DETERMINANTS OF SUPPLY CHAIN AND LOGISTICS DISTRUPTIONS IN SOUTH EAST, NIGERIA.

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Abstarct
The study examined the determinants of supply chain and logistics disruptions in South East Nigeria. This study objectives are to examine the major types and causes of supply chain and logistics disruptions in South East Nigeria, examine the economic, social, and environmental consequences of these disruptions on businesses and the broader Nigerian economy, investigate the strategies and the best practices that can be employed to enhance supply chain and logistics in Nigeria. It has been shown that supply chain and logistics disruptions in South East Nigeria pose complex challenges with far-reaching consequences for the society and environment. Nigeria's supply chains, critical for economic growth and development, are vulnerable to a range of disruptions, including natural disaster, infrastructural decay and global market dynamics. These disruptions manifest as reduced economic growth, increased costs, unemployment, and fragmented supply chains, impacting the nation's progress, particularly in the South East of Nigeria. Socially, supply chain disruptions lead to food insecurity, healthcare challenges, and social unrest, underscoring the need for resilience. Environmental consequences, such as waste generation and resource depletion, exacerbate environmental challenges. To address these challenges, proactive measures are essential. Recommendations include diversifying supplier networks, embracing local sourcing, adopting circular economy practices, and investing in renewable energy and digital technologies. Collaboration with ethical suppliers, community engagement, and transparency are critical components of a resilient supply chain and logistics strategies.
Keywords: *Supply chain, logistics, disruptions, South East, Nigeria.*

Introduction

In today's interconnected global economy, the efficient functioning of supply chain and logistics systems is paramount for the sustenance and growth of economies. These intricate networks facilitate the seamless flow of goods, services, and information, connecting producers to consumers across vast distances. Organizations around the globe are getting increasingly concerned about the process with which their goods and services reach the ultimate consumer or customer. It is believed that an effective and efficient supply chain management is the corner stone for customer satisfaction, and to this extent, supply chain management is an important topic in business and management today. According to Chase, et al (2001) the critical idea of supply chain management is to apply a total system approach to managing the entire flow of information, materials and services from raw materials

suppliers, through factories and warehouses to the end customer.Nigeria, often referred to as the "Giant of Africa," boasts a rapidly evolving economy with a burgeoning population and an expanding role on the world stage. In this context, the stability and resilience of its supply chain and logistics systems are pivotal not only for the nation's economic well-being but also for its social fabric.

Supply Chain Disruptions referred to the unplanned and unpredicted events that disturb the flow of goods and services across the supply chain (Craighead, Blackhurst, Rungstusanatham, & Handfield, 2007).However, like many other nations, Nigeria faces a multifaceted challenge the persistent disruptions that afflict its supply chain and logistics networks. A major disruption in any commodity supply chain can have significant dwindling effect on profit, production level, company reputation, shareholder value, and relationship with customers, and may even lead to company closure (Afiqah, Musa, Suraya, and Norhidayah, 2014). All firms face disruption tendencies in their supply chain, though the magnitude of effect could be alarming for smaller firms than larger ones. Smaller firms tend not to quickly recover from supply chain tension because they lack the internal and adaptive capability, flexibility and redundancy (Simba, Niemann, Kotzé, & Agigi, 2017) to remain resilience (Azadi Jafarian, Saen, & Mkirhedayatian, 2015) and counter supply chain risk as they unfold. Most small size supply chains tend to break down during major disruptions and many of them hardly recover afterwards. For some firms, it may take more than two years to return to predisruption performance level.

These disruptions manifest in various forms, from natural disasters such as flooding and droughts to political instability, economic volatility, security threats, and technological uncertainties. A case in point was the fire disaster in 2013 that cripples the entire operation of Sunflag Textile Manufacturing Company in Lagos, Nigeria for close to three years. As Hendricks & Singhal (2005) rightly noted, regardless of the cause of disruption, the nature of the firm, or when the disruption occur – a disruption has serious devastating effect on firm’s economy profitability performance, shareholder value, and stock price volatility (Hendricks & Singhal 2005).

The resulting consequences ripple through industries, affecting businesses, communities, and the broader economy. It is within this dynamic and complex backdrop that we embark on an exploration of supply chain and logistics disruptions in Nigeria.

Major elements of the supply chain management have always tended to reflect supplier, storage, manufacturing, distributor, retailer, and customer, etc, without the other important elements like, logistics or traffic management, and quality control. Overseeing the transportation of incoming supplies or purchases and outgoing goods

is important in effective supply chain management. This traffic management function handles schedules and decisions on movement methods and times taking into account costs of various alternatives, government regulations, the needs of the organization relative to quantities and timing, and external factors such as potential movement delays. Often, poor logistics arrangements have posed serious problems for effective supply chain management in NigeriaThe disruptions that disrupt the supply chain and logistics networks in Nigeria pose a critical dilemma. They disrupt the efficient flow of goods and services, leading to cascading consequences such as delayed deliveries, increased operational costs, reduced customer satisfaction, and, ultimately, economic losses. These disruptions also have far-reaching implications for food security, healthcare access, and other vital aspects of daily life. Moreover, in a globalized world, disruptions in one part of the supply chain often have ripple effects that transcend national borders, impacting international trade and partnerships.

