

***THE FRAGILITY OF THE GLOBAL SUPPLY CHAIN:
A STUDY ON BEVERAGES ALCOHOLIC BUSINESS IN INDIA***

By.

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B. Com, MBA, ID, IMP (IIMB)

DISSERTATION

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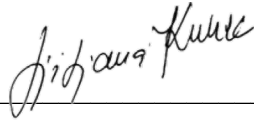
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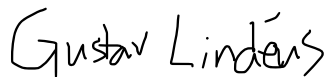
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DEDICATION

I dedicate this dissertation to my spiritual mentor, Gurudev Sri Sri Ravishankar ji of the Art of Living, a renowned saint and multifaceted humanitarian leader who has made invaluable contributions to humanity. Through his innovative and transformative programs, Gurudev has empowered individuals to tackle global, national, community, and personal issues. The Sudarshan Kriya, a unique breathing technique and a deep meditation, conceived by him, has brought vitality to my life, and become an integral part of my daily routine.

I also dedicate this dissertation to my late parents, Mrs Gulabi Shetty, and Mr Ramanna Shetty, for their unwavering love and support of my academic pursuits and encouragement in shaping the person I am today.

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I am incredibly grateful to all the Alco Bev Professionals who have contributed to the survey, expressed their views, and provided data for the research. Without their valuable input, I would not have been able to complete my dissertation. Once again, I would like to express my heartfelt gratitude to every single person who helped me either directly or indirectly in this study. The invaluable support from everyone has played a vital role in shaping my academic career, and I am eternally grateful.

ABSTRACT

THE FRAGILITY OF THE GLOBAL SUPPLY CHAIN: A STUDY ON BEVERAGES ALCOHOLIC BUSINESS IN INDIA

SANTOSH SHETTY

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This study focuses on the fragility of the Global Supply Chain (GSC), specifically within the alcoholic beverages (Alco Bev) industry in India. The study highlights several factors that contribute to this vulnerability, including limited supplier diversification, regulatory hurdles, transportation and logistics challenges, geopolitical factors, natural disasters and climate change, cybersecurity threats, and insufficient risk management strategies, among others.

An extensive literature review underscores the importance of strengthening Global GSCs to enhance their resilience in the face of disruptions. The review explores the challenges faced by the Alco Bev industry during the Covid-19 pandemic and examines the strategies implemented to mitigate its impact. The study reveals that pandemic-related disruptions significantly affected the industry, leading to increased costs and delivery delays. Therefore, it emphasizes the necessity of a flexible and resilient GSC capable of adapting to unforeseen events such as the pandemic.

The study employed as well as included document analysis and survey questionnaires, to gain insights into key stakeholders, service providers, and institutions involved in the Alco Bev industry. Furthermore, the target audience for the study encompassed various entities within the industry, such as manufacturers, wholesalers,

retailers, various logistics service providers, customs house agents, duty-free operators, and Customs bonded warehouse operators.

The survey questions were designed and mapped to address eight research questions concerning the strategies employed by Alco Bev organisations in navigating the challenges of the GSC during the pandemic. The study's results, based on responses from 66 survey participants, highlighted the significance of robust and resilient GSCs in improving overall performance. It was suggested that international collaboration could play a crucial role in mitigating GSC interruptions by facilitating the maintenance of normal operations during unforeseen circumstances. Furthermore, the study recommended the utilisation of artificial intelligence as a tool for predicting and preventing SC disruptions and emphasised the importance of collaboration between SC organisations and mass media organisations to address issues such as fake news, consumer panic, and cost increases.

Finally, the study proposed areas for future research, including evaluating the regulatory framework, analysing the role of technology, examining the effects of climate change, assessing sustainability, and studying the impact of geopolitical risks. Overall, the study emphasised the fragility of the GSC and the need for proactive measures to enhance its resilience in the Alco Bev industry in India.

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ACRONYMS

1PL	: First-Party Logistics
2PL	: Second Party Logistics
3PL	: Third-Party Logistics
4PL	: Fourth-party Logistics
ABV	: Alcohol by volume
AI	: Artificial Intelligence
Alco Bev	: Alcoholic Beverages
ASCI	: Advertising /Standards Council of India
BII	: Bottled In India
BIO	: Bottled In Origin
BT	: Blockchain Technology
CDC	: Centres for Disease Control
CHA	: Customs House Agent
CIABC	: Confederation of Indian Alcoholic Beverage Companies
CL	: Country Liquor
CSC	: Critical SCs
DSN	: Digital Supply Networks
ED	: Excise Duty
EDI	: Electronic Data Interchange
ENA	: Extra Neutral Alcohol
FDI	: Foreign Direct Investment
GATT	: General Agreement on Tariffs and Trade
GDP	: Gross Domestic Product
GPS	: Global Positioning System
GSC	: Global Supply Chain
GST	: Goods and Service Tax
GT	: Global Trade
GTM	: Global Trade Management

GVC	: Global Value Chain
IMF	: International Monetary Fund
IMFL	: Indian Made Foreign Liquor
IMIL	: Indian Made Indian Liquor
IT	: Information Technology
JIT	: Just In Time
KPI	: Key Process Indicator
KPI	: Key Performance Indicators
LFHI	: Low-Frequency High Impact
ML	: Machine Learning
MNC	: Multi-National Corporations
MTO	: Make To Order
NGO	: Non-Governmental Organizations
NVOCC	: Non-Vessel Operating Common Carrier
OEM	: Original Equipment Manufacturer
OSCM	: Operations and SC Management
PMI	: Purchasing Managers' Index
PMS	: Performance measurement systems
RFID	: Radio Frequency Identification
RQ	: Research Questions
SC	: Supply Chain
SCM	: Supply Chain Management
SCP	: Supply Chain Planning
SCV	: Supply Chain Visibility
SKU	: Stock Keeping Unit
SQ	: Survey Questions
SSM	: Strategic Supply Management
TRA	: Theory of Reasoned Action
UNESCAP	: United Nations Economic and Social Commission for Asia and the Pacific

US : United States
USAID : United States Agency for International Development
VAT : Value Added Tax
WMS : Warehouse Management System

KEYWORDS

Agile, Alcoholic Beverages, Covid19 pandemic effects, Disruption Management, Global Supply Chain, Resilience, Supply Chain, Supply Chain Management, Supply Chain Visibility, Supply Chain Obstacles.

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CHAPTER I: INTRODUCTION

1.1 Conceptual Framework

The Supply Chain (SC) lies at the core of an organization's operations, and Global Supply Chain (GSC) have long been a fundamental aspect of the international business landscape. GSC focuses on delivering the right volume of products, of the appropriate quality, at the correct price. According to Gereffi (2011), globalization has guided in a new era of international competition that is reshaping global production and trade, leading to changes in industry organization. The prosperity of countries is now dependent on their engagement in the global economy, which includes active participation in GSCs. Thus, GSCs play a crucial role in international development. Feenstra (1998) argues that as SCs become global, there is an increase in the trade of intermediate goods across borders, along with a rise in the importation of parts and components for use in exports. Quality standards serve as one of the key mechanisms through which buyers govern GSCs. With growing product differentiation, ensuring quality becomes a critical factor for achieving success in the market.

The SC, as defined by Stevens (1989), refers to the interconnected operations associated with the planning, coordination, and control of material, parts, and finished items from suppliers to consumers. It is a network comprising businesses, organizations, and individuals involved in the production, distribution, and consumption of goods and services. Numerous SC employees are responsible for transporting goods and services from their origin to their final destination. The flow of goods and information moves upstream, from customers to suppliers, to determine demand characteristics. As the end consumer pays the original provider for the goods or services they receive at the start of the SC, money flows upstream from the consumer. Behnezhad et al. (2013) pointed out that the

trend towards globalization has increased the risk exposure and consequently raised the likelihood of disruptions in the SC.

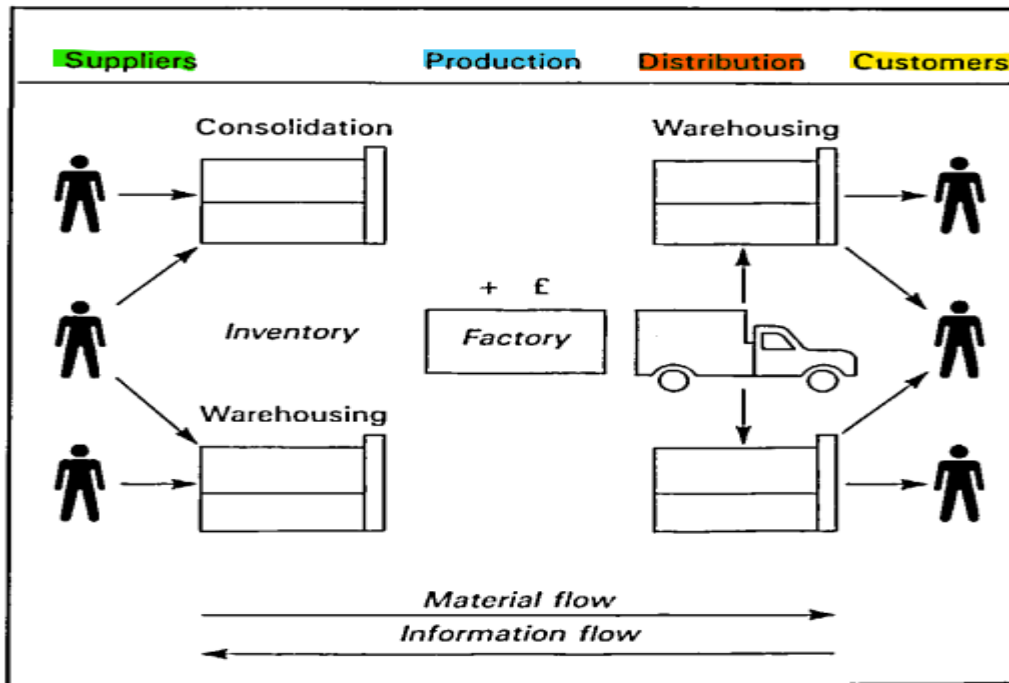


Figure 1: The scope of the SC.

Source: Stevens (1989).

According to Stevens (1989), all manufacturing companies, regardless of their size, the type of product they produce, or the manufacturing process they employ, need to effectively manage the flow of materials from suppliers through manufacturing and distribution to the customer. Traditionally, material flow has been primarily considered at an operational level, driven by efficiency and cost reduction, or sometimes neglected and left vulnerable to the pressures of a rapidly changing competitive environment. Therefore, Stevens argues that the SC plays a crucial role in helping businesses adapt to shifting market conditions, and the potential for SC integration should not be underestimated. Organizations that consider the SC during strategic discussions, treat it as a unified entity, and employ the appropriate tools and approaches to meet market demands will be rewarded with higher market share and lower asset base. On the other hand, those that neglect it will lag behind in the struggle for survival.

Globalization has resulted in increased pressure for organizations to expand internationally (Edwards et al., 2016). As a consequence, there have been extensive discussions on how to effectively improve working conditions in developing countries due to globalization and the expansion of industry supply networks. Many factories in underdeveloped nations still employ child labour, provide unsafe working environments, enforce long working hours for low wages, and generally fail to meet the standards expected by multinational corporations (MNCs) that source from them. Due to the limited enforcement capacity of developing nations' governments concerning labour laws, MNCs have developed codes of conduct for their suppliers and implemented various monitoring techniques to ensure compliance with these codes. Currently, both MNCs and labour rights non-governmental organizations (NGOs) are addressing poor working conditions in GSC factories through monitoring processes aimed at ensuring adherence to the established codes of conduct.

