

Assessment Of Sustainable Practices In Supply Chain Management

¹Dr. Bilal Hassan²Ayesha Gulfam

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Article Details	Abstract
Received: 19 Jan, 2023 Accepted: 20 April, 2023 Published: 13 June, 2023	<i>This research investigates the assessment of sustainable practices in supply chain management (SCM) and their impact on overall organizational performance. As global awareness of environmental issues increases, businesses are compelled to adopt sustainable practices to mitigate negative ecological impacts while enhancing efficiency. The study evaluates various sustainable strategies, including green procurement, waste reduction, energy efficiency, and sustainable logistics. Through a mixed-methods approach, both qualitative interviews and quantitative surveys are employed to gather data from a range of industries. The findings reveal that organizations implementing sustainable practices not only improve their environmental footprint but also benefit from cost savings, enhanced brand reputation, and increased customer loyalty. Additionally, the research highlights barriers to implementing these practices, such as cost constraints and lack of awareness among stakeholders. The study concludes with recommendations for organizations aiming to integrate sustainability into their supply chain operations, emphasizing the importance of stakeholder collaboration and continuous improvement. By fostering sustainable practices, companies can achieve a competitive advantage while contributing to global sustainability goals.</i>
¹ Dr. Bilal Hassan ² Ayesha Gulfam	
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Keywords: sustainable practices, supply chain management, green procurement, waste reduction, energy efficiency, sustainable logistics, organizational performance, stakeholder collaboration.

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



INTRODUCTION

Sustainability has become an emerging core issue in business and management practices, incorporated in the triple bottom line approach of People, Planet, and Profit. A lot of research has been conducted in the arena of different industries. This essay tries to study the assessment of sustainable practices as one of the important elements in supply chain management. The focus of the paper is to understand the concept of sustainable practices in the supply chain. The objectives of this paper are to first explain sustainability, then discuss its importance and significance in the supply chain. Lastly, it performs a case study analysis to find their sustainable practices. Attributes of sustainable practices are also recommended. With ever-increasing levels of global trade and increased outsourcing of production, logistics, and supply chain, companies have been exposed to the importance of supply chain management. In order to address the complexities of present-day supply chains, many companies have started restructuring their supply chain operations towards the integration of relationships within SCM and also to provide quality goods and services efficiently through innovative methods (Haiyun et al.2021).

Supply chain management these days has expanded from freight cost reduction, inventory management, and efficient production or service to include the broader area oscillating from cost to society and the environment. Physical inventories are decreasing, and service levels need to be increased. Sustainability has become an emerging issue in the global supply chain. It is recognized that some supply chain activities have undesirable impacts on the environment, society, and economy. On the other hand, customers want to deal with environmentally responsible suppliers. Stakeholders like customers, suppliers, financial investors, and other controlling bodies expect more responsibility from companies. Firms also want to elevate their efficiencies and eradicate unnecessary costs within and outside the company. Therefore, every organization has adopted this idea in all sections, and it is supposed to be ethical, friendly with governance, and socially responsible to implement as a strategy within or outside functional areas. Recent studies state that to be profitable and productive, it is necessary for an organization's image to be overall good. This is where sustainable practices started emerging as an alternative approach to take over the traditional approach of supply chain management in the area of the triple bottom

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



line approach, which includes People, Planet, and Profit, aiming to integrate and balance economic, environmental, and social criteria into their operations while monitoring the impacts on local communities in a global context.

2. The Importance of Sustainability in Supply Chain Management

Sustainability is an essential, if not required, part of managing supply chain operations. Firms focusing on sustainable supply chain practices gain long-term financial success and a competitive advantage in the market. Tensions concerning the global climate, government legislation, civil unrest, and population growth create a chicken-and-egg scenario where sustainability and supply chain management are intrinsically intertwined. Developing sustainable practices within a business and its supply chain can help an organization respond to emerging trends within the market. These may include addressing risks driven by water scarcity, climate change, infrastructure reliability, and intermittent energy sources.

