TACKLING THE NEED FOR CARBON NEUTRAL IN MANUFACTURING SECTOR

While the industrial and production sectors, which account for 16% of the global GDP, are important contributors to economic growth, they also account for one-fifth of carbon emissions and use 54% of the world's energy resources. Therefore, it is critical for industrial enterprises to solve the decarbonization concerns as soon as possible.

And since supply chain emissions are often over 11 times larger than operational emissions, shifting to carbon-neutral operations both within individual companies' borders and throughout value chains is necessary to address the climate crisis.

But first, let's remember the definition: the term `carbon-neutral` refers to a product or company that removes the same amount of carbon dioxide it emits into the atmosphere.

According to Climate Neutral, an organization devoted to helping companies reduce their carbon emissions, here are the four major steps companies can take to reach carbon-free production:

END USERS ARE BECOMING INVOLVED IN THE POWER TRANSMISSION SPECIFICATION PROCESS

1. **Measure**

The first step a company must take is to measure its carbon footprint, which is the total set of greenhouse gas emissions caused directly and indirectly by the business.

But this might be challenging depending on a company's product.

For a company that doesn't produce a physical product, the most significant part of its carbon footprint might be its energy consumption, the size of its office space, or how much travel occurs within the company.

For companies that produce a product, their emissions will come from the machines and processes used throughout its supply chain.

2. **Reduce emissions**

Once an organization has identified its emissions, the next phase is to take active steps in reducing said emissions. Depending on the organization, this can take different forms, such as:

- Recycling materials or reduce material waste
- Increasing the use of renewable energy sources or limiting travel

3. **Buy offsets**

For organizations that have difficulty reducing emissions due to the nature of their business, another method of reducing emissions is buying offsets. Companies can buy high-quality carbon offsets or fund projects that have measurable emission output. An example can be a company sponsoring a solar energy farm, or funding landfill covers to prevent the escape of methane emissions.

4. **Communicate the message**

After you have done all of this, you can communicate to the world that you are a neutral-carbon company via press releases and certifications.

WHY GREEN SUPPLY CHAIN MANAGEMENT (GSCM) IS SO IMPORTANT

In addition to carrying out carbon asset management, energy saving, and emission reduction by enterprises themselves, a concept that might be helpful for tackling this issue is Green Supply Chain Management (GSCM).

This is a strategy that aims to minimize the environmental impact, reduce waste, and operate in more sustainable and ethical ways and involves integrating environmental and economic objectives into the management of the operation strategy of the supply chain. Such integration helps reduce the carbon footprint while increasing financial return and profitability.

But how do sustainable and green supply chains work? Here are some things that you should know about:

1. **Collaborating**

It has historically been challenging to impose ethical and green operational standards compliance in many places of the world. The best way for supply chain managers to address

this is through cooperating, exchanging information, and emphasizing that sustainability compliance is essential to business operations.

Additionally, there are certain international projects that help companies create a baseline of carbon emissions and lay the groundwork for programs to decarbonize manufacturing processes, such as Unlocking Value in Manufacturing through Data Sharing initiative developed by The World Economic Forum.

2. **Leveraging the best available technologies**

It is simply not possible to maintain and manage the level of accountability and real-time visibility required to meet ambitious sustainability targets without modern digital tools. And the best part about supply chain digital transformation is that it doesn't have to take place all at once to be effective. Supply chain activities can be gradually digitalized through small steps. Furthermore, data collection and analysis are inherent to smart manufacturing and digital supply chain systems. Therefore, connected technologies start calculating their own ROI as soon as they are integrated.

3. **Setting consistent standards**

A strategic supply chain sustainability plan must have well defined benchmarks, targets, and rules in order to be successful. Then, they must be discussed and approved by all the chain's stakeholders and suppliers. Fortunately, there are many organizations today that assist companies in setting these objectives and standards, and digital technology make it simpler than ever to monitor and manage compliance.

4. **Communicating successes**

Businesses must spread the good news when their sustainable supply chain targets are met, or else they run the risk of losing the significant reputational gain. A well-earned reputation as a green business is always beneficial to the brand.