Conclusion: The SC is not restricted to any specific company or organization. It encompasses a network of suppliers, manufacturers, distributors, retailers, and other intermediaries who collaborate to generate value for the ultimate consumer. The scope of the SC encompasses a wide range of activities and stakeholders, all of whom are crucial in ensuring the efficient, effective, and responsible delivery of products and services to the end customer. Alongside physical products and services, the SC also incorporates environmental, social, and ethical considerations that impact its operations. These considerations include sustainability, human rights, labour practices, and corporate social responsibility. Additionally, the management of information and financial flows, such as order processing, inventory management, and payment processing, also forms an integral part of the SC.

1.1.1 Evolution of the SC

SCs have been in existence since the early days of business, where traders sourced goods from merchants and delivered them to customers. The selection of reliable suppliers to provide quality goods has always been a fundamental aspect of SCs (Crandall et al., 2009). Additionally, the emergence of SCs can be traced back to the travels of the Venetian merchant Marco Polo, who journeyed along the Silk Road from the Black Sea to China between 1275 and 1295. The SC further developed with Christopher Columbus's discovery of the Americas in 1492, connecting the world in new ways. The introduction of the steam engine and other innovations later reduced transportation costs, enabling goods to be transported across longer distances and at greater speeds around the globe. While many supply networks today still operate at a local level, numerous others have a global perspective.

According to a study by Rodrigue (2020), the SC system was highly fragmented in the 1960s, which identified the gradual but steady integration of previously independent tasks as a key area for future productivity gains. Although material management and physical distribution are still two distinct but interconnected logistics activities, they were first combined in the 1970s and 1980s. The 1990s witnessed further development in this area as globalization prompted greater functional integration and the establishment of logistics as a discipline. An integrated management approach was implemented throughout the entire SC. Additionally, the study highlights that the increasing automation of SCs in recent years has been a driving force in the evolution of both physical distribution and materials management.

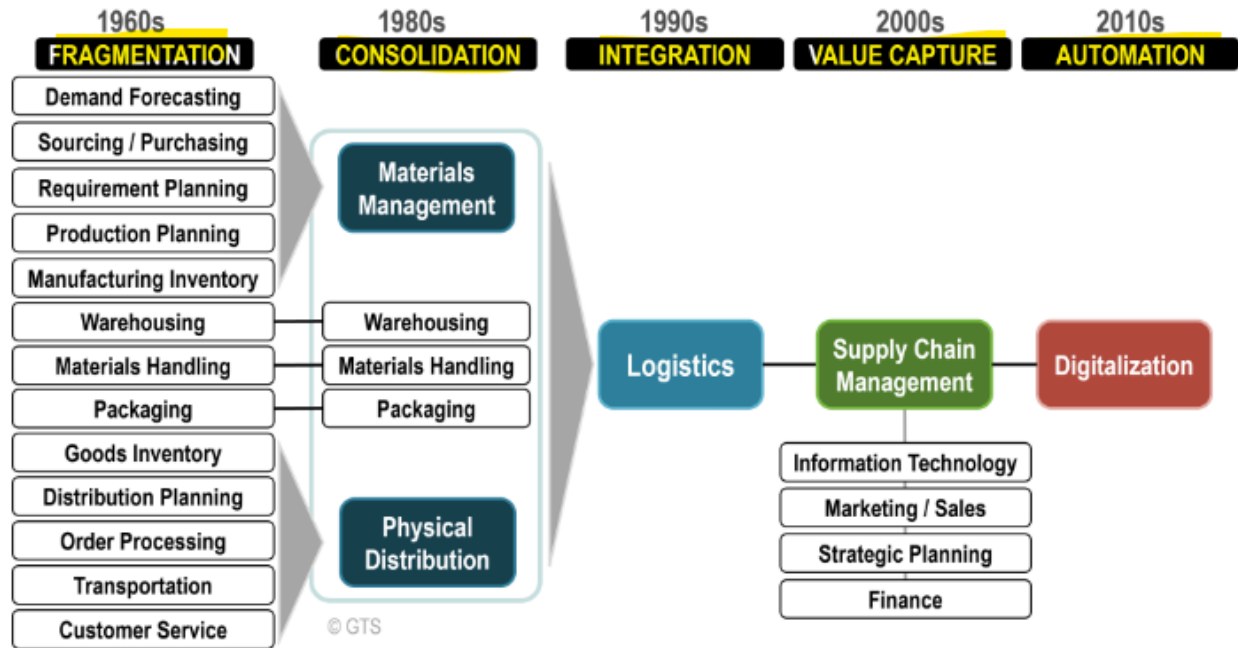


Figure 2: The evolution of the SC.

Source: Rodrigue (2020).

SCs have both direct and indirect effects on individuals and businesses. According to Crandall et al. (2009), SCs are not a new concept; they have evolved over time. Throughout history, diverse types of SCs emerged in response to the specific challenges faced during different eras. Examining the historical development of supply networks can provide insights into past obstacles and offer valuable strategies for overcoming modern challenges. The earliest SCs comprised a series of distinct steps that facilitated the movement of goods from their origin to the final consumption point. Today, progressive businesses are transforming these early forms into SCs that facilitate the seamless flow of commodities, information, and finances across multiple companies and countries. As GSCs cross international borders, they also encounter the complexities of local markets, diverse cultures, and varied governmental regulations.

Conclusion: SC has undergone significant transformation over the years due to technological advancements, globalization, and changing consumer preferences. What was

once a straightforward process of procuring and delivering products has evolved into a complex, interconnected network that involves multiple stakeholders and functions. Today, the SC plays a crucial role in generating value for the end consumer while also addressing environmental, social, and ethical concerns. As a result of emerging technologies, evolving consumer preferences, and new global challenges, the SC will continue to evolve, requiring businesses to adapt and innovate to remain competitive.

1.1.2 Overview of the GSC

According to Gilbert and Huber (2023), globalization is a process that involves increasing economic, social, political, and cultural interdependence. While international trade has always been part of human history, the speed and extent of globalization have significantly expanded in recent years. The expansion of GSCs has been the most prominent manifestation of globalization over the past three decades. In addition, they argue that the wealth generated by GSCs has approximately doubled in the last fifteen years. Advances in information and communication technology, along with the liberalization of the global financial system and capital markets, have substantially reduced trade and coordination costs, serving as primary drivers for the growth of global trade and GSCs.

Evenett and Fritz (2015) claim that globalization and international trade have brought significant changes to our lives. According to Javalgi et al. (2009), one of the main objectives of globalization is to create opportunities abroad, particularly for businesses in industrialized nations that face challenges in both domestic and international markets. To stay competitive, many multinational corporations (MNCs) are outsourcing jobs to developing countries like India and China. However, new challenges in SCM and globalization continually arise, influencing the business environment surrounding GSCs. Firstly, outsourcing to both domestic and international locations is on the rise. Secondly, more businesses that traditionally considered sourcing issues as enterprise-level concerns

are integrating decision-making processes across various levels of the SC. Thirdly, the definition of SC performance has been redefined, making it difficult to compare organizations, as their missions, strategies, and objectives may significantly differ based on the pricing of their products.

A country's success in the global economy is closely tied to its involvement in GSCs, making these linkages crucial for international development. GSCs have been an integral part of the international economic landscape for decades, and the concept has gained prominence as a means of analysing the geographical fragmentation and modernization of SCs, as well as value creation and capture within them. Implementing a GSC strategy involves strategic and budgetary considerations. When properly executed, this strategy can enhance risk management capabilities and leverage competitive advantages specific to locations and companies, resulting in increased profits and decreased costs. The GSC strategy also necessitates the management of information, cash, and materials on an international scale (Porter, 1996; Preiss et al., 1996).

GSCs have existed for centuries, and globalization has become inevitable in our interconnected world. Globalization has led to reduced global poverty, increased access to technology, and faster travel. According to Cao and Zhang (2011), world trade has experienced significant growth over the past three decades. Businesses in one location can tap into the opportunities provided by companies in other regions, accessing their input and output markets, technologies, and financing. Over the past decade, organizations have sought to collaborate with GSC partners to enhance the efficiency and responsiveness of their SCs by leveraging the experiences and capabilities of their suppliers and consumers. Gereffi (2011) argues that globalization has ushered in a new era of international competition that is reshaping global production, trade, and industry organization.

According to Jain et al. (2009), it is challenging to envision a future without access to a global marketplace. GSCs represent a dynamic process that involves the continuous

flow of information, materials, and funds across multiple functional areas within and between chain members worldwide. Evenett and Fritz (2015) argue that globalization and international trade have had impacts on our lives that often go unnoticed. Rapid communication, transportation, and the ability to coordinate supply and value chain operations across various locations have led to an increasing fragmentation of value chains. GSCs have emerged as production has become divided into specialized and regionally scattered value-adding tasks. Additionally, digital flows have connected the world more than ever before.

As a broad term, GSC management encompasses any efforts made to improve the efficiency, effectiveness, and timeliness of product development, manufacturing, distribution, sales, usage, and disposal. According to a study by Lund et al. (2020), the interconnected nature of value chains reduces the economic rationale for implementing large-scale changes to their physical locations. Value chains are characterized by specialization, access to global consumer markets, long-lasting partnerships, and economies of scale. Frequently, value chains involve thousands of interdependent companies. The entry of multinational producers has introduced environmental concerns and the need for SC sustainability. Therefore, relocating Alco Bev production to a new location outside of this ecosystem would be a costly decision. In dynamic market conditions, SC collaboration can lead to faster product development processes, lower development costs, greater technological advancements, and improved product quality (Walter, 2003).

Conclusion: The GSC was a vast and complex network that encompassed a wide range of activities and stakeholders across the world. It played a crucial role in facilitating international trade, connecting producers with consumers, and creating value for businesses and customers alike. However, the GSC was also subject to a range of challenges, including geopolitical risks, trade barriers, regulatory complexities, and disruptions caused by natural disasters or global crises. As such, businesses needed to take

a holistic and proactive approach to managing the risks and opportunities presented by the GSC effectively. By doing so, they could optimize their operations, enhance their competitiveness, and contribute to sustainable and responsible business practices in the global marketplace.

1.1.3 Background of the study

While GSCs around the world had been suffering from various pandemics, Boccaletti et al. (2020) argued that they had recently been severely affected by an unprecedented, far-reaching disruptive epidemic outbreak, namely Covid-19, and Choi (2020) specified that it was considered a new type of extremely contagious coronavirus with destructive effects. Losses in SC for Alco Bev were linked to the initial Covid-19 lockdowns, which were primarily communicated verbally by the countries imposing GSC restrictions and were more sensitive to the duration of a shutdown than its strictness. Because of the sudden economic standstill induced by Covid-19, the disruptions of SC activities, and the shocks to supply and demand that followed, several observers pronounced the end of globalization. Covid-19 also served as an excellent example of the global destruction brought on by pandemics and epidemics.

According to Harapko (2021), between late 2020 and 2022, Ernst & Young LLP, USA surveyed 200 senior-level SC executives in the United States and discovered that businesses intended to modify their SC strategies to become more resilient, sustainable, and collaborative with customers, suppliers, and other stakeholders. To accomplish this, they would increase their investments in SC technologies such as AI and analytics, robotic process automation, and control towers, as well as retrain their personnel. The research also claimed that the Covid-19 pandemic was one of the few worldwide events in the last 100 years to affect every sector of society, including commerce, banking, healthcare, and industry. It was not surprising that only two percent of businesses claimed to have been ready for the epidemic. Seventy-two percent said they were negatively impacted by the

serious disruptions, with seventeen percent stating it had an adverse impact and fifty-five percent saying it was largely unfavourable.

