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The Need for Sustainability in Supply Chain Management

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ABSTRACT

While conventional supply chain management focuses on the speed, cost and reliability of operations, sustainable supply chain management adds the goals of upholding environmental and societal values. This means addressing global issues such as climate change, water security, deforestation, human rights, fair labor practices and corruption. The study adopted the method of secondary data to seek the understanding, concepts, current Sustainable Supply Chain Management (SSCM) trend industries around the world and available resources for resolving the adverse effects of any supply chain operations. The Three pillars of Sustainability are discussed before moving to the existing solutions and efforts of firms, researchers and Government's. Also, benefits of Sustainable Supply Chain Management are explained, which is more than just better environment and eco-system health for the current generations and generations to come. The information in this paper tries to make it easy to understand the concept of SSCM and influence large or even small companies to make their supply chain more sustainable moving forward.

OBJECTIVE

The purpose of this study is to provide a composite knowledge regarding sustainability in supply chain management for readers to better understand and adopt provided solutions towards pertaining hazardous effects of supply chain practices.

INTRODUCTION

Sustainability is a crucial element of today's Supply Chain Management (SCM). When designing supply chain strategies, it is important to remember the business processes that are responsible and committed to the community in order to find a clean, safe environment. The company's Supply Chain poses social and environmental risks and management challenges; however, adopting Supply Chain Sustainability can be very rewarding for the business, organization and community as a whole.

Supply Chain Sustainability encompasses two aspects: management of environmental, social, and economic impacts; and processes that promote good governance throughout the life cycle of goods and services.

The Supply Chain team should ensure that sustainable processes are followed during activities such as vendor rides, identification of alternative energy sources, outsourcing projects, risk removal processes and waste disposal.

SCM develops and owns various ideas and efforts to reduce carbon emissions from the cosmos. For example, the use of coal in production facilities can be substituted for Bio Briquettes. This reduces the pressure for use on fossil fuels and reduces the emission of Carbon Dioxide & Sulfur Dioxide into the atmosphere, which in turn helps to reduce carbon footprint. One can also use carbon-free electricity, which contributes to green energy.

The Supply Chain organization can contribute to the company's green plans in other ways. For example, they can lead the way in the acquisition and use of unconventional energy, such as the purchase of solar energy in production facilities, company offices and warehouses. Specifically, the capex procurement team within the Supply Chain organization can work with a team of engineers to help identify sustainable solutions that can be used throughout the manufacturing facility. The use of the Scale Elimination System in production areas can help reduce or eliminate measurements in condensers, cooling towers, pipes, etc. This leads to energy savings and water conservation with minimal use of cleaning chemicals, thus ensuring clean wastewater and a sustainable solution.

Within site engineering work, V-belt drives can be replaced with flat belt drive, which helps save energy. The use of energy-efficient motor is encouraged, which also helps to reduce energy consumption. Waste disposal and

used solvent should be done with consumers who comply with local environmental and pollution control laws. This helps to reduce the overall impact on the environment.

The responsibility for selecting a good external partner rests with the Supply Chain team and it is important to select partners who comply with the organization's guidelines on sustainability. During the Partnership selection phase, there should be a thorough evaluation of the production partner production sites from an EHS perspective.

Compliance with local laws and regulations, as well as the site of waste management and disposal, must also be properly verified before a business award can be made. In addition, each evacuation site should be based on the periodic training required by the company's EHS mission which is the goal of Safety, Chemical / Fire Management, Mock Drill, etc. This ensures that the discharge partners also follow safe procedures and that the common goal of Sustainability is aligned with both parties.

Sustainable procurement means looking beyond traditional financial audits and involves considering the organization’s environmental objectives and social benefits. The purchase decision should be based on an evaluation of the life cycle of the product or service being purchased, its impact on the environment, and all related risks and benefits.

Companies must adopt a comprehensive and comprehensive approach to sustainability that should broadly include operational guidelines, balance service providers, develop training and capacity building programs, drive performance improvement, organize annual supplier meetings, and receive awards and recognition.