As we delve deeper into this issue, it becomes apparent that understanding the nature, causes, and impacts of supply chain and logistics disruptions in Nigeria is imperative. This research endeavors to shed light on these disruptions, offering insights into their root causes, effects, and potential solutions. By doing so, we aim to contribute to the body of knowledge that informs strategies for building resilience in the face of disruptions, fostering sustainable economic growth, and enhancing the quality of life for Nigerians.

The objectives are to examine the major types and causes of supply chain and logistics disruptions in Nigeria; examine the economic, social, and environmental consequences of these disruptions on businesses and the broader Nigerian economy; and investigate the strategies and best practices can be employed to enhance supply chain and logistics resilience in Nigeri

Review of Related Literature

Concept of supply Chain

A supply chain system encompasses various elements, including people, materials, processes of transformation, organizational entities, information, and resources, all of which are employed to meet the demand for products from customers. In essence, supply chains encompass a wide array of activities, individuals, materials, information, financial assets, as well as knowledge and expertise (Saddikuti et al., 2020). According to Pato and Herczeg (2020), supply chains emerge as a result of collaborative efforts among organizations, where different members strive to establish mutually advantageous and synergistic relationships to enhance operational efficiency. These supply chain activities involve the conversion of raw materials and components into finished products. In supply chains that embrace

advanced technology, products have the potential to re-enter the supply chain at any point where their value can be recycled. Consequently, supply chains emerge as a manifestation of cooperative endeavors among organizations with shared objectives.

These objective can be profit maximization, process improvements, cost reduction etc. The cohesion of the supply chain is based on trust and mutualism. Sari and Bramantyo (2020) explained that the term "supply chain management" is used to indicate needs in the integration process from end-users to original supplier. Supply chain management focuses on integrated patterns in product flows from suppliers, manufactures, retailers to end consumers. A significant amount of material, funds, documents and information flow exists in supply chains; and a proper quantity and quality of flow is required to rationalize or occasionally optimize the processes, reduce costs or increase profits in the supply chain.

A supply chain is often defined as the totality of all functions that are involved in the planning, production, storing and distribution of products and services to maintain the flow of information and goods from the suppliers to the end user often carried out by a network of organizations (Mentzer*et al*., 2001, Janvier-James, 2012, Singh *et al*., 2019). There are different functions carried out by different parties within a supply chain which may include forecasting, warehousing, and so on, however in the process of carrying out these functions, unforeseen disruptions that can affect the flow of goods and information often occur. (Qi *et al.*,2017; Rajgopal, 2019).

Logistics and Supply Chain Management

Logistics is often considered to be the lifeblood economic growth within nations as they facilitate a pathway by which goods and services reach consumers from producers. According to Dekker, Bloemhof and Mallidis (2012), several disciplines, including sales, management of supply chains (SCM), procurement and delivery, corporate planning and strategy, finances, operations research, and general administration, provide key theoretical and conceptual underpinnings for logistics. However, Bensassi *et al*. (2015) observed that the relative dearth of analyses that directly establish the statistical assessment of the influence of this industry on global commerce can be explained by the absence of a broadly recognized definition of the business of logistics both nationally and regionally. Most current studies simply consider how various supply chain components affect global trade (Akopova *et al*., 2017; Bondarenko *et al*., 2017).

The *sensu lato* definition and conceptualization of logistics when it comes to supply chain management centres on logistics as a process that proposes, executes, and regulates the effective and productive forward and reverse storage and flow of products, services, and related information between the production point and the

point of consumption to meet customer's specifications" (Council of Supply Chain Management Professionals, 2012 cited in Hayaloglu, 2015). Mangan, and Lalwani (2016) defined logistics simply as a precise coordination of a complicated process involving several people, resources, or facilities is what is referred to as logistics. Further elaborating on the logistic process, Mangan, and Lalwani, (2016) broke logistics down into the process of organising, carrying out, and overseeing the steps necessary to convey and store commodities, services, and information from their point of origin to their site of consumption. Sever and Abasiz (2017) define logistics as a broad category of activities; with transport, customs duties, warehousing, handling, insurance, packing, stocking and management of inventory, customer services management, and client-specific services are among these core services. This means that logistics encompasses the entire process of good and service production, its inventory management and supply chain distribution (Amaje, 2020).

Currently, logistics has a significant impact on the economies of the vast number of economies, having an impact on several areas including transportation infrastructure, storage technologies, communication and information technology, shipping services, management of supply chains industry and goods, imports and exports of services, and more. Akdogan and Durak (2016) confirms this by noting that the global economy between 2008 and 2013 has grown by 4-5% due to the influence of the logistic sector. According to Hayaloglu (2015), logistics is now a significant component of trade and is actively contributing to this development. Furthermore, the gross domestic products (GDP) of first world countries now include logistics at a significant scale, which has an impact on other economic factors such as the inflation rates, borrowing costs, production, and the price and availability of energy. On the other hand of the technological and development divide, logistics in third world countries has grown in impact; influencing several areas including transportation infrastructure, storage solutions, communication and information technology, packaging services, supply chain, industry and products, imports and exports of services, and more. Thus, the growing influence of logistics in the global economy has prompted its use in the creation of the Logistic Performance Index (LPI) (Sharipbekova and Raimbekov, 2018). The LPI makes use of factors such as agricultural and general industrial availability, trade and investment; transportation services and infrastructure, telecommunications and export services just to mention a few. The complex interplay of these factors are reflective of the nation's economic development (Sharipbekova and Raimbekov, 2018).