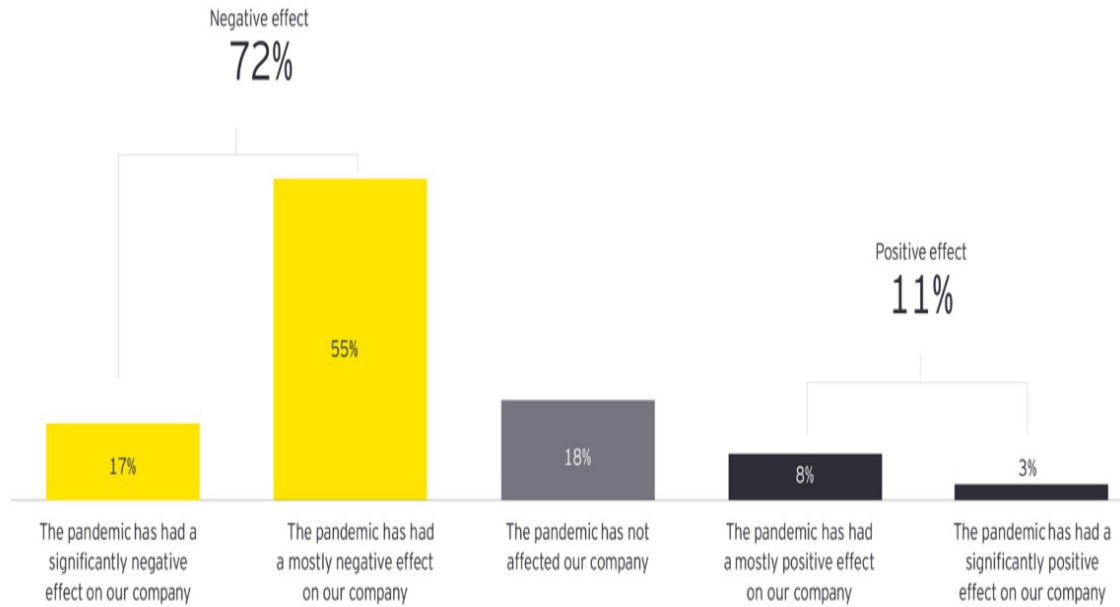


Figure 3: Impact of Covid-19 in various industries.

Source: Harapko (2021).

Christopher and Towill (2002) state that GSC management is becoming more susceptible to risk. Unexpected events always expose the flaws of value chains as a whole and in individual companies. Depending on how well business leaders manage risk, implement mitigation strategies, and develop business continuity plans, the SC activities of a company can either be a source of weakness or a source of strength. As potential weak points, we evaluate demand forecasting, SCM, logistics, funding, product complexity, and operational efficiency. The perishability of food and agricultural products, for example, makes the value chains that rely on them susceptible to delivery delays and spoilage. Businesses with cyclical, seasonal, or otherwise unpredictably fluctuating demand face particular difficulties. Due to the short lifespans of consumer electronics, manufacturers must be flexible to capitalize on sales spikes during brief holiday seasons.

In times of economic unpredictability, businesses usually limit their technology expenditures to a trickle. Nonetheless, Harapko (2021) estimates that 92 percent of enterprises continued to invest in technology throughout the Covid-19 pandemic. This highlights the value of a digital SC in supporting businesses in coping with disruptive forces and responding more swiftly to swings in supply and demand. Cost optimization in the SC will always be a priority, even while more resilience is being developed; thus, these results are expected. In the future, agility, visibility, automation, and upskilled people will be crucial, driving not only cost reductions but also improved decision-making, process standardization, and SC and client ecosystem partner excellence.

Ernst & Young discovered during their research that the Covid-19 pandemic disruption had few positive effects. For example, SC attained a voice and much-required investments in technical capabilities such as real-time visibility and resilience. The epidemic also compelled supply networks to acquire unprecedented levels of adaptability. For instance, numerous companies are constructing advanced analytics to do dynamic stock-keeping unit (SKU) rationalization instead of using spreadsheets when inventory levels grow too high, or the next crisis requires optimization. As a result, a robust SC is widely regarded as crucial to business success. While the pandemic undoubtedly sped up corporate transformation, companies' responses to the pandemic had a crucial role in driving the process forward. Our destinies, as well as the future of business, will be determined by how we as individuals and institutions respond, adapt, and evolve in tandem with business.

The Covid-19 outbreak highlighted GSC's resiliency and has caused and will continue to cause challenges for the food and beverage industry, including a disruption in their ability to produce goods and services. Fan et al. (2021) suggest that decisions in production, the market, commerce, and government policies are frequently dependent on risk management; the value proposition of a decision is determined by examining individual risks and risk appetite. In cases where SCs operate normally, the flow of

materials and resources can be frictionless (Yang et al., 2005), and large SC networks will become highly efficient to maximize the flow of resources throughout the system. This research will investigate the possible impacts of the Covid-19 crisis on the GSC for Alco Bev businesses in India and provide recommendations to overcome the present situation.

Conclusion: GSCs worldwide have recently experienced severe disruptions due to the unprecedented Covid-19 pandemic. The outbreak and subsequent lockdowns resulted in significant losses for Alco Bev, with the duration of the shutdowns having a more pronounced impact than their strictness. As a response, businesses have recognized the need to modify their SC strategies to enhance resilience, sustainability, and collaboration with stakeholders. Investments in SC technologies, workforce retraining, and the adoption of digital solutions have become key priorities. The pandemic has highlighted the importance of risk management and the need for agile, visible, and automated SCs. Although the crisis has posed challenges, it has also accelerated transformation and provided opportunities for businesses to improve their SCs and address sustainability concerns. Adaptation and evolution will remain crucial in the post-pandemic global economy.

1.2 Research Problem

As a result of the Covid-19 pandemic, the global demand for goods and services has undergone significant changes, highlighting the fragility and lack of resilience in GSC and service networks. Kumar et al. (2022) conclude that Covid-19 has had both positive and negative effects on Critical Supply Chains (CSCs), emphasizing the need for businesses of all sizes to enhance the adaptability, visibility, traceability, and efficiency of their GSCs. Furthermore, the disruptions caused by the Covid-19 outbreak have underscored the importance of collaboration and resource sharing among organizations. While business leaders have made quick decisions and taken immediate actions to sustain business operations, serve customers and communities, and support their workforce, the

pandemic continues to pose challenges to GSCs globally. Nonetheless, some businesses have managed to adapt to the pandemic environment by increasing agility and productivity while maintaining liquidity and customer relationships.

The Covid-19 pandemic has had a considerable impact on the global economy, resulting in disturbances in the SCs of diverse sectors, including the Alco Bev industry. This pandemic has exposed the vulnerability and poor resilience of GSCs. Sarkis (2020) argues that the slowdown in economic activity is a consequence of decisions made by government officials, public health departments, and the medical community to ensure the safety of the population. Both the human population and the world economy have felt the effects of Covid-19, and the actions and responses to the pandemic have been unprecedented in contemporary operations and GSCs. The lockdowns implemented in response to demand and GSC effects are the primary factors that have hindered progress. There is a shortage of Alco Bev products due to the global lockdown, as demand surpasses supply. The GSC losses associated with Covid-19 lockdowns depend on the number of countries implementing restrictions, and the duration of a lockdown has a greater impact on losses than its strictness.

An October 2021 report from the International Monetary Fund (IMF) highlighted ongoing pandemic-related disruptions in SCs that could impede global economic recovery. The IMF derives a measure of disruption by subtracting the PMI (Purchasing Managers' Index) delivery time index from the PMI production index. As the value increases, GSCs become more susceptible to disruptions.

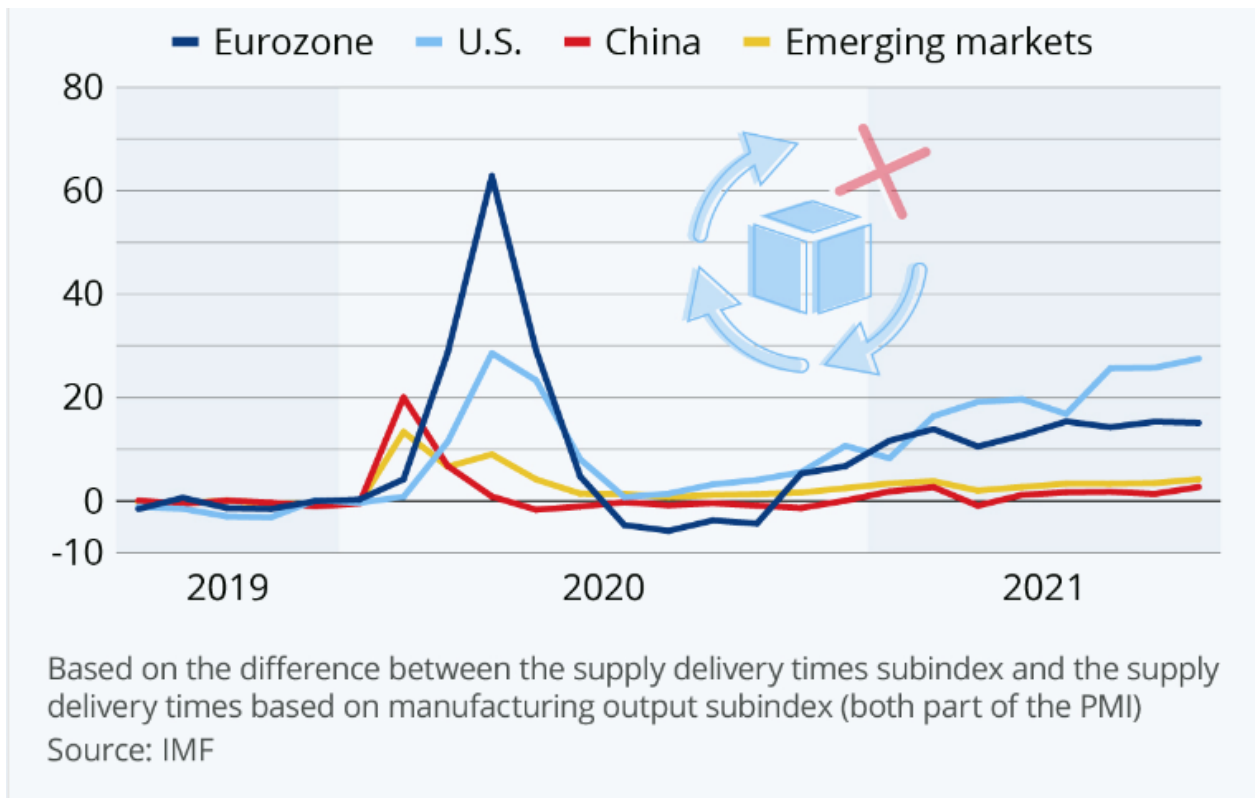


Figure 4: Index of global supply-chain disruptions.

Source: IMF (2021).

So, there were advantages and disadvantages for countries being part of the GSC during the pandemic. While participation may have had benefits, it also exposed countries to the risk of lockdowns and factory closures in other regions. While the domestic economy was suffering from the pandemic, participation allowed for the importation of foreign goods during those challenging times. Building consumer trust will become increasingly crucial for businesses, as they will make greater efforts to demonstrate their commitment to addressing societal issues and embodying their values. Historically, global SCs have been characterized by functional silos, both within businesses and between business partners. However, with the emergence of digital supply networks (DSN), this will no longer be the case. It seems that global supply networks were able to adapt well during the pandemic, with countries that were less severely affected helping those that were hit harder.