THE NEED FOR THE RESEARCH

The society and businesses worldwide rely on the environment to create energy and deliver the raw materials needed for industry. Often **there is a fine line between utilization and exploitation**. The world started to exploit the resources provided by the nature in last few decades, which led to the recent emphasis by businesses globally to act in a sustainable way. According to UN World Commission on Environment and Development The sustainable way means development that meets the needs of the present without compromising the ability of

future generations to meet their own needs. The move to sustainability can be seen everywhere from small, local businesses to large MNCs. Every industry is trying their best to come up with practices which will make their existence sustainable and make earth a better place to love.

Likewise, sustainability in Supply Chain Management (SCM) practices is also given its due attention more than ever before. While conventional SCM focuses on the speed, cost and reliability of operations, sustainable SCM adds the goals of upholding environmental and societal values too. This means SCM policies will also be addressing global issues such as climate change, water security, deforestation, human rights, fair labor practices and corruption.

Transportation is the second biggest global emitter of greenhouse gases (GHG), yet the logistics sector is often left out of the climate conversation. The 23rd Conference of Parties (COP23), a major annual forum for climate policy dialogue, recently moved transportation into the spotlight, paving the way for more proactive emissions reductions measures.

According to 2020 EPA data, the freight and transportation sector is responsible for the following U.S. emissions:

- More than half of nitrous oxides total emissions
- More than 30% of volatile organic compounds emissions
- Over 20% of particulate matter emissions

On a global scale, the top five sources of emissions are as follows ***(according to the Center for Climate and Energy Solutions)***:

- Electricity and heat (31%)
- Transportation (15%)
- Manufacturing (12%)
- Agriculture (11%)
- Forestry (6%)

According to ***Mckinsey&Company's*** study of top 50 publicly traded consumer packaged goods (CPG) companies, it found out- Half of the enterprise value for top CPG companies depends on expected growth; which

is vulnerable to being chipped away into carbon emissions, air pollutions, child labor violations, deforestation, water shortages and worker health and safety issues.

Further they suggested to achieve global climate targets while meeting the growing demand CPG companies would have to significantly cut their GHG emissions. Following facts are concluded by the study-

- ✓ Globally, the CPG market is expected to grow at an average of 5.3% annually.
- ✓ In 2015, GHG emission from CPG companies were approximately 33 GT CO2 equivalent.
- ✓ The CPG industry must reduce its GHG emissions by more than half to meet 2050 targets
- ✓ A massive reduction of CPG resource intensity, measured in metric tons of CO2 equivalent per $1000 of revenue is required.
- ✓ By 2050, CPG companies must reduce their GHG emissions 92% relative to revenues.

REVIEW OF RELATED LITERATURE

Previous researches have shown that, for most companies, the SCM is responsible for the bulk of their environmental impact. The very nature of supply chains is such that it often involves energy-intensive production and transportation as goods are made and moved around the globe. The Globalization of economies has led to further movement of materials and goods long distances. This is how organizations can make the biggest difference by making changes to their supply chain rather than other business operations. Supply chain sustainability benefits not only companies' own interests and those of their various stakeholders but also society and the planet at large.

Many definitions SSCM can be found in the literature and focus on the triple bottom line (3BL) of sustainability ***(Khan et al., 2021)***. *Sustainable Supply Chain Management (SSCM)* is a set of managerial practices that include all of the following: Environmental impact as an imperative; Consideration of all stages across the entire value chain for each product; and A multi-disciplinary perspective, encompassing the entire product life-cycle**. *(S. Gupta, O.D. Palsule-Desai, 2011)*. (*Kleindorfer, Singhal and van Wassenhove, 2005)*** used the term sustain-ability broadly to include environmental management, closed-loop supply chains, and triple-bottom-line thinking