As a result, the growth of the logistics industry is important, offering benefits for development and growth. Logistical expenditures also alter how businesses and nations operate. This alteration by logistics occurs on local and international scales due to globalisation, making it necessary for nations to strengthen their logistical

capabilities. Investments made by nations in this area have given them a considerable competitive edge in relation to international trade since logistical advances have made production, distribution, and marketing easier. A crucial step in achieving cost and effectiveness benefits for nations is precise and efficient coordination of logistics operations. Typically, investments in logistical capabilities may be carried out by the government (through the establishment government-run logistic firms) or privately-run logistic companies. The contributions of these state and non-state actors would develop into what is called the "logistic industry" or "logistic sector of the economy"

Supply Chain Performance (SCP)

Supply chain performance has been described as capacity of the supply chain to deliver the right product to the correct location at the appropriate time at the lowest cost of logistics (Zhang, Okoroafo 2015). The focus of the definition is the time of delivery, cost and value for the end customers. Leonczuk (2016) described supply chain performance as the ability (of the entire supply chain) to meet end-customer needs, associated with ensuring the availability of product, deliver it on time in the right way and ensure appropriate inventory levels. It also exceeds the functional boundaries of organizations, i.e. production, distribution, marketing and sales, research and development. Estampe (2014) identified three basic criteria for supply chain performance: Efficacy: this refers to relationship between the achieved result and the pursued objectives; it is related to the level of customer satisfaction with respect to the resources committed for this purpose. While Efficiency: here efficiency refers to the relationship between efforts and resources involved in the operation and the actual utility value as a result of the action; it is usually linked to the achievement of objectives at a lower cost and Effectiveness relates to the satisfaction with the results. Supply chain performance is the ability (of the entire supply chain) to meet end-customer needs, associated with ensuring the availability of product, deliver it on time in the right way and ensure appropriate inventory levels.

Functions and Roles of Logistics Service Providers within the Supply Chain

Using their expertise and experience, logistics service providers can coordinate with numerous vendors to provide a one-stop solution to the convoluted supply chain operations. A third-party logistics provider offers a range of services that would otherwise necessitate the customer company hiring a sizable number of additional staff (Guidolin and Filha, 2022). A customer can concentrate on their core skills and then expand when their supply chain is managed by a 3PL provider. Several of the responsibilities and roles performed by logistic service providers as stated by Ross (2015) are listed below:

Expertise/Knowledge: Logistics service providers handle all transit needs, from origin through distribution to end consumers. Highly skilled experts with in-depth expertise of tariff schedules and customs laws know how to guarantee the best and most effective delivery path.

Warehouse Management: Service providers are now extending their assistance to various aspects of warehouse management, including budgeting, design, technology implementation, and other tasks aimed at optimizing space utilization and streamlining warehouse operations. Notably, one of the services increasingly provided by these service partners is inventory management.

Documentation Services: It's undeniable that the smooth functioning of international trade hinges on the unhindered movement of goods. These businesses play a pivotal role in facilitating international business by handling all the necessary paperwork and legal procedures.

Internet Services: Leveraging their strategically positioned distribution networks, logistic service providers play a crucial role in helping companies expand into new markets. They offer guidance on economically viable markets, drawing from their extensive knowledge of the various rules and regulations governing these markets (Guidolin & Filha, 2022).

Value-Added Support: Exporting becomes more convenient when vendors offer additional services such as labeling and packaging. These suppliers also employ real-time tracking systems to enhance control and visibility over shipments and inventory.

Cost Efficiency: Logistics service providers demonstrate their cost-effectiveness by freeing up resources, offering cost-effective turnkey solutions, delivering flexible and customized services, among other strategies. They remove unnecessary trade barriers, determine optimal tariffs, and extend shipment insurance to provide a comprehensive service package for companies. There's no denying that outsourcing supply chain operations to logistics service providers can significantly reduce expenses and enhance a company's profitability (Guidolin & Filha, 2022).

Stefansson (2006) categorizes logistics service providers into three functional groups: sub-contract carriers, logistics service providers, and logistics service intermediaries (Cui & Hertz, 2011). Within the realm of logistics services, these entities encompass carrier modes, focusing on the transport facet of logistics by providing physical transportation services for goods or materials between locations (Coyle, Bard & Novak 2000, as cited in Hertz & Cui, 2011). Stefansson (2006) identifies various services offered by carriers based on empirical evidence, which

includes both inbound and outbound logistics functions which include transportation, door-to-door service, contract delivery, transportation administration, handling of paperwork, scheduling of transports, tracking and tracing data, and customised services. Additionally, the author refers to carriers as asset-based operators because they often own the majority of their assets or lease the vehicles or equipment they need to operate. Moving goods from one place to another results in time and place benefits (Stefansson, 2006). According to Cui and Hertz (2011), carriers make significant investments in a variety of transportation infrastructures, equipment, and means of transport, and are also quite effective at using them. Shipping companies, airlines, and trucking companies are some examples of carriers (Cui & Hertz, 2011).