Conclusion: The Covid-19 pandemic has significantly impacted GSCs, exposing their fragility and lack of resilience. Kumar et al. (2022) emphasizes the need for businesses to enhance adaptability, visibility, traceability, and efficiency in their GSCs. The disruptions caused by the pandemic underscore the importance of collaboration and resource sharing. While challenges persist, some businesses have successfully adapted by increasing agility and productivity while maintaining customer relationships and liquidity. The pandemic has highlighted the interdependence of countries in GSCs, with less affected regions supporting those more severely impacted. Building consumer trust and embracing digital supply networks are crucial for future resilience.

1.3 Purpose of Research

The primary objective of this study was not to estimate the cost of the Covid-19 pandemic, but rather to determine the most crucial elements of resilience and their sensitivity to the effects of the pandemic on GSCs worldwide. Our modelling of Covid-19 lockdowns demonstrated the potential for significant business losses in the Alco Bev industry in affected countries. Our analysis was based on idealized scenarios that considered factors such as the number of countries affected, the duration of lockdowns, the severity of restrictions, and the gradual lifting of measures as the pandemic subsided. By adjusting variables such as the number of countries, the duration and strictness of lockdowns, and the easing of restrictions, we were able to model the potential for substantial business losses in the Alco Bev industry in India due to Covid-19 lockdowns.

The Covid-19 incident served as the catalyst for this research, which aimed to explore how Alco Bev businesses in India managed the situation and how it influenced their preparedness and response. In order to accomplish the overarching research goal, researcher have established the following targeted aims:

1. To examine the concept of GSC by utilizing established theories from the literature review.

2. To assess the impact of the interrelationship between GSC and Alco Bev businesses on their operations.
3. To determine the effects of unforeseen factors on GSC within the challenging operational context of Covid-19.
4. To investigate the impact of these variables on business productivity following the Covid-19 pandemic.

Conclusion: The study aimed to identify the key elements of resilience in GSCs during the Covid-19 pandemic, focusing on the Alco Bev industry in India. By modelling various scenarios, the research highlighted the potential business losses caused by Covid-19 lockdowns. The specific objectives included examining GSC concepts, assessing the interrelationship between GSC and Alco Bev businesses, analysing the effects of unforeseen factors, and investigating the impact on business productivity post-pandemic.

1.4 Significance of the Study

Major SC disruptions were reported by several companies as a result of the recent Covid-19 pandemic (Ivanov and Dolgui, 2020). More research is needed following the Covid-19 pandemic to understand how the impacts of global events differed among alternative network structures in the presence of SC risks and how relevant these potential risk mitigation strategies were for Alco Bev's business. Therefore, this study focused on how Alco Bev could configure their SCs to effectively mitigate the risk posed by major disruptions. The pandemic presented significant challenges for GSC, and the severity of national lockdowns slowed or even temporarily stopped the flow of both finished goods as well as raw materials, disrupting manufacturing. In modern and future economies, conventional supply networks might not be sufficient.

Currently, several businesses were reconsidering their approaches to managing GSC. Companies had to act swiftly and aggressively if they wanted to maintain robust

supply networks and remain competitive. According to Ivanov and Dolgui (2020), developing GSC risk mitigation strategies had become a top priority for many companies in the aftermath of the Covid-19 outbreak. The SC structure limited how risk mitigation strategies could be designed and implemented. Global disruptions had a far-reaching impact on SCs on multiple interconnected dimensions (e.g., production, transportation, demand, finances), making SC recovery difficult (Paul et al., 2021). The Alco Bev industry in India was also facing increasing pressure to operate in a socially responsible manner. This included addressing issues related to the health and safety of workers, reducing the environmental impact of production and distribution, and promoting responsible consumption.

Global Alco-Bev distribution networks, as they stood, were robust, but they could easily break in case of a pandemic. Perhaps due to offshoring, outsourcing, and a lack of investment in resilience, they had become too complex and easily disrupted. Countless factors interacted to produce this result. These included shifts in consumer demand and the reliability of outsourcing, transportation constraints, anti-competitive activities, geopolitical difficulties, and so on. One of the most important questions in the subject was whether the Alco Bev sector in GSCs was likely to support upgrading by the lower-tier supplier. Gain insight into the mechanisms and outcomes of this problem, we needed quantitative measures that would allow the construction of empirical indicators for each variable and appropriate generalizations based on our findings from surveys with business leaders and various service providers across the GSCs.

This research could have also assisted business leaders in predicting the operational and long-term effects of Covid-19 outbreaks on GSCs and developing strong SC policies. Regardless of the technique used, the complexity of GSCs would have increased Alco Bev's business losses beyond Covid-19. It could have also aided in finding the strengths and weaknesses of pandemic risk mitigation/preparation and recovery plans. According to the study, pandemic control and mitigation are public goods that require coordinated efforts

and support. This research examined and proposed solutions to the Covid-19 pandemic's impact on the GSC for Alco Bev business in India. Qualitative research was used to better understand the perspectives, experiences, and perceptions of relevant individuals, groups, and institutions. To better understand the research phenomenon, data was gathered through a literature review, document analysis, questionnaires, and other means.

Covid-19 caused a worldwide outbreak with disastrous consequences. Recovery challenges were slowly assessed as they were relatively unprecedented. Despite certain lessons learned from previous financial, environmental, and political crises, the current crisis's uniqueness made it difficult to predict outcomes and future recovery obstacles for the GSC of Alco Bev business. While most of the current literature focused on identifying and investigating the effects of the pandemic (Paul et al., 2021), this study was an attempt to investigate the recovery issue and assess the likely difficulties faced by the Alco Bev business in India, as well as to shed new light on the potential opportunities presented by the pandemic. The findings of this study could be useful to other industries or emerging economies.

When investigating large SC problems and interruptions, the deep upstream components were frequently overlooked. This study investigated these issues to better understand how some of the most vulnerable parts of the GSC in Alco Bev's business could respond to and recover quickly from disruptions such as the Covid-19 pandemic. When developing SC recovery strategies, business leaders faced numerous challenges. Significant negative consequences had already occurred in finance, lead time, customer service, and manufacturing performance. Chou et al. (2004) agreed that effective recovery management solutions were needed to limit the effects of Covid-19 on SCs. Therefore, the first step in developing a recovery strategy was identifying the recovery challenges that the GSC was facing. Major SC disruptions had a long-term impact on broader socioeconomic conditions and consumer purchasing power.

In recent years, there has been a growing emphasis on agile SC management in both academia and business. This was reflected in the proliferation of related media, such as articles, conferences, special publications, and websites. On the other hand, the concept of sustainable development had only recently started to gain traction in less developed countries. The goal of this study was to provide a global perspective on the literature on agile GSC management in the Alco Bev business. Having a resilient GSC was thought to be extremely beneficial because it prepared a business to manage risks that might arise from the actions of consumers, suppliers, internal processes, and SC integration mechanisms. Another resilience strategy in food SCs was visibility (Purvis et al., 2016).

The study showed that visibility was the most important resilient strategy for SCs. Business leaders in today's volatile industry had to maintain a consistently high standard of order fulfilment and customer care. In addition, when costs rose, they had to discover methods to improve efficiency and output. Understanding these challenges in the post-Covid-19 era could help businesses develop appropriate strategies and redesign their SCs to overcome them. This research and its findings could have real-world implications and help decision-makers by identifying potential recovery hurdles they may face in the wake of the Covid-19 pandemic. The conceptual model and analysis used in this study could have also helped improve GSC performance and capitalize on opportunities presented by events such as the Covid-19

Conclusion: Numerous companies experienced major disruptions in their GSCs due to the Covid-19 pandemic. The pandemic posed significant challenges, including disruptions in manufacturing and the need for socially responsible practices. The complexity of GSCs necessitated the development of risk mitigation strategies. This study focused on mitigating risks and configuring SCs in the Alco Bev industry. The research aimed to understand the effects of the pandemic and provide insights for recovery and resilience. The study emphasized the importance of collaboration and visibility in SCM and highlighted the need for agile and sustainable practices.

1.5 Research Purpose and Questions

According to Saunders et al. (2012), a research question consists of a set of essential concerns that were addressed by the research process. The research questions provide an overview of the study's purpose and aims, allowing for a comprehensive understanding of what the study hoped to accomplish.

Thus, the outcome of the dissertation is to obtain answers to the following questions:

1. What risks did the GSC pose to global business operations?
2. Did the backup plan save any organization's GSC during global disruptions?
3. Did the business leaders switch to locally sourced, high-priced production that was more secure and less vulnerable to trade wars and other global events?
4. Did the GSC become more customer-focused considering the shifts in demand caused by the pandemic?
5. Was it recommended that companies create digital supply networks that could foresee SC disruptions in operations?
6. Did the Covid-19 pandemic have an impact on GSC governance?
7. What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?
8. What strategies did these companies employ to manage risk, build resilience, and ensure a steady stream of supplies?

Conclusion: Researcher identified a set of research questions that guided the dissertation's purpose. These questions addressed the risks in GSCs, the effectiveness of backup plans, the shift to locally sourced production, customer focus, digital supply networks, GSC governance, and the impact of the pandemic on Indian Alco Bev companies. Strategies for risk management, resilience, and supply stability were also examined.

1.6 Structure of the thesis

This thesis was divided into six chapters, beginning with an introduction, purpose, and goals, followed by a literature review, and concluding with a methodology section. The results were then discussed and analysed. Conclusions and recommendations were drawn. In the end of the thesis, there are five appendices.

Chapter 1 – Introduction

The introduction chapter provided a concise overview of the primary topic, which was the GSC, as well as the significance and research objectives. Additionally, the research's purpose and goals were outlined. It offered a summary of the research covered in the next chapters.

Chapter 2 – Review of Literature

This chapter will examine the existing literature on GSC, primarily from academic journals. The chapter will then explore the concept, perspectives on GSC risk management, and the theoretical foundations of GSC. It will also provide a brief introduction to the Alco Bev industry, distribution networks, innovations & brand building, and illicit production & supply of Alco Bev products. Additionally, it will examine the distribution networks of the Alco Bev industry and the impact of Covid on the GSC for food and beverage businesses, particularly the Alco Bev business.

Chapter 3 – Methodology

In this chapter, the structure and methods used to conduct and implement the research will be described. The chapter will describe the research strategy and method, as well as the rationale for utilizing various methodologies. In addition to the sample population, ethical considerations, and methods for ensuring the reliability and validity of the research, different research philosophies and their advantages and disadvantages will be analysed.

Chapter 4 – Results

The purpose of this chapter is to outline and analyse the data collected from the survey completed by various stakeholders and provide answers to the research questions. The chapter will present a descriptive statistical analysis of the general demographic characteristics of the respondents, including their gender, age, and background.