that integrates profit, people and the planet into the culture, strategy and operations of companies. The researchers suggest that businesses are under an increasing pressure to pay extra attention to the environmental and resource consequences of the products and services they offer and the processes they deploy**. *(Jayaraman and Luo, 2007)*** focused on reverse value chain activities (reuse, repair, refurbishing, recycling, remanufacturing, or redesign of returned products from the end-user), and present a redefined value chain strategy that entails a type of closed-loop system for industries in which such activities may create additional competitive advantages for the firm. The analysis presented in this particular paper is relevant from a strategic management perspective for the following reasons:

i. By using reverse logistics, the value chain is no longer portrayed as unidirectional, but as a type of closed-loop system in which additional values are generated from the existing resources;
ii. the competitive advantage paradigm can be further enlightened by a new source of competitive Edged tangible values from the physical side and intangible values from the information side of reverse logistics;
iii. also, the reverse logistics framework has implications for the resource-based view of the firm.

Savaskan, Bhattacharya and van Wassenhove (2004) addressed the problem of choosing appropriate reverse logistics channel structure for the collection of used products from customers for remanufacturing. However, there remains considerable scepticism about whether a modern firms can or does fulfill its social obligations ***(Banerjee 2007)***. This scepticism may be reflected in the fact that research in 'socially responsible operations' tends to focus on social enterprises, small farmers, NGOs and foundation.

Also, considerable attention has been paid to environmental, economic, and social performances ***(Hong, 2018).*** Firms' sustainability is simultaneously affected by multiple factors, moderations and mediation pathways may exist in the relationship between SSM practices and SP. The governance mechanisms for a firm performance proposed that the differentiated effects of SSCM practices could be significantly revealed through probing supply chain dynamic capabilities, the performance of supplier risk management and performance of manufacturing risk management ***(Kumar, 2018)***.

According to ***Giannakis and Papadopoulos (2016),*** SSCM can be defined as optimizing processes and operations of a firm while maintaining their environmental impacts at a low level and enhancing social benefits through some corporate social responsibilities (CSR).

Sodhi, M. (2017) did extensive research literature review on SSCM and using thematic analysis obtained eight research themes namely- 1. Stakeholder pressure, 2. Governance, 3. Contingencies, 4. Practices, 5. Partnerships, 6. Barriers and enablers, 7. Performance and 8. Optimization for improving or trading off multiple performance measures. Further the author integrated these into a thematic map.

METHODOLOGY

This thesis is made following the methodology of secondary research design. A secondary data refers to data that have already been collected for some other purpose. Yet, such data may be very useful for one's research purpose ***(Allen, M., 2017)***. An SDA researcher starts with a research question or hypothesis, then identifies an appropriate dataset or sets to address it; alternatively, they are familiar with a dataset and peruse it to identify other questions that might be answered by the available data (***Cheng & Phillips, 2014***). Existing research papers, review paper, articles and case studies are reviewed for the purpose of getting the insight into the need of sustainable supply chain management practices. It uses broad review questions to guide the identification and analysis of studies, rather than specific hypotheses (***Ruggiano N, Perry, 2017).***

The collected literature is then divided into different sections to get focused knowledge and understanding of SSCM on the following grounds-

- Effects of SCM,
- Available solutions for the negative effects of SCM,
- Efforts by companies worldwide and
- Benefits of SSCM.

This paper tries to make SSCM simple to understand for any reader with none or low knowledge of the subject matter related to supply chain and sustainability. The paper consists of meaning, related terms, practices and problems in SSCM. Also, insights into what companies around the globe are already doing to achieve sustainability in their supply chain operations. This may provide guide to other firms (new or old) to adopt these eco-friendly supply chain solutions which ultimately aids a better living for each and every living being existing on the Earth now and in future.

ANALYSIS

Sustainability is a trending topic in the current business scenario. Every industry is trying to be more sustainable in terms of its offerings and way of doing business. The reason for this shift from traditional SCM to SSCM could be due to several reasons like, customer demand, cost saving, risk avoidance and CSR strategies. ***(Andre Goncalves, 2019)***.