Supply Chain Relationship Management

Supply chain relationship management encompasses the actions an organization takes to facilitate efficient management of its engagements within the supply chain, both in the direction of incoming and outgoing flows (Lapide, 2013). Within this spectrum, there are varying degrees of closeness between buyers and suppliers. On one end, we find relationships where this closeness is lacking, while on the other end, we encounter adversarial relationships characterized by a deficiency of shared thinking and coordinated actions. Donlon (1996) identified several elements that constitute supply chain relationships, including outsourcing, supplier partnerships, information exchange, cycle time reduction, and the continuous flow of processes. Moreover, he categorized supply chain relationships into three stages: strategic supplier partnerships, customer relationships, and information sharing.

Strategic supplier partnerships refer to enduring associations between an organization and its suppliers along the relationship spectrum. These partnerships are structured to harness the strategic and operational capabilities of each participating entity to yield substantial and ongoing advantages. As per Li, Ragu-Nathan, Ragu-Nathan, and Rao (2006), a strategic partnership underscores the importance of long-term collaboration between trading partners, fostering joint planning and collaborative efforts to address challenges. These partnerships with suppliers empower organizations to collaborate closely and efficiently with a select group of suppliers, resulting in mutually beneficial outcomes (Thatte, 2007).

Customer relationship is seen as the entire spectrum of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction (Li *et al.*, 2005). An organization's customer relationship practices can affect its success in supply chain management efforts as well as its performance. Successful supply chain management involves customer integration at the downstream and supplier

integration at the upstream, considering that each entity in a supply chain is a supplier as well as a customer (Tan, Kannan, Handfield & Ghosh, 1999).

Theoretical Framework

Stakeholder Theory

The supply chain creation rationale for stakeholder management places companies at the centre of a union of stakeholders. According to Freeman (1994), a company's stakeholders include any group of people who have an impact on or are negatively impacted by the company, including its shareholders, vendors, personnel, consumers, competition, local communities where the company works, regulatory bodies, and so on (Touboulic and Walker, 2015).

Many organizations may confront various crises or epidemics. Hermann (1963) defined a crisis as "an unexpected threat to the fundamental principles of an organization, requiring a swift response." Within an organization, its employees can be seen as one of these fundamental principles. They represent the essential workforce responsible for the daily operations, particularly the blue-collar workers. Phillips (1997) suggests that every organization relies on different groups for its success, which we can refer to as stakeholders. These are individuals or entities that have an influence on a business, both from within and outside. Employees are also among these stakeholders.

Phillips (2007) emphasizes that the management team should prioritize serving the collective interests of the company's stakeholders over serving the interests of society at large. These stakeholders encompass a broad spectrum, ranging from the society in which the organization operates to the employees who sustain it. The organization has a responsibility to ensure that its employees are following the best path, not only for the benefit of society but also for their own well-being.

Most businesses have opted to outsource and expand various manufacturing and supply chain operations, leading to an increased dependence on international suppliers and heightened complexity. This heightened reliance has also rendered them more vulnerable to disruptions in their supply chains, as noted by Bozarth and Handfield (2016, p. 226). Such disruptions can be triggered by a range of external factors that are beyond the company's control, including events like the Covid-19 pandemic and other natural disasters.

This growing dependency on external partners is explained by the resource dependence theory. Rooted in a social exchange theoretical framework, resource dependence theory (RDT) considers cross-management as a strategic response to situations characterized by uncertainty and interdependence among market

participants (Heide 1994). RDT primarily investigates how certain companies come to rely on others for essential resources, including goods and materials, and how organizations can effectively manage such interdependent relationships (Jajja et al., 2017). It is widely believed that the uneven interdependence inherent in these relationships plays a crucial role in reducing environmental uncertainty (Ketchen and Hult 2007).Because supply chain participants frequently collaborate to achieve shared objectives and become more dependent on one another, RDT places a strong emphasis on the impact of pandemics on the resources that may have an impact on logistics businesses' operating capacities. The availability of goods, information, and the demand for them along the supply chain are examples of these resources.

Causes of Supply Chain and Logistics Disruptions in South East Nigeria

Supply chain disruption refers to the occurrence of unexpected events, incidents, or factors that disturb the normal flow, operations, or stability of a supply chain. These disruptions can occur at various stages of the supply chain, from sourcing raw materials to delivering finished products to customers (Aday, & Aday, 2020). Supply chain disruptions can have a significant impact on an organization's ability to meet customer demands, maintain operational efficiency, and manage costs. Disruptions can occur due to natural calamities or man-made disasters (Odunayo & Victor, 2020; Singh et al., 2020). There are several global calamity that have occurred in the past such as, the Gujarat Earthquake of 2001, the Tsunami in Japan in 2011, the Indian Ocean Earthquake, and Tsunami in 2004. And most recently, the 7.8 magnitude earthquake that affected Turkiye and Syria and killed more than 40,000 people. Also, there have also been various outbreaks of highly infectious diseases like COVID-19 which caused global crisis not only to human lives, but also economic activities. Supply chain disruptions may arise from a "combination of an unintended and unexpected triggering event that occurs somewhere in the upstream of the supply chain (the supply network), the inbound logistics network, or the purchasing (sourcing) environment, and a consequential situation, which presents serious threat to the normal course of business operations of the focal firm" (Bode & Macdonald, 2017). Disruptions, whether natural or human-caused, are inherent part of the global context of all supply chains, regardless of the market niche in which those supply chains operate or the critical nature of the goods and services they provide.