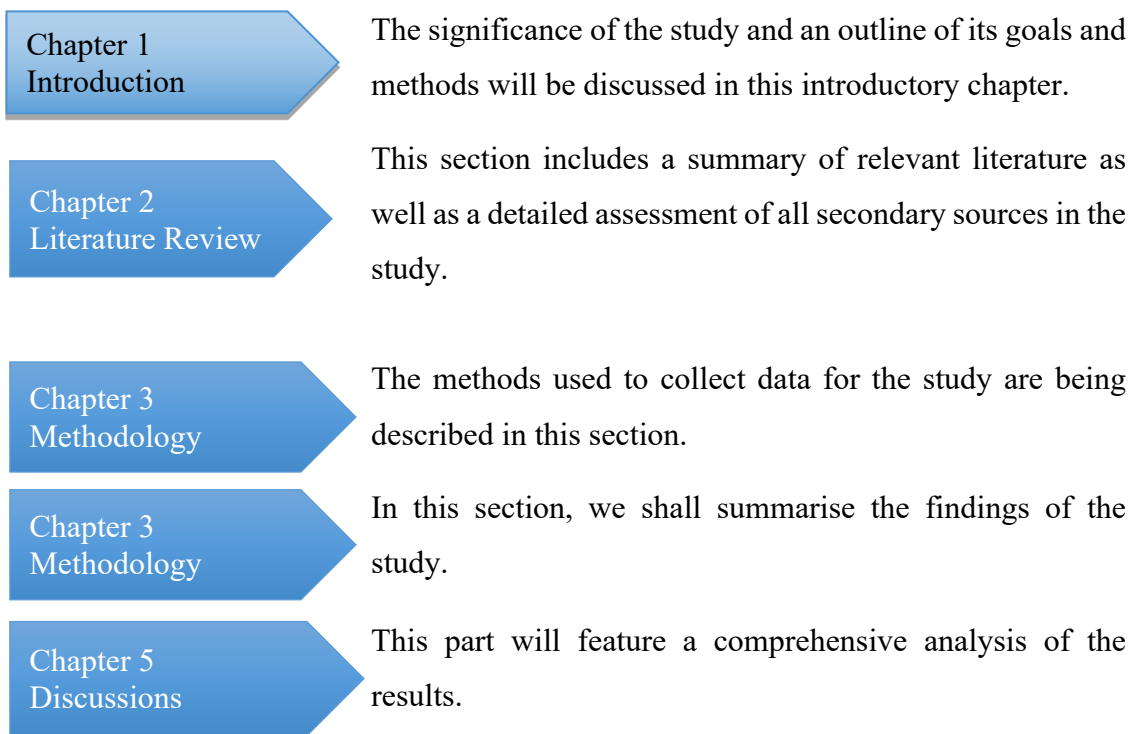
Chapter 5 – Discussion / Analysis

The objective of this chapter is to provide a thorough analysis and discussion of the results to the research questions.

Chapter 6 – Conclusion: Summary, Implication, and Recommendation

This chapter will serve as the study's conclusion by providing a summary and overview of the research studies. In addition, it will provide suggestions for future research and implications.

The dissertation's chapter breakdown can also be seen in the below figure-5.





Chapter 6

This chapter will conclude the research by summarising the results and discussing how they contribute to the broader goals and objectives stated in the introduction. And it will provide suggestions for how the research topic might be enhanced

Figure 5: Overview of the research study.

Source: Shetty (2023).

1.7 Chapter Summary

The chapter discusses the SC and GSC, their roles, challenges, and the impact of the Covid-19 pandemic. The SC involves a network of stakeholders collaborating to deliver products and services efficiently and responsibly. It also considers environmental and social factors. The GSC connects global producers and consumers but faces risks such as trade barriers and natural disasters. The pandemic caused severe disruptions, prompting businesses to prioritize resilience, sustainability, and digital solutions. The study focuses on the Alco Bev industry in India, highlighting the importance of collaboration, visibility, and agile practices in GSCs. The research provides insights for recovery and resilience and explores strategies for risk management. The thesis consists of six chapters, addressing various aspects of the research topic. The study aims to analyse Alco Bev businesses' strategies during the pandemic and their post-pandemic adaptations.

CHAPTER II: REVIEW OF LITERATURE

In this chapter, the literature review will be presented, including offering a comprehensive understanding of existing literature, identifying research gaps, and refining the research question and methodology. Its purpose is to provide robust support and context for subsequent chapters by conducting a thorough review of empirical and theoretical academic literature relevant to the study.

Following the literature review, the research delved into the food and beverage industry, gradually narrowing its focus to Alco Bev industries in India. Different models and frameworks, including more intricate ones, were evaluated to draw conclusions based on recent academic research in the field. Moreover, various literature sources were examined from the perspectives of SC and GSC, covering topics such as the components and anatomy of SC, global governance of value, SC performance and risk management, the impact of the pandemic on the GSC, and resilience, among others. The section on theory and practice followed the literature review.

2.1 Theoretical framework

The objective of this literature review was to thoroughly examine empirical and theoretical academic literature relevant to the topic to provide enough support and context for the subsequent chapters. The academic articles and findings were critically analysed and compared with one another. The literature review helped the study understand the research subject by demonstrating knowledge and understanding of the academic literature in the field of GSC, which aided in clearly and precisely conceptualizing the research problem (Kumar, 2008). This section aimed to provide an analysis to justify the study's importance and uniqueness concerning the GSC relevant to the work of other scholars.

To accomplish this goal, the study examined the existing literature on the subject to identify concepts and evolution. In the GSC, the short-term economic shocks of various Covid-19 reaction scenarios were modelled as transportation and labour supply restrictions in the Alco Bev industry. The literature study found a few systematic and structured ways for assessing risks in SCs, but there was no conceptual framework connecting this research regarding the vulnerability of GSCs during the Covid-19 pandemic for Alco-Bev businesses in India. Furthermore, the study conducted a multi-tiered literature evaluation, including peer-reviewed journals, conference papers, and white papers from globally known organizations. Finally, this part discussed the gap in the existing literature that our research would fill.

2.1.1 Background to SC and GSC.

Before being consumed by the end customer, raw materials went through multiple value-adding transformation processes in the SC. The SC, as described by Christopher and Peck (2004), constituted a network of organisations engaged in a range of processes and activities that generated value in the shape of products and services delivered to the end consumer through interconnected upstream and downstream connections. The supplier end of the chain was referred to as upstream, while the customer end was referred to as downstream. As a result, businesses were constantly on the lookout for novel approaches to SC that would help them outperform their competitors.

Businesses at that time frequently faced the challenge of maximizing output while decreasing costs. Numerous businesses recognized the need of gaining knowledge from the SCs of their competitors to increase their productivity and decrease their costs. Moreover, creating a competitive edge through operational efficiencies and improved customer service levels typically required the development of novel SC-based strategies for competition. The SC was essentially a dedicated service that connected the producer, manufacturer, and supplier with the distributor and end user, and the GSC crossed national

boundaries. Globalization and global trade had influenced our lives in ways we simply did not even think about anymore (Evenett and Fritz 2015).

Managing the transfer of commodities, data, and capital across international borders was a complex, regulated, and ever-changing operation. GSCs were complex and comprised of diverse entities spread across many tiers and geographical locations (Choi & Hong, 2002). Every business, no matter how big or small, had to choose how to manage international trade at some point. This was the company's bread-and-butter, so it was important to keep investing in its people, tools, and infrastructure, or it was a process that was better off being managed by a partner whose main goal and line of work was to help other companies become global trade management (GTM) leaders.

Global service corporations were crucial to the global economy. Gross domestic product (GDP) measured the value generated by a country's economy from the production of goods and services, and the global economy was increasingly oriented around GSC, which accounted for a larger proportion of worldwide commerce, global GDP, and global employment. The potential to properly integrate into GSCs was a precondition for progress for innumerable states, particularly low-income and emerging nations. For GSCs to remain competitive, they had to decrease their lead times, which were seen as damaging to their capacity to provide customers with value and increase the dependability of their SCs. A centralized SC increased coordination and simplified operations. In addition, the SC was better equipped to adjust to fluctuating market situations due to the implementation of agile practices.

Gereffi and Lee (2012) argued that the GSC idea had increased in popularity to evaluate the international expansion and geographical fragmentation of contemporary SCs, as well as value generation and capture. GSCs had long been a feature of the international business landscape. Globalization had created a new era of worldwide rivalry that was redefining global production and trade, consequently altering the industrial structure

(Gereffi 2011). The likelihood of success for developing nations was contingent on their participation in the global economy, which was mostly a narrative about their participation in GSCs. Analysis of cycle times emphasized the effectiveness of GSC inventory management. This was vital to the profitability and survival of any organization since it encompassed the entire period between the time inventory was required and the time it was received, sold, and paid for. Allowing for unpredictability, the amount of inventory would increase proportionally with the cycle time.

Morris et al. (2011) claimed that over the last decade, several GSCs had seen a shift in global production from North to South, with large emerging economies playing prominent roles as exporters and new markets in these industries. One of the key findings of GSC analysis was the increasing importance of global buyers as key drivers in the formation of globally dispersed production and trade networks. Analysis of buyer-driven chains revealed the powerful role of large retailers like Walmart and Tesco, as well as phenomenally successful brand-name merchandisers like Nike and Reebok, in dictating how the chains operated by requiring suppliers to meet certain standards (Gereffi 1994). With proper GSC management, businesses could gain a competitive edge while cutting expenses.

Since the mid-1960s, American companies had been severing their SCs in search of low-cost and capable overseas suppliers. This global outsourcing process began with the program simple assembly of parts supplied by US manufacturers, as exemplified by the US production-sharing or twin plant program with Mexico, but the pace of offshore production rapidly accelerated (Dicken, 2011). As SCs became more global, more intermediate items crossed borders, and more components and materials for export were imported (Feenstra, 1998). Successful GSC depended on well-managed customs procedures because of the constant cross-border movement of goods and materials. Customs restrictions could have a major effect on any phase of the GSC process, including sourcing, production, promotion, and distribution.

Integration in the SC had been conceptualized and researched from multiple perspectives. Internal SC integration and external SC integration were two layers of GSC integration. Internal integration related to the communication, coordination, cooperation, and collaboration of inter- and cross-functional operations through systematic interaction inside the SC that was active and on time (Dove, 2005). External integration related to interactions with suppliers, customers, and other partners by guaranteeing constant and beneficial communication, coordination, and collaboration, and by establishing long-term partnerships and strategic alliances (Christopher, 2000). SC integration was the adoption and use of collaborative and coordinating structures, processes, technologies, and practices among SC participants for developing and keeping in place a smooth channel for the accurate and timely flow of information, resources, and finished goods.

Conclusion: Raw materials in the SC underwent value-adding processes before reaching the end customer. Businesses sought innovative SC approaches to outperform competitors and maximize output while reducing costs. The GSC connected producers, manufacturers, suppliers, distributors, and end users, crossing national boundaries. GSCs were complex and involved diverse entities, impacting global GDP and employment. Efficient GSCs required decreased lead times, centralized coordination, and agile practices. Globalization reshaped production and trade, with global buyers playing a significant role in shaping production networks. Successful GSCs relied on well-managed customs procedures and internal and external integration for smooth information and resource flow.

2.1.2 SC management (SCM)

Ivanov et al. (2021) defined SCM as the cross-departmental and cross-enterprise integration and coordination of material, information, and financial flows to transform and utilize SC resources most rationally along the entire value chain, from raw material suppliers to customers. SCM was a vital component of every firm and was responsible for balancing demand and supply along the whole value-adding chain. Lemke and Petersen

(2018) stated that SCM was accountable for managing and controlling all material flow within an SC. It involved the transfer of materials from suppliers to various divisions within the organization, and from those divisions to distribution centres or end users. The flow of materials would be disrupted by any unforeseen incident (a possible risk) that could disrupt the movement.