Mainly there are various environmental risks factors associated with the supply chain operations. **McKinsey** says 90% of companies' impacts on the environment come from supply chains. These includes the use of hazardous materials, environmental pollution (air, water or soil), energy consumption, carbon emissions and hazardous waste generation ***(Arwa Mukhtar et al 2019)***. Additionally, these supply chain activities can result in loss of biodiversity, deforestation, long- term damages to the eco-systems. ***(Mary Huang, 2015).***

What Makes a Supply Chain Sustainable?

The answer to this question varies widely between companies, products and processes. Overall, it is important for companies to examine each stage of their supply chain operations and consider efficiencies that could be implemented. Unfortunately, it can be challenging for businesses that outsource, as at times the companies they work with are not fully transparent with their measurement and reporting of required information. If one is working with a transparent company, important questions to ask them include:

- Are firms maximizing the space they use in containers, shipping vehicles and packaging?
- Are firms considering the global impact when choosing partners for fulfilment, manufacturing and supply?
- Do firms have sustainability goals that align with that of their organisation?

The Three Pillars of Sustainability

According to the ***Environmental Protection Agency*** (EPA) there are three main pillars of sustainability. Each pillar contents six subsections related to the pillars. When examining a firm's supply chain practices, it may be helpful to consider these elements:

- Environmental:
  - Ecosystem Services: Protect, sustain and restore the health of critical natural habitats and ecosystems
  - Green Engineering and Chemistry: Reuse or recycle chemicals, treat chemicals to render them less hazardous and dispose of chemicals properly
  - Air Quality: Attain and maintain air quality standards and reduce the risk from toxic air pollutants
  - Water Quality: Reduce exposure to contaminants in drinking water (including protecting source waters), in fish and shellfish and in recreational waters
  - Stressors: Reduce effects by stressors such as pollutants, greenhouse gas emissions and genetically modified organisms to the ecosystem
  - Resource Integrity: Reduce adverse effects by reducing waste generation, increased recycling and ensuring proper waste management
- Social
  - Environmental Justice: Protect health of communities overburdened by pollution by empowering them to take action to improve their health and environment
  - Human Health: Protect, sustain and improve human health
  - Participation: Use open and transparent processes that engage relevant stakeholders
  - Education: Enhance the education about sustainability of the general public, stakeholders and potentially affected groups
  - Resource Security: Protect, maintain and restore access to basic resources
  - Sustainable Communities: Promote the development, planning, building or modification of communities to make them more sustainable
- Economic
  - Jobs: Create or maintain current and future jobs
  - Incentives: Generate incentives that work with human nature to encourage sustainable practices

- Supply and Demand: Promote price or quantity changes that alter economic growth, environmental health and social prosperity
- Natural Resource Accounting: Incorporate natural capital depreciation in accounting indices and ecosystem services in cost benefit analysis
- Costs: Positively impact costs of processes, services, and products
- Prices: Promote a cost structure that accounts for externalities to production

All these three pillars should be taken into account when promoting a Sustainable supply chain. From reducing emissions to engaging stakeholders to taking into account natural resources in cost benefit analysis is what a truly green supply chain should consider all these factors.

AVAILABLE SOLUTIONS FOR THE NEGATIVE EFFECTS OF SCM

As mentioned in the need for the study section, the effect of supply chain activities are majorly negative for the bio-diversity at large of the planet. There are various alternative approaches of SCM available that are better in respect to the natural resource consumptions and hazardous waste generations. After going through several works done in the field of SSCM following widely used solutions for the negative effects of SCM have been pointed out-

A. Cooperative Supply-Chain Environmental (CSCEM)

Sharfman (2009) examined the management of a CSCEM concept using an online exploratory survey and theoretical sampling. In such practices, firms work with vendors to develop the environmental profile of supplied materials by reducing materials' toxicity or the amount of packaging used. While large firms can make it mandatory that their suppliers comply with such initiatives, more cooperative approaches are likely to be more fruitful. Firstly, the authors conducted interviews with 14 leading firms. In the next step, the authors conducted a theoretical-sample survey to examine a model of the history of cooperative supply-chain environmental management. The results suggests that inter-firm trust, uncertainty and pro-active environmental management directly affect the extent to which firms engage in CSCEM. The authors also reported that the consideration of the adoption CSCEM is an important factor for firms to move towards adopting more sustainable practices.

