The relationship between sustainable distribution and ethics is depicted in H2b. We found that H2b was also insignificant ( $\beta = 0.066$ ;  $t$ -value = 1.026). H2a and H2b are rejected. The relationship between sustainable distribution and health and welfare has been

postulated in H2c. We found the result was positive and significant ( $\beta = 0.641$ ;  $t$ -value = 9.324). H2c is accepted. H2d predicts the relationship between sustainable distribution and human rights. Unfortunately H2d is rejected ( $\beta = 0.047$ ;  $t$ -value = 0.822). We have examined the direct relationship between sustainable distribution and philanthropy (H2e). The result was significant and supported ( $\beta = 0.277$ ;  $t$ -value = 3.407). H2f examines the link between sustainable distribution and safety. We found H2f was accepted and significant ( $\beta = 0.25$ ;  $t$ -value = 3.433). H2e and H2f are accepted.

This study investigates the relationship between sustainable procurement and firm social performance. We found a positive and significant relationship between sustainable procurement and equity. The H3a is supported and significant ( $\beta = 0.38$ ;  $t$ -value = 3.486). Hypotheses H3b to H3f, on the other hand, are all rejected and insignificant. The relationship between ethical and sustainable procurement was insignificant ( $\beta = 0.075$ ;  $t$ -value = 0.685) and reject H3b.

The relationship between sustainable procurement and health and welfare is depicted in H3c. It was not supported and was not significant ( $\beta = -0.036$ ;  $t$ -value = 0.542). H3d predicts the relationship between sustainable procurement and human rights. H3d was rejected unsupported ( $\beta = 0.038$ ;  $t$ -value = 0.627). H3e was rejected and concluded there is no relationship between philanthropy and sustainable procurement ( $\beta = 0.104$ ;  $t$ -value = 0.979). H3f predicts the relationship between sustainable procurement and safety. H3f was not significant and rejected ( $\beta = 0.036$ ;  $t$ -value = 0.487).

The final hypotheses have postulated the relationship between sustainable production and social performance. The relationship between sustainable production and equity was insignificant ( $\beta = 0.067$ ;  $t$ -value = 0.78). H4a is rejected. The correlation between sustainable production and ethics has been postulated in H4b. We found that H4b was insignificant and rejected ( $\beta = 0.079$ ;  $t$ -value = 0.726). We found that H4c was accepted since there is enough evidence to conclude that sustainable production impacts health and welfare performance ( $\beta = 0.243$ ;  $t$ -value = 2.547). H4d was supported as the relationship between sustainable production and human rights positively related ( $\beta = 0.650$ ;  $t$ -value = 7.801).

We have examined the relationship between sustainable production and philanthropy performance. The result was statistically significant ( $\beta = 0.268$ ;  $t$ -value = 3.024) and accept H4e. The statistical test examined the relationship between sustainable production and safety. We found that the result was insignificant ( $\beta = 0.38$ ;  $t$ -value = 4.276) and rejected H4f.

## 5. Discussion

Social oriented sustainable supply chain practices are discovered to be favourably associated with firm social performance. The result shows that the social domains of social supply chain management are valid and reliable. The social sustainability framework has been

**Table 3**  
Results of discriminant validity (HTMT 0.85 criterion).

	EQT	ETH	HAW	HRT	PHL	SFY	SDG	SDT	SPC	SPR
EQT										
ETH	0.478									
HAW	0.314	0.430								
HRT	0.508	0.554	0.377							
PHL	0.485	0.540	0.434	0.540						
SFY	0.539	0.598	0.486	0.700	0.783					
SDG	0.697	0.727	0.382	0.612	0.591	0.689				
SDT	0.384	0.398	0.769	0.412	0.552	0.592	0.483			
SPC	0.666	0.491	0.153	0.424	0.412	0.440	0.636	0.205		
SPR	0.471	0.479	0.470	0.803	0.567	0.695	0.581	0.407	0.403	

Note: SDG = Sustainable Design; SDT = Sustainable Distribution; SPC = Sustainable Procurement; SPR = Sustainable Production; EQT = Equity; ETH = Ethics; HAW = Health and Welfare; HRT = Human Rights; PHL = Philanthropy; SFY = Safety.