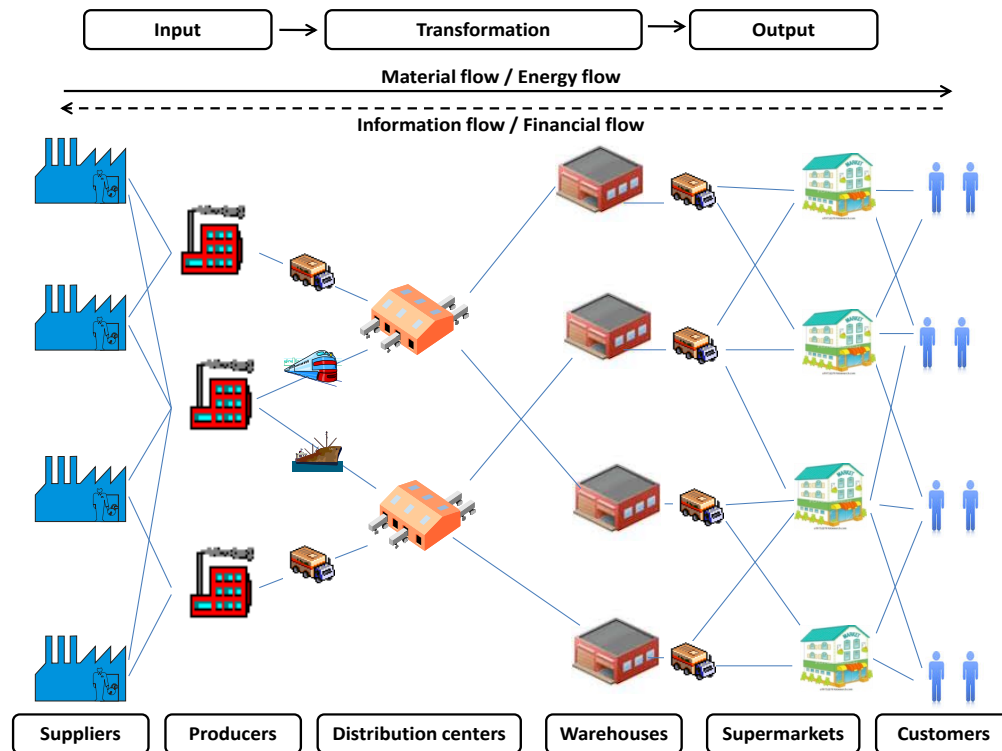


Figure 6: SC design.

Source: Ivanov et al. (2021).

SCM was the coordination of an organization's procurement and supply management activities (Oliver and Webber, 1982). SCM was an umbrella concept including supplier and network sourcing, demand and value chain management, and integrated logistics management (Croom et al., 2000). An SC included all parties who directly or indirectly satisfied a customer's demand (Chopra and Meindl, 2007). An SC formed all parties who directly or indirectly satisfied a customer's demand (Chopra and Meindl, 2007). Modern approaches to SCM emphasized the interdependence of

organizations collaborating to increase the effectiveness of the global logistics channel (Shin et al., 2000; Narasimhan and Kim, 2002). This expanded scope promoted synergy and cross-functional collaboration among all partners to achieve a more effective and efficient supply and to integrate customers, suppliers, manufacturers, and other value chain actors across all firm functions.

According to Chopra and Meindl (2007), an SC consists of all parties directly or indirectly involved in fulfilling a customer's request. The selection of suppliers should consider the fact that the relationship between customers and suppliers is dependent not only on price but also on product quality, delivery, and adaptability (Fonseca & Lima, 2015). Low-cost SCs are frequently unable to respond to unanticipated changes in demand or supply or provide a greater number of defective products, resulting in higher internal and external failure costs (Fonseca & Lim, 2015). Strategic supply management (SSM) should be viewed as a long-term effort to build a capable supplier base and maximize the benefits of supply management (Shin et al., 2000). SCM incorporates the range of activities coordinated by an organization to procure and manage supplies (Oliver and Webber, 1982).

SCs are being treated as extended enterprises in the age of globalization, connecting firms in various locations and allowing partners to gain a competitive advantage. According to Jagdev and Browne (1998), SCs oversee the entire product's life cycle, from material preparation and supply management to production and manufacturing, distribution, and customer service, and finally recycling and disposal at the end of a product's life. In recent years, businesses have recognized the value of effective SCM in day-to-day operations management. However, countless businesses fail to develop effective performance measures and the metrics required to achieve integrated SCM. An SC must engage in continuous improvement processes and competitive strategies to achieve the goal of fulfilling customer orders more quickly and efficiently than competitors.

In today's fast-paced, highly interconnected digital environment, businesses must track the factors both inside and outside the company that could compromise their capacity to provide excellent services for their customers. In an overly complex operations environment, it is crucial to understand the key performance-influencing factors (Barbosa & Azevedo, 2019). Make-to-order (MTO) SCs are susceptible to demand volatility, disruptions in material supplies, lengthy product lead times, and substantial order backlogs (Sahin & Robinson, 2005). Managing inventories in MTO environments frequently entails maintaining important levels of inventory to minimize delays (Stavrulaki and Davis, 2010). According to Barbosa and Azevedo (2019), the primary performance determinants of SC performance are complexity, workload, design reuse, project type, outsourcing, and experience/knowledge of technology, while the primary sources of uncertainty are customers, manufacturers, and suppliers.

Conclusion: SCM involved integrating and coordinating material, information, and financial flows along the value chain. It managed material transfer within an SC, including suppliers, divisions, and end users. Unforeseen incidents could disrupt material flow. Collaboration and interdependence among partners increased SC effectiveness. Effective SCM required performance measures and continuous improvement. In complex operations, understanding key performance factors was crucial. Make-to-order SCs faced volatility and supply disruptions, necessitating inventory management. SC performance was influenced by complexity, workload, design reuse, project type, outsourcing, and technology knowledge, while uncertainty stemmed from customers, manufacturers, and suppliers.

2.1.3 Components of a SC

Support for business strategy strengthens customer connections and satisfaction, enhances productivity, responsiveness, and quality. These are just a few of the many benefits that corporate leaders can gain from a well-designed SC strategy that prioritises

essential elements. Simply put, SCM is crucial to a company's bottom line, which refers to the sum of its profits or losses over a given period. When business leaders understand how each stakeholder and supplier fits into the bigger picture, they gain the necessary information to make mutually beneficial decisions. Moreover, comprehending and meeting consumer demands while fostering loyalty is a vital aspect of SCM. In the SC, business leaders must also consider sustainability, which entails reducing waste, energy and water consumption, and carbon footprints.

The SC encompasses every step in the production, distribution, and consumption of a product. Successful businesses have demonstrated the effectiveness of comprehensive SCs that involve all stakeholders, ranging from customers to suppliers (Blanchard, 2021). To ensure the company's future success, it is crucial to establish a solid, resilient, and healthy SC. Managing the SC often requires the same tools and healthy habits that maintain the proper functioning of the human body. For a functional SC, all departments must consistently and openly share information with each other. The SC's brain oversees coordination, ensuring that everything is coordinated and communicating effectively. To find solutions to issues, people need the freedom to share and access relevant data. This fosters harmony within the SC, as all components collaborate to ensure optimal performance.

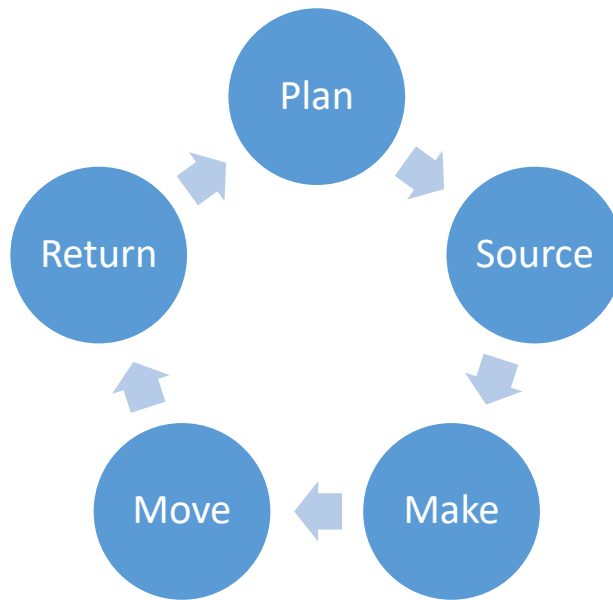


Figure 7: Components of a SC.

Source: Shetty (2023).

1. **Plan:** A thorough understanding of the business strategy is essential before embarking on any other planning. The efficiency of a company's SC is only as strong as its weakest link. Therefore, it falls upon business leaders to find ways to minimize waste without compromising quality or the value provided to customers. Regardless of the industry, forward-thinking is crucial for satisfying distributors and customers alike. Preparedness is key to staying ahead of demand, even for smaller players in the SC.
2. **Source:** Making distribution decisions is a critical aspect of SCM. Business leaders have responsibilities that extend to the warehouse or distribution center, where they must oversee order transactions, manage inventory flow, approve payments, and, in some cases, send electronic data interchange (EDI) messages and advanced shipping notifications (ASN) when there are delays expected in a shipment. The purpose of an ASN is to notify the customer of shipping details and provide information about the shipment's physical characteristics so that the customer can be prepared to accept the delivery.

3. **Make:** SCM monitors the proper receipt, acceptance, processing, shipping, storage, and delivery of materials used in production. One approach to automate the storage aspect of SCM is by using barcodes with a warehouse management system (WMS) for validation and traceability. From the moment an order is placed until it is shipped, warehouse operations can be managed and controlled with the assistance of a WMS.
4. **Move:** SCM and logistics are interdependent. Important tasks include order management, packaging and shipping, delivery scheduling, billing, shipping notification, and payment processing. Even when utilizing a third-party courier service, it is crucial to closely monitor each step of the process to ensure there are no mistakes or delays.
5. **Return:** Facilitating the quick and hassle-free return of goods is another aspect of SCM. This involves considering alternative uses for the item, such as manufacturing more of them, recycling, or returning them to store shelves. SCM goes beyond adapting to supply and demand fluctuations; it also entails being adaptable and focusing on meeting the demands of customers.

Conclusion: Supporting business strategy strengthens customer connections, productivity, responsiveness, and quality. Understanding stakeholders and suppliers aids decision-making. Meeting consumer demands and fostering loyalty is vital. Sustainability, including waste reduction and carbon footprint, must be considered. A comprehensive SC involves all stakeholders. Planning, sourcing, making, moving, and returns are key components of SCM, requiring efficient information sharing and coordination.

2.1.4 Anatomy of a SC

The SC is a complex system with numerous interconnected components that require constant examination for potential issues. Maintaining its health requires effort, making it natural to draw parallels with a physical body. According to Blanchard (2021), best-in-

class SCs share many common characteristics across industries. Secondly, building, supporting, and sustaining a well-functioning SC requires a collaborative team effort. Thirdly, best practices do not emerge by chance; they require deliberate thinking and implementation.

The visibility of the SC acts as its eyes, ensuring a comprehensive 360-degree view of the entire system to address issues as soon as they are identified. However, limited visibility, akin to impaired vision, can lead business leaders to draw incorrect conclusions and make poor decisions. Every company involved in the production or transportation of physical or digital goods faces common SC challenges. The anatomy of a SC varies depending on the nature of the product or service, the industry, and the specific companies involved. However, understanding the key components of a SC can help businesses optimize their operations, reduce costs, and enhance customer satisfaction.





Mode of transport	Typical usage	Advantages	Disadvantages
Road 	Door-to-door Ideal for mixed cargo. Typically used for first and final leg	Most flexible for door-to-door, cheap	Limited to continental transport Urban congestion Damage to roads
Rail 	For domestic, continental and inter-continental transport	Ideal for heavy goods and long distances Environmental-friendly	Connection to rail system required. Complete trains require large volumes (thus low frequency), otherwise handling in yards (low transport speed)
Air 	To ensure fast transport	Fast and safe	Expensive Limits for size and weight Typically as part of multi-modal transport
Sea 	bulk shipments, where long lead time is ok	Ideal for bulky and heavy goods Highly standardized sea containers worldwide Less costly than air for inter-continental transports	inflexible routes Long lead time Inflexible timetables (ship will not wait for missing container)

Figure 8: Different modes of the SC.