B. Supplier Assessment-

Mavi, Kazemi studied supplier selection and evaluation in green supply chains. In their study, the fuzzy DEMATEL method was used to evaluate the logistic factors for green implementation. The research conducted in four steps-

- First, identifying decision goals.
- Second, developing evaluation criteria and survey instrument.
- Third, interpreting the linguistic information into fuzzy linguistic scale.
- Fourth, analysing the criteria into causal and effect diagram.

Observations from the study showed that environmentally friendly packaging is more influential than other factors.

C. Construction and demolition wastes (C&D wastes) management poses serious challenges to the government and private sector in terms of the environmental impact and potential gains due to recycling these types of wastes. The work of ***Rahimi and Ghezavati*** designed a recycling C&D waste reverse logistics sustainable network to reduce the negative environmental impacts of waste. A multi-period multi-objective mixed integer linear programming to design and plan a network of reverse logistics under uncertainty for recycling C&D wastes in which the objectives are represented as profit and social impact maximization and environmental effect minimization. Results showed the model flexibility based on risks severity. They also apply off-site and on-site separation as two common methods for segregating C&D wastes.

D. Mixed Integer Programming (MIP)

Urata, Yamada., developed a global supply chain network model for production and logistics in the Asian countries namely- China, Malaysia and Japan. which aims at balancing of Carbon Di Oxide volumes and costs. The calculations are done on these three countries trade with one another and about 23 component suppliers are chosen for the study. In their research, they defined a mixed integer programming (MIP) problem that determines the supplier and factory location and aims at reducing the environmental impact ratio.

E. Risk Management Framework,

An operational perspective of supply chain sustainability, by considering it as a risk management process. It explores the nature of sustainability-related risks in supply chain, distinguishes them from typical supply chain risks and develops an analytical process for their management. In the first step, through an extensive literature review and personal interviews, 30 risks across the three main pillars of sustainability - environmental, social and economic are identified. Next, the *failure mode and effect analysis (FMEA*) technique are utilised to assess the relative importance of the selected risks, to identify their potential causes and effects and test potential correlations between the identified risks. Finally, based on the findings of the study, risk treatment strategies are proposed for all the identified sustainability-related supply chain risks. The findings show that endogenous environmental risks are perceived to be the most crucial across different industries and the inter-connectedness between various sustainability-related risks is very high. This points to the need for integrated sustainability risk management approaches to facilitate the development of effective sustainable strategies.

F. Stochastic Programming Model

Reverse logistics is the process for capturing the remaining value from the End-Of-User and End-Of-Life products and also for the proper disposal of the non-reusable and non-recyclable parts. A properly-designed reverse logistics system will yield both environmental and economic benefits, so the development of an advanced decision-making tool for reverse logistics system design is highly important. The author presents a novel multi-product multi-echelon stochastic programming model with carbon constraint for sustainable reverse logistics design. The result of the study shows that the model can be used for-

- ✓ providing decision-makers with a deep insight into the relationship between profit and carbon emission requirement,
- ✓ understanding and resolution of the infeasibility caused by capacity limitation,
- ✓ the use of flexible manufacturing system in reverse logistics, and
- ✓ proper use of the government subsidy as a leverage in reverse logistics design. (***Yu and Solvang, 2017)***.