Localized events such as the 2019 wildfires in Australia (Edwards, 2020) or the 9.0 magnitude earthquake that hit Japan in March 2011, causing the Fukushima Daiichi Nuclear Power Plant explosion (World Nuclear Association, 2018), not only caused damage in Japan, but affected global supply chains which resulted to temporary closure of a General Motors truck plant in Louisiana, due to a lack of Japanese parts (Golan et al., 2020; Lohr, 2011). The COVID-19 pandemic is a disruption of an

entirely unprecedented magnitude that is testing the resilience of global supply chains.

The ability of supply chain operators to effectively plan, provides a means for the supply chain to absorb, recover from, and adapt to disruptions of various lengths, impacts, and probabilities, and is essential to ensuring the supply chain's functioning and success. Measuring such abilities provides insights into strengths and deficits and can help focus future planning efforts. Localized disruption affects particulars countries and industries while global crises such as a pandemic, simultaneously impacts multiple countries and multiple industries. In the case of the Covid-19 pandemic, the fear of contagion resulted in unanticipated market trends, such as price spikes and hoarding, while demand in other industries reduced.

Various Causes of Disruptions in Supply Chain and Logistics in Nigeria

Unexpected Events

Disruptions are typically unforeseen or unanticipated events. These events can be diverse in nature, including natural disasters (e.g., earthquakes, hurricanes), man-made crises (e.g., strikes, political unrest), technological failures (e.g., system crashes), and public health emergencies (e.g., pandemics like COVID-19).

The Covid-19 Pandemic and Supply Chain Disruption

The negative effects of Covid-19 pandemic on individuals, firms and supply chains in Nigeria may be difficult to measure. The pandemic caused devastating social effects, massively influenced local and global economic activities, including short and global supply chains (Pato & Herczeg, 2020), There was restriction of workers, changes in demand of consumers, closure of production facilities, restricted food trade policies, and financial pressures in supply chain in many countries (Aday & Aday, 2020). Silva et al. (2020) stated that Covid-19 forced many companies to shut down due to lack of capital to maintain operations; others reinvented and adapted during this problem.

Chin (2020) explained that Covid-19 disrupted food supply chain with restriction of movement put in place to reduce transmission of the virus. According to Singh et al. (2020), the outbreak Covid-19 did not only take lives, it also severely crippled economies by disrupting manufacturing and logistics activities and demand and supply of products. Queiroz et al. (2020) argued that the Covid-19 pandemic wreaked serious havoc on supply chains around the globe. Hoek (2020) stated that the Covid-19 pandemic caused risks and disruptions in most supply chains. Golan et al. (2020) highlighted that Covid-19 pandemic revealed the lack of resilience and failure in global network scale in relation to individual supply chain connections. In addition, the Covid-19 crisis caused major supply chain disruptions; and caused considerable damage to global supply chain (Hoek, 2020; Hu, et al., 2020).

There are also several reports about the disruptive effects of the Covid-19 pandemic on countries. In Nigeria, Babatunde (2020) reported that the Covid-19 plunged the world into broken supply chain. Similarly in China, Sharma et al. (2020) stated that Covid-19 disruptions caused ripple effects on global supply chains. In India, Rewari et al. (2020) reported that India's nationwide lockdown due to Covid-19 pandemic prompted concerns about disruption to supply of antiretroviral drugs. Similarly, Odunayo and Victor (2020) argued that the Covid- 19 crisis created a new set of challenges to which supply chain managers must respond. Covid-19 and the imposition of the strict lockdowns caused disruptions in China with ripple effect on global supply chains (Sharma et al. 2020).

Natural Disasters

Natural disasters are catastrophic events that result from natural processes of the Earth. These events can cause significant damage to the environment, infrastructure, and human populations. Natural disasters can take various forms, and each type has its own characteristics and impacts. Some of the natural disasters that can hinder the smooth flow of supply chain are

Earthquakes:

Earthquakes are sudden shaking or trembling of the Earth's surface caused by the movement of tectonic plates beneath the Earth's crust. The 2010 Haiti earthquake had a magnitude of 7.0 and resulted in widespread destruction and loss of life in the capital city of Port-au-Prince.

Hurricanes (Tropical Cyclones or Typhoons):

Hurricanes are powerful tropical storms with strong winds, heavy rainfall, and storm surges. They are called typhoons in the western Pacific and cyclones in the Indian Ocean. Floods occur when there is an overflow of water onto normally dry land. They can result from heavy rainfall, snowmelt, dam failures, or storm surges from hurricanes. The 1931 China floods were one of the deadliest natural disasters in history, affecting millions of people and leading to widespread famine and death.