Source: Ivanov et al. (2021).

Typically, the anatomy of a SC comprises the following constituents:

1. **Suppliers:** These are businesses or individuals who provide the raw materials or components necessary to manufacture the product or provide the service.
2. **Manufacturing/Production:** This stage involves the transformation of raw materials into finished goods or services. Tasks such as assembly, packaging, and quality control are included.
3. **Distribution:** At this stage, finished goods are transported from the manufacturer to the distributor or retailer. Activities such as logistics, warehousing, and order fulfillment take place.
4. **Retailers/Distributors:** These are businesses or individuals who sell the finished goods to the end-user. They can include physical stores, online marketplaces, or wholesalers.
5. **Consumers:** These are the people who purchase and utilize the products or services.
6. **Information Flow:** The flow of information between different stages of the SC includes inventory levels, demand forecasts, and order tracking.
7. **Finances:** The financial component of the SC involves the management of payments, credit, and cash flow between the various stages and participants.

Making a profit through the sale of goods and services is the primary goal of any business. According to Porter (1996), all businesses must coordinate the flow of products, information, and cash to achieve their objectives. Additionally, he asserts that establishing an effective SC is aimed at contributing to income generation throughout the entire value chain. Collaborating with other businesses is a common approach to accomplish this goal, supported by financial considerations. Therefore, manufacturing systems can no longer be seen in isolation; instead, they need to be considered within the broader context of the entire business and its critical linkages, both forward into the distribution and customer chain, and backward through the SC. In practice, these chains often take the form of corporate

networks. The potential combinations of collaborations within an organizational network are practically limitless.

Blanchard (2021) argues that the similarities between SCs are as significant as the differences among them. Corporate leaders must not underestimate the challenges within the SC, as any issues can trigger a chain reaction of further problems. By treating the SC as they do their own health, they can address and potentially prevent issues along the way. Exploring potential remedies also makes sense. Similar to how a healthy body requires a balanced diet and regular check-ups, a robust SC can leverage innovative technology tools through regular maintenance and care. Artificial Intelligence (AI) and Machine Learning (ML) technologies can assist in SC maintenance by analysing vast datasets and providing advice based on the findings. Just as laser eye surgery improves vision, blockchain technology offers a promising solution to the visibility problem within the SC, surpassing the effectiveness of internal data visualization.

Conclusion: The SC is a complicated system that must be examined on a regular basis and has analogies with the human body. Best-in-class SCs share common characteristics and require collaborative efforts. Limited visibility can lead to poor decisions. The anatomy of a SC includes suppliers, manufacturing, distribution, retailers, consumers, information flow, and finances. Businesses must coordinate the flow of products, information, and cash to generate income. Collaboration and technology can improve SC health and address challenges. Blockchain technology offers a solution for visibility.

2.1.5 Operations and transformation process in the SC

When it comes to planning activities, the transformation process represents the conventional approach to operations management (Ivanov et al., 2018). The primary responsibility of management is to make choices, and in SC and operations management,

these choices are typically aimed at optimizing the transformation process and aligning the supply with the demand. Fassoula (2006) argues that over the past two decades, numerous organisations have endeavoured to change some, or all of their core business processes through the implementation of the total quality management approach or business process reengineering techniques. They have also re-evaluated their organisational structure, the planning, execution, and measurement of business processes, as well as human resources management. Business leaders bear the responsibility of creating and implementing transformation strategies that meet the needs of both customers and businesses.

The SC operations and transformation process refer to the activities involved in converting raw materials into finished goods and delivering them to the final customer. These activities usually consist of the following stages:

- I. **Planning:** This stage entails determining product demand, forecasting future demand, and developing production plans.
- II. **Sourcing:** This stage entails identifying and selecting suppliers capable of supplying the required raw materials and components at the appropriate price and quality.
- III. **Manufacturing/Production:** At this stage, raw materials and components are transformed into finished goods. It includes tasks like assembly, quality control, and packaging.
- IV. **Logistics:** Managing the transportation and storage of finished goods from the manufacturing facility to the customer is part of this stage. Inventory management, warehousing, and transportation are examples of such activities.
- V. **Delivery:** At this stage, the finished goods are delivered to the customer, either through a distribution network or directly to the customer.

Many transformation processes occur throughout these stages. In manufacturing, for example, raw materials are transformed into finished goods through various stages of production such as cutting, moulding, or assembling. For efficient transportation and

storage, goods are transformed from one form (e.g., a pallet) to another (e.g., individual products) in logistics. Effective operations and transformation process management is critical for ensuring that the SC runs smoothly and efficiently. This necessitates careful planning, coordination, and collaboration among the various SC stakeholders, which include suppliers, manufacturers, logistics providers, and customers. By optimising their operations and transformation processes, businesses can reduce costs, improve quality, and increase customer satisfaction.

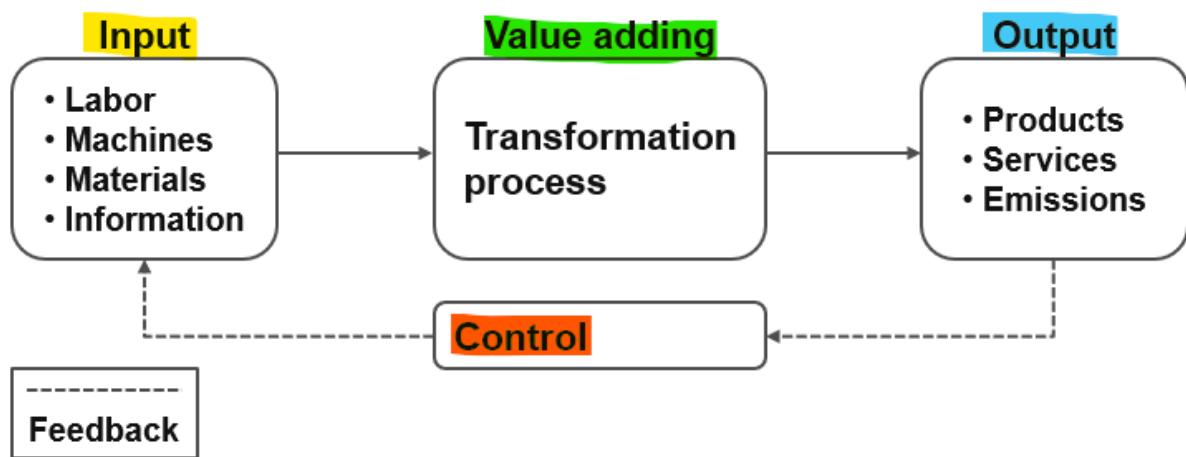


Figure 9: Transformation process.

Source: Ivanov et al. (2018).

In today's competitive market conditions, companies must undergo constant change for survival and growth. The operations function plays a crucial role in balancing demand and supply. Operations encompass the processes and procedures that transform raw materials and human labor into finished goods and services. SC involves the integration and coordination of material, information, and financial movements across various departments and organizations, spanning the entire value chain from raw material suppliers to customers. Operations management is the discipline focused on maximizing the generation and distribution of goods and services while minimizing waste of time and effort. SCM, from a comprehensive value chain perspective and considering overall

performance, is a collaborative philosophy. It comprises a collection of methodologies and tools for integrating and coordinating local logistics processes and their connections with production processes (Ivanov et al., 2018).

According to Fassoula (2006), in the late 1990s, the establishment of SC performance evaluation or quality measurement methods gradually shifted from reactive to proactive approaches with a process orientation, increased integration, and a focus on overall process management and corporate decision-making. The SC process is a fundamental business process crucial to the execution of corporate strategy. It determines numerous key performance indicators of an organization and significantly impacts its profitability and competitiveness. Therefore, the SC may be the most suitable operational structure on which to establish a transformation process.

The transformation process, as described by Ivanov et al. (2018), represents the traditional approach to operations management in terms of planning activities. A sizeable portion of an SC or operations manager's time is typically dedicated to addressing risks and potential negative outcomes. Consequently, the control function is becoming increasingly important for establishing feedback between planned and actual processes. Process efficiency can be improved by reducing non-value-added steps and focusing only on those that provide value. By minimizing inefficient steps and emphasizing value-added ones, the most productive output can be achieved. However, in reality, this ideal scenario rarely occurs due to the dynamic nature of businesses and the constant evolution of internal processes.

Conclusion: The transformation process is the conventional approach to operations management, aimed at optimizing the supply-demand alignment. Organizations have implemented total quality management and re-evaluated their processes and structure. The SC operations involve planning, sourcing, manufacturing, logistics, and delivery stages. Effective management is crucial for smooth operations, cost reduction, and customer

satisfaction. The operations function balances demand and supply, while SCM integrates material, information, and financial movements. SC performance evaluation shifted to proactive approaches with a process orientation. The control function and process efficiency play important roles, but challenges arise due to dynamic business nature.

2.1.6 SC performance

Measures of SC performance (SCP) focus on assessing the efficiency and effectiveness of processes to maximize resource utilization and achieve desired outcomes, such as waste reduction, cost savings, and improved quality and customer satisfaction (Fonseca and Lima, 2015). In recent years, many firms have recognized the potential of SCM, and their focus has shifted towards maintaining smooth operations rather than solely addressing every source of waste and inefficiency within the SC. Companies need to be adaptable to supply and demand fluctuations, and this may involve transitioning from a just-in-time to a just-in-case approach, with a focus on maintaining optimal inventory levels.

SCP encompasses the effectiveness and efficiency of a company's SC activities in meeting customer demands. It involves coordinating various processes, including procurement, production, transportation, and distribution, to ensure timely delivery of products and services at the desired quality level while minimizing costs. SCP plays a crucial role in a company's overall business strategy as it directly impacts customer satisfaction, profitability, and competitiveness.

A well-functioning SC can help businesses achieve their objectives by improving efficiency, reducing costs, enhancing responsiveness to customer needs, and elevating the overall customer experience. Key performance indicators (KPIs) are commonly used to measure SCP. Examples of SCP KPIs include the on-time delivery rate, order fulfillment cycle time, inventory turnover rate, and SC cost as a percentage of revenue. By monitoring

these indicators, businesses can identify areas for improvement in SC operations and implement strategies to enhance SCP.