G. Triple Bottom Line (TBL) framework

TBL framework is also a commonly used step towards sustainability by many companies. This framework looks at - "people, planet and profit". In other words, it looks at various financial, social and ecological as well as environmental factors while assessing the business performance. The Profit bottom line looks at the financial growth, the social bottom line determines fair treatment of laborers and the Planet bottom line measures environment friendliness of the business practices.

H. Blockchain based cloud management solution

Top firms like SAP, IBM, Walmart and Oracle are implementing Blockchain based cloud management solution for their Supply Chain. Blockchain is a fast-growing technology which is able to contribute in greening the supply chains and is able to track any sub-standard product along with its origin. The availability of data removes bottlenecks and redundancies which in return decreases resource consumption. ***(Arwa Mukhtar, 2019)***

Also, there are a number of ways a company can reduce its supply chain's carbon footprint ranging from how you manage shipping and handling to what materials you use in packaging. Some factors to consider include:

- ✓ Space utilisation,
- ✓ Materials management and
- ✓ Strategic analysis.

BENEFITS OF SSCM

Quantifying the benefits of sustainable sourcing is essential if you want to build a business case for a more sustainable supply chain. There are many benefits of improving supply chain sustainability, it's likely that firms will need to get buy-in for such a project, it will definitely require resources, time and commitment. Capturing all the advantages of a more sustainable approach can help firms to build the case for investment.

Reduced environmental impact- this is usually the central objective of supply chain sustainability projects. Reducing the impact of corporate footprint is top on the agenda for many companies; supply chain can play an important role here. Greater business efficiency that can save operating costs. This is a welcome side effect of a smaller corporate footprint; greater efficiency not only improves business performance when it comes to the 'E' of ESG, but it can also significantly reduce the business costs.

Beyond the obvious benefits of reducing overall carbon footprint, reducing energy and resource consumption, there are many other reasons why organizations should care about sustainability in their supply chains. Below are few points supporting the prior statement:

- Better bottom line — research and experience has proven that sustainability significantly improves financial results.
- Consumers and Wall Street recognize the importance of green practices and sustainability -- which more and more drives increased sales and share valuation.
- Governmental initiatives in the United States and elsewhere provide tax and investment incentives to companies that employ sustainable practices. In a growing number of regions of the world, sustainable practices are governmentally mandated as law. This trend is escalating rapidly.
- Sustainability is equated with corporate social responsibility and stewardship – with being a good global citizen. The positive public relations exposure from identifying and implementing sustainable supply chain practices can yield numerous benefits for companies.
- Suppliers and corporate customers are increasingly requiring sustainable practices of their vendors.
- The elimination of waste in the supply chain is a hallmark of sustainability.

Now to have more understanding of the benefits further, few of them are elaborated separately under different points-

A. Reduced environmental impact

There is a very common misconception that reducing the environmental impact of a business comes at a cost. In fact, it can lead to big savings. By reducing waste and increasing the efficiency of buildings, vehicles and machinery, firms can quickly see returns.

This point has extensively discussed in this paper from the statement of need for the study to providing efforts that are been shown by various top companies in the world. Most of the SSCM activities actually revolve around this single benefit.

B. Improve continuity of supply

Diversify supply chain to avoid over-dependency on a single link in the chain. There have been many cases over the years of suppliers being unable to fulfil a product or service, which has then had adverse effects for other businesses. Having multiple suppliers in different parts of the world can help improve the continuity of a firms' products or services, preventing any costly downtime and reputational damage.

Utilizing the power of technology and solutions, firms can improve their products' continuity:

- Create and efficiently maintain your vendor profile database.
- It simplifies processes allowing you to estimate the cost of producing and shipping your finished goods and raise purchase orders to inform the chosen factory to start production.
- Develop vendor, factory, and buyer profiles and define the auditing principles directly within the easy-to-use feature, auditing factories for the all-important environmental, quality, and CSR perspectives.

C. Protecting against reputational damage

With information nowadays readily available online, the supply chain of a firm also affects a firms' brand reputation. It's crucial to protect the reputation to enhance business growth. Ensuring strategy for sustainability enhances the lives of every stakeholder throughout the chain. This includes ensuring fair working conditions, pay and minimizing environmental impact.