Supplier Issues:

Supplier issues refer to a range of challenges and complications that organizations encounter when dealing with their suppliers, particularly those in their supply chain. These issues can have significant implications for a company's operations, from production delays to disruptions in the flow of goods and services.

Supplier Reliability: One of the primary concerns in supplier relationships is the reliability of the supplier. Organizations depend on suppliers to deliver goods and materials on time and in the expected quantities. Supplier unreliability, which can result from various factors like production bottlenecks, quality control problems, or

financial instability, can lead to disruptions in production schedules, increased costs, and customer dissatisfaction.

Quality Control: Ensuring that the materials and components supplied meet quality standards is crucial for product integrity. Supplier issues related to quality control can result in defective products, increased rework or rejection rates, and damage to a company's reputation. Organizations often invest in quality assurance processes and inspections to address these concerns.

Supplier Capacity: Supplier capacity constraints can be a significant issue, especially when there is an unexpected surge in demand. Suppliers may struggle to meet increased orders, leading to production delays and the inability to fulfill customer orders promptly. Effective communication and collaboration with suppliers are essential to address capacity-related challenges.

Financial Stability: The financial health of suppliers is essential for the long-term stability of the supply chain. Supplier bankruptcy or financial troubles can disrupt the supply chain, leaving organizations with limited options and potential financial losses. Companies often assess the financial stability of their key suppliers and may even provide financial support when necessary.

Supply Chain Resilience: Organizations are increasingly concerned about the resilience of their supply chains. Relying heavily on a single supplier or a single source of critical materials can be risky. Supplier diversification, dual sourcing, and contingency planning are strategies employed to mitigate the impact of supplier issues on the supply chain.

Communication and Collaboration: Effective communication and collaboration with suppliers are vital for addressing and preventing supplier issues. Open channels of communication can help identify potential problems early and facilitate joint problem-solving. Collaborative relationships with suppliers can lead to mutual understanding and a shared commitment to resolving challenges.

Ethical and Social Responsibility: Supplier issues can also encompass ethical concerns, such as labor practices, environmental sustainability, and adherence to social responsibility standards. Organizations are increasingly focused on ensuring that their suppliers adhere to ethical and sustainable practices to align with their own corporate values and meet regulatory requirements.

Cyberattacks and IT failures

Cyberattacks and IT failures are two critical issues that organizations face in the digital age. These incidents can have far-reaching consequences, impacting data security, operations, and even the reputation of the affected entities.

Cyberattacks: Cyberattacks encompass a range of malicious activities aimed at compromising an organization's digital systems, networks, and data. These attacks can take various forms, including hacking, malware infections, phishing, and ransomware. Cybercriminals often target sensitive information, such as customer data, financial records, and intellectual property, for financial gain or other malicious purposes. The fallout from a cyberattack can be severe, involving data breaches, financial losses, legal repercussions, and damage to an organization's brand.

Example: In 2017, Equifax, one of the three major credit reporting agencies in the United States, fell victim to a massive data breach. Hackers exploited a vulnerability in the company's website software, gaining access to the personal and financial information of approximately 147 million consumers. This breach not only resulted in extensive financial losses for Equifax but also raised serious concerns about the security of individuals' personal data.

IT Failures: IT failures refer to disruptions or breakdowns in an organization's information technology systems and infrastructure. These failures can occur due to hardware malfunctions, software glitches, human errors, or inadequate system maintenance. IT failures can have a broad range of consequences, from temporary service interruptions to substantial business disruptions. The impact of an IT failure extends beyond operational downtime, affecting customer satisfaction and potentially leading to financial losses.

Example: In 2020, the Royal Bank of Scotland (RBS) experienced a significant IT failure that affected online banking services for millions of customers. The failure resulted from a software glitch during a routine update, causing customers to experience issues accessing their accounts, making payments, and carrying out transactions. This IT failure not only disrupted banking operations but also eroded trust among RBS customers, highlighting the importance of robust IT systems in the financial sector.

Both cyberattacks and IT failures underscore the critical need for organizations to invest in robust cybersecurity measures, regular system maintenance, and disaster recovery plans. These incidents serve as reminders that in an increasingly digital world, safeguarding data and ensuring the reliability of IT systems are paramount for the security and continuity of businesses and their customers.