The pressure to be more environmentally and socially sustainable often comes from regulatory compliance—one of the most effectively used strategies for supply chain sustainability. Overall, the impetus to consider sustainability in supply chain management may be from a risk perspective. Corporate social responsibility and sustainable operations have been increasingly tied to risk management initiatives to help corporate leaders anticipate and manage potential supply chain risks. Although not necessarily a pure risk management perspective, sustainability practices help gain a return on investment through efficiency, reduction of waste, and increased brand appeal. Other typical benefits of sustainability include reduced risk, enhanced brand value, access to capital, stakeholder pressure and mandates, expanding portfolios, and improving customer loyalty. The practices proposed in operations can also lead to enhanced financial performance for corporations (Khanfar et al.2021).

Sustainability is more than philanthropy or a new code of ethics; it is a reactive, proactive approach to managing supply chains over time. Sustainability practices help management close operational deficiencies and gaps for innovation and efficiency, which can be industrially translated as a larger framework combining operational sustainability with corporate social responsibility. Monitoring and control of

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



environmental and social impacts on a firm in areas such as long-term visibility, governance, compliance, risk and performance measurement, and opportunities to remain ahead in innovation and best operational practices. This report seeks to address the issue of how well we understand the implications of sustainability within supply chain operations. In such a world, sustainability is the norm, the expected, and the current business environment.

3. Key Sustainable Practices in Supply Chain Management

Supply chain plays a formidable role in adding business value to the organization, and hence it is very crucial for a supply chain to maximize its operational and financial performance. Among many business strategies, such as cost leadership, differentiation, and quick response strategy, the role of green supply chain is becoming more prominent in every organization's performance. Green supply chain management can contribute to significant cost savings, and it also protects the company's brand value. Furthermore, green supply chains give a broader image to the trade. Green supply chain management can be classified as a strategy that considers the environmental, social, and economic impacts of activities across their supply chain. There are some practices as a part of green supply chain management, such as lean operations, supplier relation processes, quality management, information systems and infrastructure, green machining, scheduling, and products. Among these essential elements of green supply chain management, it is mandatory to notice the practiced methods of the supply chain. There are several practices as part of the green supply chain: sustainable sourcing and material planning, waste reduction, energy efficiency, and reverse supply chain.

We use a variety of sustainable management practice measures that stem from cutting-edge operational capabilities toward sustainability. There are also a number of management best practices that have been identified as being important for the future of manufacturing organizations; however, not all of these practices are likely to result in substantial cutbacks in energy consumption and waste. We use these management best practice measures as additional benchmarks in certain analyses. These sustainable management practice measures can be aggregated for firm-level analysis,

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



both before and after weighting by the number of employees for results reported separately for small, medium, and large firms. Such aggregate measures may be used in practice as key performance or key risk indicators for environmentally responsible investors or for ranking companies on their sustainability and/or CSR practices (Park & Li, 2021).

3.1. Green Procurement

Green procurement aims to acquire goods, services, and/or works in a sustainable manner, following the principles of ratification such as environmental sustainability, sustainability of the economy, and social responsibility. Green procurement is a way of addressing the social and moral aspects of unsustainable behavior; focusing on the environment facilitates the necessary paradigm shift to mainstream sustainability issues into the corporate agenda. It requires that a business acts in a way that meets the needs of the environmental, social, ethical, professional, and financial aspects of its operations. It offers the potential to strengthen and build upon existing best value – best price driven – procurement practices, points at which to link innovation and design into the purchasing process in a way that can drive wider societal and corporate benefits. This includes the identification and tendering of only those goods from producers that demonstrate environmental and safety compliance and all waste producers that fully comply with the requirements of hazardous waste legislation.