EXAMPLES OF HOW TECHNOLOGY CAN BE INTEGRATED IN GSCM

Evigence manufactures affordable sensors that monitor a product's remaining shelf life. The crates used to transport and store goods have sensors connected to them. Depending on how fresh the products are, they change color.

Employees at restaurants or supermarkets can use the sensor color to determine which boxes

need to be utilized right away and which ones can wait. The sensors initially turn green before turning red to show that the product is no longer fresh.

In order to determine how many hours are left before the product is no longer usable, the customer can also scan sensors using a mobile app.

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A blockchain-based platform for fashion brands was developed by TextileGenesis. The method uses digital tokens as the "currency" along the supply chain and confirms the textiles' place of origin.

Only the producers of fibers can produce tokens based on the volume of material produced. They assign one token to each kilogram of fiber. Then, they provide digital coins to a customer along with the produced fiber.

Brands, retailers, and customers can use a smartphone app to scan a barcode to track a product's origin and journey. They can guarantee that the product is entirely sustainable in this way.

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A method for calculating the carbon emissions in a supply chain was developed by Carbon Chain. The technology simulates deals in a company's portfolio using raw data from supply chain documents. The missing data is then located and recovered using AI. After that, the solution takes 10 minutes to determine an exact carbon footprint.

EU'S PROPOSAL FOR HOW TO MANAGE A GREEN SUPPLY CHAIN

The Proposal for a Directive on Corporate Sustainability Due Diligence (the "Due Diligence Proposal"), which has not yet entered into force, is primarily where the EU's legislative support for green supply chains can be found. It aims to advance sustainable business practices and ethical corporate governance while also incorporating human rights and environmental concerns into business operations and governance.

The proposal was adopted by the European Commission on 23 February 2022 and will subsequently be submitted to the European Parliament and the EU Council for approval. After the proposal is voted, EU Member States will have two years to enact it into their respective national laws and submit the relevant legal texts to the European Commission.

Regarding environmental protection, the Due Diligence Proposal guides companies to handle their green supply chains by requiring large-scale EU businesses operating in specific sectors and non-EU businesses with a significant amount of operations in the EU to conduct environmental due diligence on their own operations, subsidiaries, value chains, and existing business relationships, as well as by requiring businesses to develop due diligence policies and regulating the business' due diligence procedure. By 30 April of every year, companies are expected to provide a statement on their environmental performance for the prior year.

Additionally, the Due Diligence Proposal puts specific obligations on directors of EU-based enterprises. Conducting and supervising the implementation of due diligence procedures as well as integrating environmental due diligence into company strategies are among these responsibilities. Directors must take into account how their choices may affect the environment and climate change when performing their tasks.

In the case that a firm fails to comply with the requirements for sustainable growth in terms of environmental protection, the Due Diligence Proposal also specifies administrative sanctions (monetary fines based on the company's revenue) and civil culpability for damages.

CONCLUSION

Green Supply Chain Management combines conventional supply chain management with environmentally friendly practices. Its objective is to lessen the harm that happens during all phases of the manufacturing process, including procurement, production, material management, distribution, and logistics.

Why would businesses go to such trouble? By implementing green practices, businesses can increase their reputation and brand recognition, which will increase customer loyalty and create a positive impact overall.

But more importantly, companies have the chance to set an example for their industry and show how supply chain sustainability activities can have verifiable positive effects on the environment and the economy. They establish a connection between their brand and innovation and thought leadership in the sustainability industry by disclosing their successes and best practices.

Sources and further reading

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- Step-by-Step Guide to Sustainable Supply Chain Management (bmuv.de)
- Five Examples of Green Supply Chain Management (softeq.com)
- Green Supply Chain Management: A Potent Tool for Sustainable Green Marketing (reasearchgate.net)
- What is a sustainable supply chain? (SAP.COM)
- Evaluating the implementation of GSCM in industrial supply chains (mdpi.com)
- Proposal for a Directive on corporate sustainability due diligence and annex (European Commission)