Consequences of Supply Chain and Logistics Disruptions

Recently, both social and environmental disruption issues become popular among researchers. A rapid change in social aspects (including health, global pandemic, social conflict, and human behavior), and the rise of global environmental issues (including climate change, natural disasters, and ecofriendly industry), potentially tend to be disruptions of business and so on . According to Sanchis & Poler, disruption can be an interrupting variable that results in deviations, inhibits, and forces businesses to make changes and adjustments [1]. A system is disrupted when the system must redesign its strategy to survive a change in the environment [2]. Merriam Webster furtherly explains that disruption is to cause (something) to be unable to maintain in the normal direction: to interrupt the normal progress or occupation of (something) [3]. In social subjects, disruption can be defined as a term used in sociology to describe the alteration, dysfunction, or breakdown of social life, often in a community setting [4]. Tis type of disruption implies a radical transformation [4]. Meanwhile, in environmental circumstances, disruption is referred to as ecological disturbance or ecological imbalance (including climate change, fres, fooding, insect and pest outbreaks, or earthquakes) that can cause environmental stress, and largely impact the ecosystem or natural resources [5]. Tis disruption potentially has a direct and significant impact on the agricultural system. Environmental disruptions can be caused by natural incidents or human activity [6]. Tus, in this research, we propose disruption as an event or any change, disturbance, interruption, or distraction, in a social and environmental term, which forces a system (smallholder plantations) to change its regular practices and then fnd a new strategy to survive. Numerous studies succeed to identify social disruptions in agricultural subjects among others, demographic problems, deadly epidemics, resistance, social domination, and cooperation or attachment.

Supply chain disruptions in Nigeria, like in many parts of the world, can have far-reaching consequences across economic, social, and environmental dimensions. These disruptions, which can result from a range of factors, including natural disasters, political instability, and global market dynamics, can significantly impact the nation's overall well-being.

Economic Consequences:

Reduced Economic Growth: Supply chain disruptions often lead to decreased industrial production, manufacturing delays, and decreased economic activity. This, in turn, can hamper Nigeria's economic growth prospects, as key sectors like manufacturing, agriculture, and services are affected.

Increased Costs: Disruptions can drive up costs for businesses due to delayed production, increased transportation expenses, and the need to source alternative suppliers or materials. These additional costs can translate into higher prices for consumers, contributing to inflationary pressures.

Lost Revenue: Businesses may experience revenue losses as they struggle to meet customer demand during disruptions. These losses can impact corporate profitability and investment prospects, which are critical for economic development.
Supply Chain Fragmentation: Persistent disruptions can lead to the fragmentation of supply chains, with companies seeking alternative suppliers both domestically and internationally. This can undermine the development of a robust and integrated national supply chain network.

Social Consequences:
Unemployment: Economic downturns resulting from supply chain disruptions can lead to job losses and increased unemployment rates. This, in turn, affects the livelihoods of Nigerian workers and their families, potentially leading to social unrest.

Food Insecurity: Disruptions in the agricultural supply chain can result in food shortages and increased prices for essential goods. This can impact the food security of vulnerable populations and contribute to malnutrition.

Healthcare Challenges: Supply chain disruptions can hinder the availability of essential medical supplies, medicines, and vaccines, exacerbating healthcare challenges and reducing the overall quality of healthcare services.

Social Disruption: Disruptions can lead to social disruptions, as people may face challenges in accessing essential goods and services. This can lead to protests, public dissatisfaction, and potential conflicts.

Environmental Consequences:
Waste Generation: Disruptions may lead to spoilage and waste of perishable goods due to delays in transportation or distribution. This contributes to environmental degradation and waste generation.

Increased Energy Consumption: Efforts to mitigate the impact of disruptions, such as rerouting supply chains or increasing production, can result in increased energy consumption and greenhouse gas emissions, contributing to environmental challenges.

Resource Depletion: Disruptions can lead to resource scarcity as industries rush to secure materials and goods. This can exacerbate overexploitation of natural resources, particularly in the context of a fragile environment.

Strategies to be employed to enhance supply chain disruptions

The disruptions stroked by Supply Chains (SCs) are numerous, many initiate from within the SC like break down of manufacturing line, demand variations, information technology complications, sustainability problems and/or quality challenges, the remaining are outside and due, amid other causes, to regulatory fluctuations, industrial labour actions, climate circumstances, economic disorder, fabricating, and terrorism (Scholten et al., 2020). With absence of resilience, a single node disruption may culminate in breaks or decreased capacity for the whole SC (Tukamuhabwa et al., 2015). Sung (2020) said that as SC networks become world-wide and progressively complex in design, mutually academics and experts are paying close consideration to how to handle danger factors like disruption in supply chain and quality control catastrophes that arise in the supply chain.

Sustainability is becoming a key emphasis of SCs, and resilience is part of the requirements to accomplish the sustainability aims (Irshad et al., 2016). Sustainable Supply Chain Management (SSCM) has become an essential portion of business strategy for almost all sectors. However, not so much is understood about the wider effects of sustainability practices on the ability of the Supply Chain (SC) to endure disruptions (Fahimnia & Jabbarzadeh, 2016). The growing experience of world SCs to extreme disruptions like those linked to COVID-19 pandemic obviously established the necessity for innovative data-driven risk cope models that monetize information from within and outside parties to back SC resilience, sustainability, and safety (Bechtsis et al., 2021), the following can be employed to core supply chain disruptions

Environmental sustainability

Environmental sustainability strategies can be integrated into supply chain management to help mitigate and respond to supply chain disruptions effectively. These strategies not only contribute to environmental responsibility but also enhance supply chain resilience.various ways in which Environmental sustainability can be use to supply chain disruptions:

Diversified Supplier Networks

Environmental sustainability principles encourage organizations to establish diversified supplier networks. Collaborating with suppliers from various geographical regions helps mitigate the risk of supply chain disruptions triggered by localized environmental events such as natural disasters. This diversification strengthens the supply chain's ability to adapt and recover.