In order to implement green procurement, the public procurer selects the appropriate suppliers in a different way. The supplier with green behavior is more preferable. The criteria for assessing capacity, experience, staff competence, and so on are not green-oriented, but the technical specifications also clearly describe the nature of the goods and services required. The advantages of green procurement include the reduction of costs, the reduction of waste, and the consumption of energy. Some of the best practices in green purchasing are that wording in specifications should be specific and comply with environmental standards, policies, and legislation. The sourcing of commodities and services should involve selecting suppliers who have the ability to demonstrate that they have eliminated activities related to hazardous legacies. Clear reporting mechanisms need to be implemented, and measured compliance and performance information must be produced so that organizations can internalize governance accountability and show all interested parties in an annual report that the

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



organization manages its environmental and social responsibility with the same credibility as a private enterprise. Renewable energy sources can be relevant and appropriate for many businesses at the core of their involvement in developing a range of services and goods. The new technologies that can be used are becoming integrated into developments in renewable energy, technologies that can be designed, specified, commissioned, and demonstrated with clear evidence and without a fully integrated system prior to implementation. The services based on this technology will be an important provider as a good communicator as well as possessing commercial acumen. As part of this requirement for developing a project or activity for energy, the service or good must enable the corporate community to be more aware of the synergies and joined-up incentives for the interest of the business community (Govindan et al., 2021).

3.2. Logistics Optimization and Efficiency

As the largest contributing factor to overall emissions in the supply chain, the logistics element offers the most potential for supply chain practitioners to cut. The transport and storage of materials and products is the most energy expensive and environmentally significant element of any supply chain and thus is a logical focal point for improvement. Logistics improvements can lead to a reduction in vehicle movements, traffic, emissions, accidents, congestion, road maintenance needs, and noise. These benefits go hand in hand with reductions in waste, resource consumption, and the cost of transport and warehousing. Several methods used to improve the physical flow of goods include route optimization and selection of appropriate and fuel-efficient vehicles, enhanced handling and advanced warehousing techniques, and the consolidation of shipments and loads. Proper management of reverse logistics operations also leads to reductions in external costs.

Another critical decision centers on the degree of collaboration between relevant stakeholders such as retailers, manufacturers, distributors, and carriers. The potential solutions in industrial practices should not only be assessed in terms of effectiveness, but also in terms of cost-effectiveness and, more importantly, in terms of sustainability. In this regard, raising operational excellence using advanced technology could improve existing logistics operations and make them more sustainable and environmentally friendly. The logistics industry has various

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



technologically advanced tools, such as advanced analytics and software-based solutions that can improve logistics processes. Examples include road freight navigation software, advanced scheduling and route dispatching software, optimized road network capacity software, electronic onboard recorders and tracking, driver communication technology, weight and axle load permits, metering and weigh station automation, and securement checks using cameras.

3.3. Supplier Diversity and Ethical Sourcing

While the concept of supplier diversity – a supplier base that includes suppliers that are minority-owned, women-owned, veteran-owned, and diversity-network-supported (supply chain inclusive of small businesses, social enterprises, and third-sector organizations) – is related to ethics, its socio-economic ramifications can serve to bring supplier diversity into the domain of sustainability. Socio-economic elements associated with supplier diversity include increasing fairness and doing justice, and also allowing underprivileged entrepreneurs to grow and foster innovation. A supplier's trustworthiness is evident in its ethical profile and in criteria such as respect for people, communities, and environments. If a company is forced to distribute projects or obtain different supplies from different suppliers, one way to consider resilience is by cultivating a diverse supply base. Supplier diversity can be described as a subset of socially responsible supply chain management that emphasizes the welfare of the community, those who have economic and physical boundaries, the preservation of jobs, and a feeling of identification and unity. New suppliers, regardless of their size and age, promote economic development and foster creativity that will lead to the creation of new ideas, goods, technologies, and services. In choosing who to integrate into their supply chains, organizations should concentrate on supply chain inclusion, and they should require all organizations to make a public statement of their customer diversity policy. Supplier diversity is anticipated to broaden the coverage of potential project applicants and/or qualifiers, which may lead to affirmative action in favor of suppliers that commit to diversity inclusion. Diverse market attractiveness is one of the ethics-based strategic motivations, which this paper proposes is positively connected to customer ethnocentrism (Centobelli et al.2021). The influence of customer diversity on the establishment of a code of conduct and the incorporation of it into the supplier assessment model was higher for organizations