Properly managed and overseen, a firm's supply chain can help them avoid reputational damage, while companies that fail to confront supplier risks can invite negative publicity. Environmental factors aren't the only concern here; issues such as modern slavery and ethical sourcing also fall under the umbrella of supply chain sustainability and have the potential to degrade any firm's ESG credentials — something no company wants to risk at a time when ESG ratings and scores become ever-more central to the buyer and investor decisions.

D. Potential for new partnerships

This one might be less common. A business with a SSCM, is also an attractive prospect for other companies looking to partner with it. A firm's environmental credentials will likely align with the values of another brand. In turn, this opens up potential partnership opportunities.

In addition to helping, companies also meet the expectations of customers and clients and land more work opportunities or sales; supply chain sustainability can also help them secure valuable partnerships with other organisations. This is because making supply chains sustainable involves not just monitoring and improving a business process. It also means making sure any other businesses a firm work with is on board with their mission to reduce adverse environmental, social and economic impacts. So other companies with sustainability at the core of their brand values will only consider partnering with businesses that share their ambitions regarding sustainability.

E. Win more business

A sustainable supply chain can land companies more business as they prove their green credentials. Firms can further support this through internationally recognized standards, such as ISO 14001. This is often a requirement in business tenders, ISO 14001 is a management system that helps them identify gaps in their business where they could make green efficiency savings. With an accreditation to support their environmental efforts, they are showing potential clients that they are taking essential strides to reduce their impact on the world. If a business reviews its supply chain and can make changes, the rewards are plentiful. Taking positive action can lead to big savings and better margins, along with reducing the damage SCM activities are doing to the planet.

Provenance is growing in importance as a consumer consideration; a ***Euromonitor survey*** found that 64% of consumers believe they can make a difference in the world with their purchases. These consumers must know how their purchases are made and by whom, how they are transported, and the environmental impact. Once a company is known for their supply chain sustainability, they can tap into this discerning market.

F. Facilitates innovation.

Improving the sustainability of a supply chain requires working closely with all suppliers, getting to know them, and explaining company's corporate vision and purpose. As a result, these suppliers gain a clear view of company's goals, becoming invaluable partners who are far better positioned to suggest improvements to products, services and processes.

Suppliers that understand a company's vision and long-term plans are better equipped to suggest changes and ungraded to products and processes, which can improve operations and also help companies accomplish innovation goals.

G. Improved talent attraction and retention, and increased employee satisfaction.

People of current generation want to work for companies with impeccable ESG records. Two-thirds of respondents to a ***PWC survey*** said they would intentionally avoid an employer with a negative image of environmentalism. SSCM will help firms attract and retain a more engaged workforce. They will save money via lower recruitment costs and reduced employee attrition and by avoiding the need to up compensation to make this sector more attractive to potential recruits.

It's not just customers, clients and potential partners that are invested in a supply chain sustainability. Employees often want to work in roles that have a positive impact on others. Environmental and societal considerations allow employees on all levels to feel motivated by a higher sense of purpose. When employees feel like they can make a difference in their role and work towards issues they also care about on a personal level, they're more likely to stay with your company long-term

H. Better risk mitigation throughout your supply chain.

No matter how thoroughly firms know their suppliers, and regardless of how diverse their supply chain, working with third-party suppliers will always expose them to a degree of risk. There will be vulnerabilities among the suppliers that firm need to mitigate, whether these relate to cybersecurity, the potential for regulatory non-compliance, financial or operational vulnerabilities. It's about business continuity.

Improving supply chain sustainability demands that firms carry out regular risk assessments on their suppliers and processes, and put in place control measures to identify and monitor potential threats. Becoming more sustainable also involves assessing workplace health and safety, environmental management, business finances, reputation, compliance and more. So, supply chain sustainability ties directly into how company mitigate risks across the different areas of risk management.