**Table 4**  
Structural model results.

Hypothesis	Path	Std $\beta$	Std error	t-Value	p-Value	Decision
H1a	SDG $\rightarrow$ EQT	0.354	0.125	2.825	0.005	Supported
H1b	SDG $\rightarrow$ ETH	0.561	0.137	4.105	$p < 0.001$	Supported
H1c	SDG $\rightarrow$ HAW	−0.042	0.078	0.539	0.590	Not supported
H1d	SDG $\rightarrow$ HRT	0.180	0.092	1.953	0.051	Supported
H1e	SDG $\rightarrow$ PHL	0.210	0.129	1.621	0.106	Not supported
H1f	SDG $\rightarrow$ SFY	0.298	0.109	2.737	0.006	Supported
H2a	SDT $\rightarrow$ EQT	0.110	0.078	1.399	0.162	Not supported
H2b	SDT $\rightarrow$ ETH	0.066	0.065	1.026	0.305	Not supported
H2c	SDT $\rightarrow$ HAW	0.641	0.069	9.324	$p < 0.001$	Supported
H2d	SDT $\rightarrow$ HRT	0.047	0.057	0.822	0.411	Not supported
H2e	SDT $\rightarrow$ PHL	0.277	0.081	3.407	0.001	Supported
H2f	SDT $\rightarrow$ SFY	0.250	0.073	3.433	0.001	Supported
H3a	SPC $\rightarrow$ EQT	0.380	0.109	3.486	0.001	Supported
H3b	SPC $\rightarrow$ ETH	0.075	0.110	0.685	0.494	Not supported
H3c	SPC $\rightarrow$ HAW	−0.036	0.066	0.542	0.588	Not supported
H3d	SPC $\rightarrow$ HRT	0.038	0.061	0.627	0.531	Not supported
H3e	SPC $\rightarrow$ PHL	0.104	0.106	0.979	0.328	Not supported
H3f	SPC $\rightarrow$ SFY	0.036	0.074	0.487	0.627	Not supported
H4a	SPR $\rightarrow$ EQT	0.067	0.085	0.780	0.436	Not supported
H4b	SPR $\rightarrow$ ETH	0.079	0.110	0.726	0.468	Not supported
H4c	SPR $\rightarrow$ HAW	0.243	0.096	2.547	0.011	Supported
H4d	SPR $\rightarrow$ HRT	0.650	0.083	7.801	$p < 0.001$	Supported
H4e	SPR $\rightarrow$ PHL	0.268	0.089	3.024	0.003	Supported
H4f	SPR $\rightarrow$ SFY	0.380	0.089	4.276	$p < 0.001$	Supported

Note: SDG = Sustainable Design; SDT = Sustainable Distribution; SPC = Sustainable Procurement; SPR = Sustainable Production; EQT = Equity; ETH = Ethics; HAW = Health and Welfare; HRT = Human Rights; PHL = Philanthropy; SFY = Safety.

confirmed to improve firms focused on social performance. This study argues that the framework can contribute to SDGs initiatives to improve community health and well-being, reduce inequality and lead to responsible production and consumption. Sustainable can help manufacturing firms improve their social performance in equity, ethics, health and welfare, human rights, philanthropy, and safety. It is critical for businesses to adopt sustainable practices, including focusing on their supply chain partners to address stakeholders' needs while adhering to rules, social obligations, and meeting customer demands (Govindan et al., 2020; Govindan et al., 2021).

This study argues the relevance of the findings on sustainable distribution strategies in improving a firm's social performance. These relationships were positively correlated by addressing health and welfare, philanthropy deeds, and people's safety. According to the findings, firms should consider employing non-harmful transportation and packaging for cost savings, and some benefits can give back to society or charitable acts. It is in line with Hulthén and Gadde (2009) finding that improvements in logistics, production, and information interchange have enabled novel distribution strategies. As a result, this method benefits both communities and firms by enhancing distribution efficiency and effectiveness. This finding is consistent with Ashenbaum and Maltz (2017), where supply chain partners have to work together to implement sustainable distribution and ensure their distribution is valuable and safe for customers and communities.

In contrast, firms' equity, ethics, and human rights are irrelevant when implementing a distribution strategy. Sustainable distribution involves a series of processes, including storage, inventory, custom and delivery, that need to consider the social issues. For example, the firms can promote energy-saving vehicles or machinery to solve community issues on climate change. Therefore, it is critical to ensure personnel involved in the sustainable distribution are free from discrimination, corruption, unethical conduct, and human rights issues.

This study found no evidence of the impact of sustainable procurement on firm social performance. According to the findings, the hypotheses are refuted, where ethics, health, welfare, human rights, philanthropy, and safety are all immaterial when sourcing materials. It could be because such a practice is new to the firms. We argue that most companies conventionally purchase from suppliers, focused on the best available price, which emerging or developing countries often

give. Horn et al. (2014) suggest that, from an economic standpoint, global sourcing is more predictable and advantageous than many practitioners believe, even when the social ramifications are taken into account. As a result, sustainable procurement has not impacted firm social performance. Since this study is based on a developing context, we found that the procurement function remains focused on the low cost. Firms are less interested in local vendors because they are less competitive than global vendors. Therefore, it is necessary to consider the proportionate supply from a local vendor for social responsibility and development purposes. We argue that the firms need to find alternatives to get the materials from local vendors and develop them when necessary. Therefore, it is timely to consider the local vendor's social responsibility instead of only focusing on cost-oriented procurement.