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



located in North America, where diversity policies are more strictly enforced. Companies increasingly depend on their suppliers to follow the same ethical standards as they do since the release of guidelines. Both of these guidelines contain key principles of fair trade or ethical trade, such as encouraging healthy employment in the goods purchased and preventing any trade that is not accepted. The sharing of ethical values and fair labor practices between buyers and sellers is beneficial. It is advisable that high-quality companies enter into supply agreements with moral companies because the latter have a positive reputation and can help enhance the reputation and market access of the former. Most trade disputes can be settled quickly when working with engaged entrepreneurs, who are generally a team that does not shy away. Most capitalized businesses pledge to work for others according to their definitions and clear precepts. To establish the welfare potential of suppliers of any size or age, the characteristic of supplier diversity is not relevant. Nevertheless, studies can examine the diversity of employers for socio-economic and human advancement, part of the analysis against cumulative human employment, labor operations, suppliers, and community. In the United States, the commitment to corporate social responsibility is decades old. Jobs, goods, and services matter most to local neighborhoods, and individuals and organizations gathered together in every company also attach great importance to social impacts.

4. Tools and Frameworks for Assessing Sustainability in Supply Chains

A range of tools and frameworks have been proposed as suitable methodologies for understanding the triple bottom line of environmental, financial, and social sustainability within supply chains. Life Cycle Assessment, carbon, water, and ecological footprinting, full cost approaches, circular and closed-loop systems, and monitoring-regulation assessment are argued to be some of the long-term and effective assessment models to internalize environmental and social sustainability within supply chains. Others argue that active measures are required to ensure sustainability in supply chain activities in light of business stakeholders and suppliers indicating a low level of preference for implementing sustainability-based activities. Assessment tools of a more practical and meaningful aspect focused on the 'sandbox

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



approach,' which involved the ability to measure sustainability performance within supply chains relative to predetermined standards and benchmark the performance of competitors. This type of tool facilitated comparison within supply chains and offered various points of leverage to reduce impact or reconfigure operations from the design stage to improve key performance indicators.

The ability to use this assessment tool will enable firms to identify both greenfield and brownfield opportunities in relation to shipping and more broadly supply chain operations while considering Environmental Impact Analysis. In summary, these frameworks and tools facilitate the process of answering the 'What should be done?' question through an organizational level of sustainability. They provide corporations with a concrete way of establishing areas to anchor processes for sustaining an economy by understanding the utilization of natural capital. They identify areas for improvement and innovation by focusing on a comprehensive management approach. The tools will highlight and provide a guide on how to best integrate the principles of key assessment mechanisms and understand the principles of what really matters in relation to transport operations and supply chain optimization. These tools are also designed to steer companies toward creating and enabling an additional "certificate" for companies – the badge of sustainable supply chain management (Alshurideh et al.2022).

Despite the widespread examples of favorable assessment tools, the difficulty in implementing these frameworks and tools lies in and revolves around data collection and management. Stakeholder integration and the process of stakeholder assessment are key determinants for any successful or meaningful output. Currently, virtually all organizational sectors have trained supply chain professionals who are competent in analyzing and streamlining supply networks. However, such vertically structured organizations have not incorporated professional training in sustainability for an integrative, zero-value managerial or organizational approach in sustainability considering both inputs and outputs from practiced benchmarks, standards, and tools within supply networks. Stakeholder engagement is a critical and essential determinant for informative and efficient sustainability assessment. Firms, for example, are required to place a high standing of relevance on the accuracy and timeliness of the information obtained, as well as the extent to which stakeholders'

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



views are incorporated into detailed evaluations. Stakeholder involvement adds long-term credibility to the assessment model from public entities and can be used as a predictor of which assessment tool provides the most accurate and useful results as perceived through stakeholders. In particular, education and stakeholder resonance are influential drivers for firm decision-making centered around assessment models.