Local Sourcing and Production

Prioritizing local sourcing and production reduces the environmental impact of long-distance transportation. Furthermore, localized supply chains tend to be more agile

and less susceptible to disruptions in global transportation networks, contributing to greater resilience.

Circular Economy Practices

Embracing the tenets of the circular economy minimizes waste and resource consumption. By incorporating practices like reuse, recycling, and repurposing within the supply chain, organizations reduce their dependence on external suppliers and enhance their resilience in the face of disruptions.

Energy Efficiency and Renewable Energy

Implementation of energy-efficient measures and the adoption of renewable energy sources in manufacturing and distribution facilities not only align with sustainability goals but also reduce vulnerability to disruptions arising from energy supply interruptions.

Digitalization and Data Analytics

Harnessing digital technologies and data analytics enhances supply chain visibility and predictive capabilities. Organizations can monitor environmental conditions, evaluate supplier performance, and assess risks in real-time, enabling early identification of potential disruptions and timely responses.

Supplier Collaboration

Fostering collaborative relationships with sustainability-focused suppliers can lead to joint efforts in disaster preparedness and risk mitigation. Suppliers committed to environmental sustainability are often more inclined to closely cooperate with buyers to address potential disruptions proactively.

Social Sustainability Strategies

Leveraging social sustainability strategies within supply chain management is a powerful approach to addressing and mitigating supply chain disruptions while simultaneously fostering positive societal impacts. These strategies emphasize collaboration, ethical practices, and community engagement, helping to build resilience and enhance the ability to navigate challenges.

Supplier Collaboration and Partnerships:

Establishing collaborative relationships with suppliers based on mutual trust and shared values is a cornerstone of social sustainability. These partnerships can be harnessed to jointly identify and address potential disruptions, ensuring a collective effort to mitigate risks.

Ethical Sourcing and Labor Practices:
Prioritizing suppliers with strong ethical labor practices and a commitment to fair wages and safe working conditions contributes to a more stable and resilient supply chain. Socially responsible suppliers are often better equipped to manage workforce-related disruptions.

Local Workforce Development:
Investing in the development of local workforces within the supply chain's operational areas not only enhances community well-being but also reduces reliance on external labor sources. A well-trained local workforce can help mitigate the impact of labor shortages during disruptions.

Diversity and Inclusion:
Embracing diversity and inclusion practices within the supply chain promotes resilience by ensuring that a variety of perspectives and skills are available to navigate challenges. Inclusive practices can foster innovation and adaptability.

Community Engagement:
Engaging with local communities and stakeholders builds social capital and creates a supportive network that can be activated during disruptions. Strong community relationships can facilitate resource sharing, information exchange, and crisis response.

Supplier Audits and Transparency:
Regular supplier audits that assess social responsibility criteria, such as labor practices and community impact, can help identify vulnerabilities. Transparent reporting and accountability mechanisms encourage suppliers to uphold ethical standards.

Findings
The study examine the supply chain and logistics disruptions in Nigeria, this study is designed are to examine the major types and causes of supply chain and logistics disruptions in Nigeria, examine the economic, social, and environmental consequences of these disruptions on businesses and the broader Nigerian economy, investigate the strategies and best practices can be employed to enhance supply chain and logistics resilience in Nigeria. Various literature review were used and stakeholder and Resource Dependence Theorywere also used.

This study employs a various empirical reviews and deeply examined the various specific variables in which a concept of supply Chain was defined as a system encompasses various elements, including people, materials, processes of transformation, organizational entities, information, and resources, all of which are

employed to meet the demand for products from customers. In essence, supply chains encompass a wide array of activities, individuals, materials, information, financial assets, as well as knowledge and expertise and other concept were also defined

Conclusion

In conclusion, the issue of supply chain and logistics disruptions in Nigeria is a multifaceted challenge that carries significant economic, social, and environmental implications. The nation's supply chains, vital for supporting its economy, have been susceptible to a variety of disruptions, ranging from natural disasters to political instability and global market dynamics. These disruptions have underscored the need for proactive measures to enhance supply chain resilience and minimize their adverse impacts.

The economic consequences of supply chain disruptions in Nigeria are evident in reduced economic growth, increased costs for businesses, lost revenue, and fragmented supply chains. These challenges impede the nation's progress and development efforts. Socially, supply chain disruptions can lead to unemployment, food insecurity, healthcare challenges, and social unrest, affecting the well-being of Nigerian citizens. Environmental consequences include waste generation, increased energy consumption, and resource depletion, further exacerbating environmental challenges.

However, it is crucial to recognize that supply chain disruptions are not insurmountable obstacles. With strategic planning and coordinated efforts, Nigeria can build more resilient supply chains that are better prepared to withstand disruptions and recover swiftly. These efforts should include diversifying supplier networks, adopting local sourcing practices, embracing circular economy principles, and investing in renewable energy and digital technologies.

Recommendations: There should be diversification of supplier network in which this will vulnerability to localized disruptions and enhances supply chain resilience; here should be promotion of local ways of sourcing for raw material that should be used in production and there should be community engagement to promote local communities and stakeholders to build social capital and create a supportive network during disruptions.

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