This study found a positive relationship between sustainable production and firm social performance. Except for equity and ethics, all other hypotheses showed a positive association in the analysis. Societal value is placed on companies who practise sustainable production because they project a positive image of their dedication to the environment and society. It is clear in the instance of Apple, which suffered sales losses due to suicide and an issue with underage labour practices at its supplier, Foxconn (Zimmer et al., 2017). Employee morale improves due to firms' safe production processes, as will the health and safety of workers participating in the manufacturing process. When hazardous compounds are utilised during the production process, it affects the end-users and the operators who make the items (R. Zhao et al., 2012; Z. Y. Zhao et al., 2012). As a result, sustainable production must be factored into measuring a firm social performance. We argue that the significant result has been reflected in the firms' ability to comply with international standards and best practices on sustainable production, which is able to provide a better place to work. Unfortunately, equality and ethical issues continue to be social issues in developing countries like Malaysia.

This study found a positive path from sustainable design to firm social performance. This study found a positive correlation between sustainable design and equity, ethics, human rights, and safety, implying that manufacturers must consider designing goods that will not harm current and future generations. It has been demonstrated in cases where major products have been recalled due to design flaws (Sodhi and Tang, 2012). Improvements in quality of life, health, and well-

being are linked to sustainable design. When a producer creates a product, the safety of things developed for long-term value is crucial. Firms should prevent any potential threat posed by the negligent product, process, or standard creation.

In contrast, health and welfare and philanthropy are negatively associated with sustainable design. When it comes to the health and welfare of end-users, manufacturers often develop products based on economic gains rather than societal implications. As a result, these components do not enhance a firm's social performance by developing sustainable products. This study has extended the NRBV theory with a few justifications as part of theoretical implications. First, the firm's social performance is not a burden for the company to fulfil social responsibility. On the contrary, it is an achievement and ensures the company has gained another side of competitiveness. Second, this study argues that society and consumers have a good perception to strengthen the firm's brand image when social responsibility is fulfilled. It implies that the firms have a great concern and contribution to employees, consumers and society. Third, the findings have strengthened the NRBV to explain how the firm manages the natural-based resource to improve competitiveness and performance and assist the firm in complying with corporate social responsibility requirements. Although the previous studies have initiated the relationship between sustainable social practices and social performance, there has been relatively little research with comprehensive frameworks that can provide empirical conclusions. The sustainable social supply chain framework has been validated to fulfil less empirical evidence to conceptualize the firm's social performance impact.

In terms of practical contributions, manufacturing firms can use the framework offered by this study to embrace sustainable social practices while meeting customer demands and enhancing their performance. It can encourage managers to regulate supply chain business activities without harming and meeting the social expectations simultaneously. Because the findings show that sustainable design, distribution, and production impact a firm's social performance, manufacturing firms should support or prioritise these social practices in their operations. It has been proven that incorporating sustainability into product design, distribution strategy, and setting standards that emphasise labour safety, health, and welfare during the manufacturing process benefits both the company and its customers. Firms may, for example, increase product quality and delivery time by putting logistical integration within reach and adopting environmentally friendly packaging and distribution. Furthermore, the findings of this study could aid firms in increasing sales, developing successful product branding, and contributing to social sustainability. This study can also improve firms' ability to address the challenges put forward by stakeholders, which can be promoted by strengthening sustainable practices.

## 6. Conclusion

This study is examined the framework postulated the relationship between sustainable social supply chain practices and firm social performance. The conceptual framework in the survey is supported by NRBV theory. This study argues that firm social performance can be measured by embracing equity, human rights, ethics, health and welfare, philanthropy, and safety indicators that lead to competitive advantage. This study found that S3CM domains, including sustainable design, distribution, and production, are positively associated with firm social performance. Furthermore, firms benefit from implementing these practices to improve their social measurement in their operations. Theoretical knowledge has extended to firm social performance and its enablers. The NRBV has extended to integrate socially responsible practices as part of firm resources to improve competitive advantage.

This study extends the literature on the availability of social performance measurement, which had previously been limited empirically. This study has addressed the lack of consensus on measuring social performance, and it has been demonstrated that the theoretical and

knowledge foundation has been expanded. Since literature is scarce on sustainable social practices in developing countries, this study can assist social supply chain management Studies in understanding how to evaluate sustainable social aspects using this framework. This study has some limitations that can be improved for future studies although this study has theoretical and practical contributions. The industrial directory could not provide information to identify the target respondents. Future studies need to analyse the sustainability report to capture secondary data on the firm's social performance. Apart from that, respondents were not familiar with the single focus on social sustainability practice and usually measured firms' achievement on the aggregate triple bottom line. It is necessary to provide a short case or more information before requesting participants to respond to the survey.

The adoption of Industry 4.0 has an emerging trend in developing countries since its usage has improved the manufacturing industry's productivity (Fernando et al., 2022c). Therefore, we do not include the impact of Industry 4.0 and its effect on the social performance indicators. However, future studies can incorporate the Industry 4.0 drivers to extend this model.

This study only focuses on the manufacturing firms and suggests that future research should include the service sector in the study. Different industries' sustainability activities impact their social responsibility practices and performance to improve the firm competitiveness, which is worth further investigating. In addition, future research should consist of cross-cultural, such as comparative practices and outcomes in other developing countries.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.spc.2022.04.020>.

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