

ADOPTION OF GREEN CONCEPTS AND TECHNOLOGY IN SUPPLY CHAINS: CASE STUDY OF EAST AFRICA

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Abstract

Increased international trade has led to interconnection of supply chains across continents and countries. With the disruptions existing in the global economy, the domestic economies of many countries feel the resulting impact whenever there are any major world events that intertwine with the supply chain, for example, the adoption of green supply chain practices, disruption of shipping logistics, and economic trade wars. While the developed countries have made noticeable movements in moving towards green supply chains, countries in Africa and more specifically East Africa are yet to make substantial changes. In this chapter, green supply chain management has exhibited quantifiable benefits that range from reduction in CO₂ emissions, reduction in waste, cost savings arising from use of clean energy, incorporation of local sourcing, and sourcing from suppliers who would be classified as disadvantaged from an economic perspective.

Literature Review

The global supply chain encompasses various aspects that enable the flow of raw materials and finished products through interactions between suppliers and buyers worldwide. Companies move raw materials and finished products across countries, relying on international sourcing to achieve low-cost production in countries with lower manufacturing costs. This process involves a complex logistics and warehousing system that must adapt to diverse regulatory requirements across

countries. To enable seamless global supply chains, information flow is critical in the interactions among supply chain actors.

Industry 4.0 Concept and Global Supply Chain Management

The fourth industrial revolution, also known as Industry 4.0 is an advancement in industrial activities that involves the incorporation of science and technology into industry leading to digitization of the manufacturing sector. Industry 4.0 relies on advanced technologies that include Internet of Things (IoT) and AI. IoT refers to an interconnection of various devices to the internet resulting in them exhibiting intelligent behaviour and autonomy to perform activities that would otherwise have been performed by humans (Ali, Ali, & Badawy, 2015). In East Africa, the following enabling technologies will play a central role in enabling the region achieve Industry 4.0 in the future; cloud computing, big data analytics, blockchain, IoT, robotics, 3D printing, AI, biotechnology, energy storage and cybersecurity (Travaly & Muvunyi, 2020).