5. Case Studies and Best Practices

This section provides a collection of case studies that were selected to demonstrate the successful application of sustainable practices within the supply chain. These cases serve as a practical illustration of the concepts discussed earlier in this essay. They are designed to provide more detailed examples of the issues that have been discussed and allow for critical evaluation of the strategies and methods used by companies to integrate sustainability into their operations. The studies focus in particular on the social or ethical aspects of the supply chain and tackle a diverse range of sectors, including mining, energy, and distribution and logistics. The case studies are not selected in terms of sector or context, but rather for their utility in illustrating key points. All have sought to ensure that the ethical or social dimensions of the supply chain were advanced. The issues surrounding the integration of the case studies into teaching and development are then distilled, offering comments on the lessons that can be learned from them, and best practice points that could be adapted for many delivery contexts.

The management of relationships further underpins best practice, as case-study companies depend on accounting, coaching, and working with communities to ensure that international human rights criteria are met. Identifying the progress of any social or ethical program is reported as a key lesson. In short, the case studies demonstrate the diverse and complex strategies being developed by companies in a number of sectors to address social, environmental, and ethical issues. The successful practices described provide ideas for learning that could inform best practice. However, the case studies suggest that best practice can be achieved through both a prescriptive and progressive framework that respects the complexities of all the business relationships involving supply chain management. Evaluation of the effectiveness of best practice is reported to be more difficult. Further, it was the experience of the researchers that it

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



was a complex, multi-layered process connected with the measurement of such aspects as return on investment, social, environmental, and ethical benefits, which is difficult and problematic (Paciarotti & Torregiani, 2021).

6. Challenges and Future Directions

Several challenges arise in terms of the slow adoption and fussiness in embracing sustainable practices in contemporary supply chain management. These include entrenched resistance to change in favor of established, less sustainable alternatives, especially among established organizations. Furthermore, sustainable practices may hold massive implications in terms of cost, so that adhering to environmental practices or reducing exploitation of human resources without tax incentives and similar regulatory support is not a financially viable proposition. Perhaps the final problem stems from the complexity of supply chains in the global context, as well as the need to work with a myriad of types of suppliers that are difficult to induce to act in a coordinated way. It has also been suggested that organizational culture is an important driver of environmental or sustainability excellence in organizations themselves, so that companies that are not already sustainable have trouble transitioning to this perspective.

Nevertheless, not all is lost in the realm of sustainable practices. The future development in sustainable practices in supply chains lies in the consolidation of, and further innovation with respect to, such practices given progressive resistance against globalized practices. This reflects the trend that future units of compliance should cover more than local issues, and that they will move upstream into the supply chain where the problems mostly lie. Therefore, it is necessary to look wider for solutions and connect the various solutions that already exist in sustainable development, including corporate social responsibility, environmental management, and human rights. This involves not only more wide-ranging stakeholder approaches but, more importantly, the integration of sustainability within core values, purposes, and objectives in business, as an all-inclusive way of doing business, rather than an externally verified 'nice to have' such as a label. Other critical areas of future development discussed by participants included increasing education and training for those involved and those seeking more information, engaging in partnerships and

¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



collaboration, and implementing a more comprehensive approach to sustainable issues (Acquah et al.2021).

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¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



¹Assistant Professor, Department of Business Administration, University of Peshawar, Peshawar.

²MPhil Scholar, Department of Business Administration, University of Peshawar, Peshawar.



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