I. Circular Supply Chain Value

Businesses struggling with the costs and volatility associated with sourcing and using raw materials are shifting away from the 'take, make and throw away' manufacturing model. Instead, the new trend is to adopt a resourceful supply chain loop - Circular Economy that utilizes the sustainable practice of refurbishing used parts or melting down products to turn back into their raw material form to cut down on costs and create less waste.

With companies globally looking to cut costs, impress customers and boost profits, circular supply chain methodologies make a lot of sense. Turning what was once considered waste into opportunities helps companies develop new revenue sources for previously discarded products and care for the planet.

J. Cut Back on Business Costs

Another common misconception is that improving supply chain sustainability is a costly matter. But actually, sustainability can save a business money and improve its profitability.

For example, if a company were to swap out energy-guzzling equipment and appliances for eco-friendly alternatives. They are not only going to reduce their environmental impact, but also going to save on their business utility bills. Similarly, if a business needs to dispose of a lot of waste, landfill fees and taxes can be unwelcomed overhead costs. Recycling waste can help them cut back on those costs.

There's also the cost of non-compliance to consider. If a business fails to comply with sustainability legislation, it may face legal fees and penalties. By making specific environmental, social and economic responsibility is considered across their supply chain, they can avoid any costs of non-compliance.

FINDINGS

After going through number of research papers, articles, review papers and other online resources, the major finding is no surprise about the massive *environmental effects* that any supply chain activity have on the environment.

Other than the obvious environmental damage, it was discovered that a non-sustainable SCM brings *reputational damage* too for the companies. This is exactly why big brands are showing efforts more and more towards maintaining a SSCM.

To *grab new customers*, especially the millenniums, it is essential and utmost necessary that a brand is good towards their mother nature. The newer generations are a crowd of well aware citizens as well as consumers, who believe that their choices can change the world for good and hence, choosing a company that have SSCM is trending.

A rather surprising finding was, that implementing SSCM practices not necessarily needs a huge investment or required to suffer a blow on the profits of a company. The *returns from SSCM are incredible*, both in terms of quantitative perspective (profits and sales) as well as qualitative perspective (reputation, customer base and better environment).

The *government interference* was a major step required, which further pushed firms towards adopting SSCM practices. Not only it encourages for better practices but it also, put forward direct consequences for not abiding the norms.

CONCLUSION

Nowadays, increasing number of multinational corporations sincerely want to embed environmental responsibility throughout their supply networks. But all corporations can and should do more. Companies should convey their suppliers a more consistent message that economic, social and environmental requirements are all crucial. They should make this same message clear to the internal teams also such as, procurement officials and create incentives for them to pursue not only economic goals but environmental & social goals too. These officials should take a hands-on approach to collecting relative data about suppliers' capacity, monitoring indicators of their sustainability performance, and engaging with them in continuous improvement projects. The large companies and MNCs should work closely with their suppliers' procurement units on the best ways to ensure sustainability requirements throughout their supply networks. The danger of not acting up is clear, *A supply chain is only as strong as its weakest link*.

Apart from commercial entities, Governments around the world are also putting an increasing focus on sustainability, formulating laws and regulations that businesses must follow to avoid any penalties and fines. Sustainably proactive companies put themselves in a safer position to avoid regulatory and legal issues, setbacks that other companies who are slow to adopt sustainability measures most certainly will encounter sooner or later.

With growing number of environmentally aware consumers, it is also necessary that the manufacturers and distributors too align with these new customer needs for their own survival and growth in the industry. The SSCM extends to fair labor practices, anti-corruption measures along with human rights, environmental protection and progress, *as suggested by United Nations Global Compact*. A smart SSCM organization must adhere to such issues when formulating policies and procedures for maintaining a planet friendly operation, which provides value to their current customers and a huge base of well aware global citizen who are potential customers to the company. Being sustainable is the new checklist essential to become a well-known brand in the market globally.

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