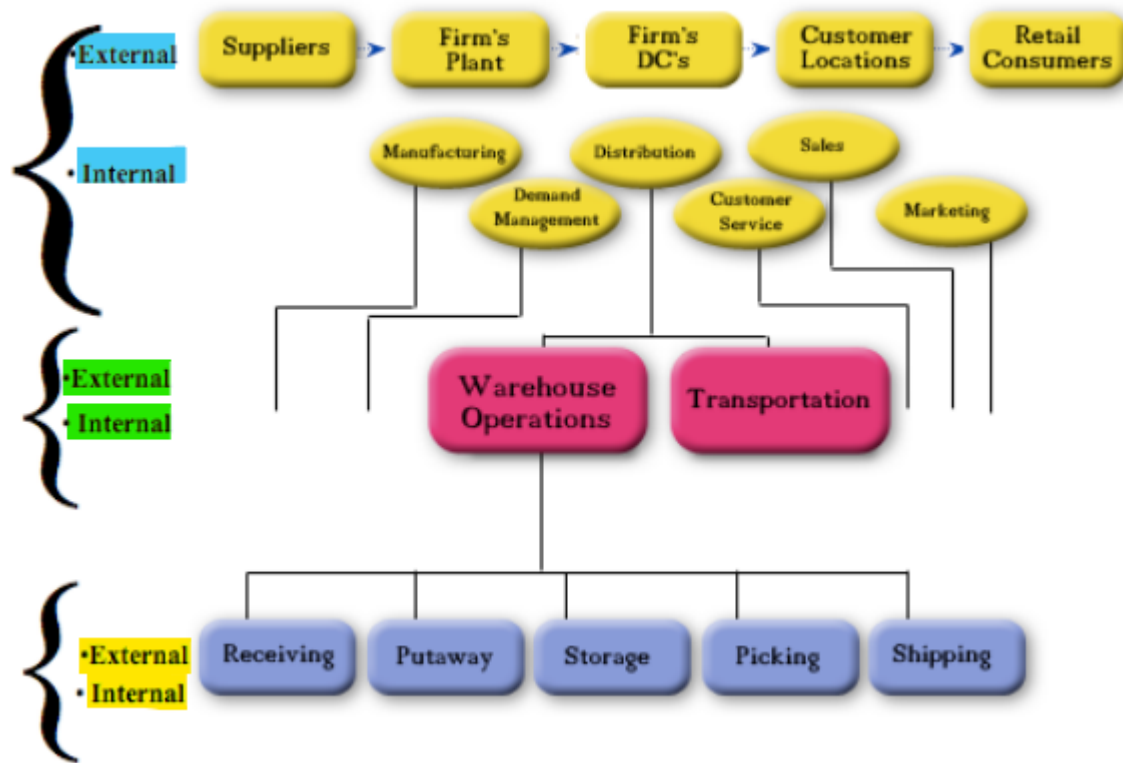


Figure 10: Hierarchical SC Performance.

Source: Miller (2012).

Figure 10, adapted from Miller (2012), illustrates an integrated hierarchical system for measuring SC performance. This performance measurement method can be tailored to accommodate the number of SC tiers. To provide an example, this study will now examine the structure from the perspective of a single organisation. According to Miller (2012), the three tiers of the hierarchy represent strategic, tactical, and operational levels, which align with conventional SC frameworks. Furthermore, Miller explains that within each level of the measuring system, performance metrics are further classified as either (1) external measures or (2) internal measures. Internal metrics assess the efficiency or productivity of an activity or function, while external measures evaluate its effectiveness. Specifically,

external measures examine the effectiveness of flows and connections throughout the SC, while internal measures analyse the cost or efficiency of a function or organisation in producing its outputs or services.

The growth and development of SCM are influenced not only by internal factors but also by various external factors, such as increased globalisation, reduced barriers to international trade, improved information accessibility, and environmental concerns. Additionally, computer-generated production schedules, the growing importance of inventory control, government regulations, and initiatives such as the establishment of a single European market, the General Agreement on Tariffs and Trade (GATT), and the World Trade Organization (WTO) guidelines have contributed to the advancement of current SCM trends. The GATT primarily focuses on international product trade, while the Goods Council, comprised of delegates from all WTO member nations, oversees the implementation of the GATT agreement. The WTO serves as the sole international institution responsible for regulating global trade. This framework is built upon WTO agreements that have been negotiated, signed, and ratified by numerous trading nations worldwide, aiming to ensure predictable, unrestricted, and orderly commercial activities.

Benefits for all parties can be achieved when lean principles are applied at various levels of the SC. Applying just-in-time principles, which aim to reduce waste and provide the right product to the end consumer at the correct time and location, can result in significant gains in efficiency. The ultimate objective is to enhance SC performance from the user's perspective. However, expanding lean methods across the entire sourcing, transformation, and delivery chain can lead to operational conflicts due to high variability caused by external factors. Logistics networks are designed for everyday operations, not for rare but disruptive events and subsequent recovery (Simchi-Levi, 2020). Therefore, it is important to consider the core concepts behind just-in-time (JIT) and lean SCs.

Establishing interdepartmental teams helps businesses adopt a process-oriented organisational structure, which is vital for achieving efficient distribution of goods. The formation of cross-functional teams aligns organisations with a process-oriented structure, which facilitates the seamless flow of resources in an SC. According to Trent and Monczka (1994), such teams enhance SC effectiveness by reducing or eliminating functional and departmental barriers, addressing the limitations of specialisation. This approach ensures that knowledge of all value-adding activities is shared, preventing any single individual, even upper-level managers, from having complete control over the process. These teams have played a significant role in the development of modern SCs by promoting greater interaction between organisations, suppliers, and consumers.

Aligning an organisation's activities with its strategies leads to a competitive advantage, as stated by Hanson et al. (2011). To understand how SCs operate, it is necessary to have a comprehensive understanding of the overall SC performance. Managing and controlling flow in operating systems requires integration. Flow control is intricately linked to inventory management and scheduling activities across various resource and time constraints. In addition to flow control, an operating system must strive to achieve broader competitive and strategic goals, such as quality, speed, dependability, flexibility, and cost (Gunasekaran et al., 2001). Control is also essential because both customer requirements and SC performance can change over time. The adoption of SCM principles, both internally and externally, can enhance SCP and contribute to a competitive advantage.

Conclusion: SCP involves coordinating procurement, production, transportation, and distribution. Measures of SCP focus on efficiency, waste reduction, cost savings, and customer satisfaction. It impacts customer satisfaction, profitability, and competitiveness. KPIs are used to measure SCP. A hierarchical system is used to measure SCP, with internal and external measures at strategic, tactical, and operational levels. External factors like globalization and environmental concerns influence SCM. Applying lean principles and

forming interdepartmental teams enhance SC performance and achieve competitive advantage. Flow control, inventory management, and scheduling are crucial for SCP. SCM principles improve SCP and contribute to a competitive advantage.

2.1.7 Global governance of value and GSC

The term governance structure refers to the rules, procedures, roles, and division of responsibilities that govern the entire decision-making process. Governance structures are of interest within the GSC framework as they assist in identifying industry opportunities and barriers to entry. These aspects are crucial for the competitive strategies of lead firms and their suppliers across different tiers in these industries. Christopher (1995) suggests that companies are increasingly moving towards cooperative relationships to enhance the competitiveness of their SCs. In a study conducted by Sanders and Premus (2002) on manufacturing firms, it was concluded that organizations must have a clear understanding of their company's competitive priorities. They should evaluate the adoption of information technology based on its ability to support these priorities, rather than simply imitating their current competitors.

Incorporating a global perspective into GSC management is a holistic strategy that involves maintaining the competitiveness of the SC through continuous monitoring and adjustment of the integrated network in response to global environmental changes. GSCs encompass complex networks of manufacturers, logistics providers, transport companies, and information technology and communication companies, through which products and materials are moved via global production and distribution channels. Factors such as the growing unpredictability of supply networks, the internationalization of enterprises, the proliferation of product variants, and the reduction in product life cycles have led Indian organizations to increasingly collaborate with SC partners outside of their in-house facilities. The SC encompasses all stages of production, from brainstorming to customer

delivery. Businesses face pressure to enhance SC efficiency in the face of a constantly changing network (Miles and Snow, 2007).

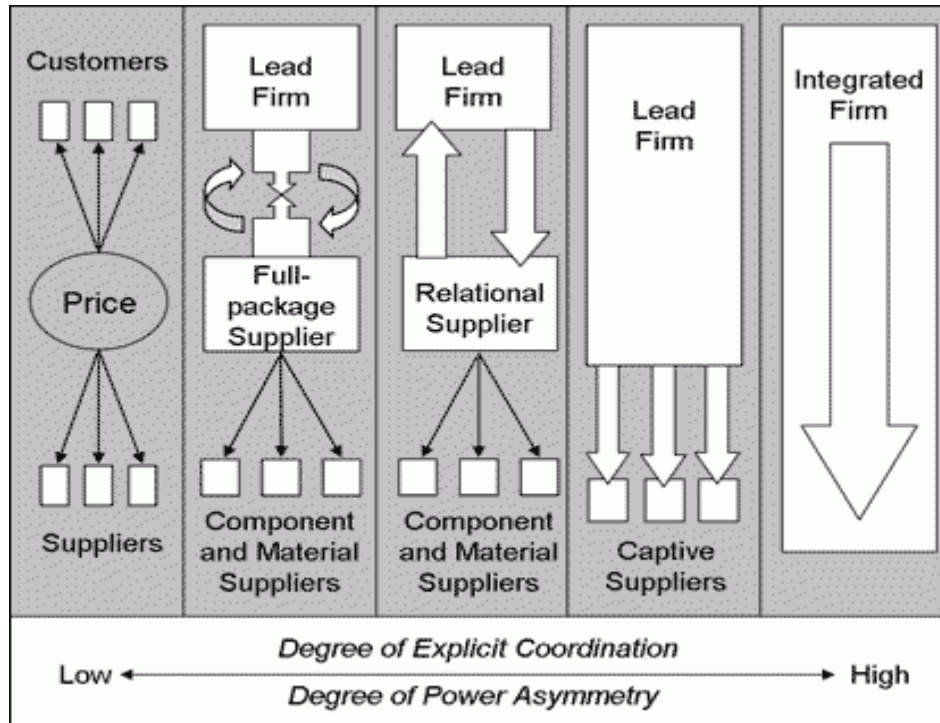


Figure 11: Types of value chain governance.

Source: USAID/E3

Effectively managing the SC requires handling multiple inter-firm connections, which have become increasingly crucial for gaining a competitive advantage. To maintain an effective cost structure, organizations are increasingly required to closely collaborate with their suppliers, customers, and other SC participants, strategically competing and integrating logistical practices (Morash and Clinton, 1997). The efficient and timely delivery of goods across supply networks is always accompanied by management challenges. Concerns arise regarding the industry’s structure, including the size and ownership of major manufacturers and their suppliers, as well as their geographical locations. Countries are concerned about their ability to acquire and maintain the

production, sales, and research capabilities necessary for the development and manufacture of low-cost, high-quality, or high-tech products (Pisano & Shih, 2009).

Globalization has made almost every business part of the complex and interconnected system of international trade. SCs benefit from this interconnected environment as it provides access to cheaper resources and a broader customer base. However, the expanded reach of GSCs also brings new challenges beyond traditional SC concerns about demand and supply uncertainties. According to Boström et al. (2011), GSCs must navigate multiple regulatory terrains, and efforts to improve SC governance often aim to coordinate and harmonize multiple legal requirements rather than replacing them. GSCs face unique risks that impact performance, such as currency exchange rate volatility, economic and political instability, and changes in the regulatory environment (Dornier et al., 1998).

As SCs become global, there is increased trade of intermediate goods across borders, and more parts and components are imported for use in exports (Feenstra, 1998). GSCs play a significant role in international development, as they are central to countries' roles in the global economy. Globalization has ushered in a new era of international competition, reshaping global production and trade, and thereby altering the organization of industries (Gereffi, 2011). The lean and globalized structures of many businesses' SCs have made them uniquely vulnerable to pandemics. As market competition intensifies and consumers become more conscious of social and environmental issues, businesses have little choice but to closely collaborate with their suppliers to ensure the delivery of high-quality products. Quality standards serve as a significant instrument for buyers to regulate the GSC.

Conclusion: The governance structure in GSCs involves rules, roles, and decision-making processes. Cooperative relationships and global perspectives are crucial for SC competitiveness. Managing inter-firm connections and addressing challenges like

regulatory requirements and risks are important. GSCs play a role in international development and are vulnerable to pandemics. Collaboration with suppliers and adherence to quality standards are essential for success.

2.1.8 Ocean container transport in GSCs

Ocean container transport plays a crucial role in GSCs, facilitating efficient movement of goods between countries and continents. These stackable, standardized metal boxes enable safe and consistent transportation of products across various modes, including ships, trucks, and trains. Maritime container transit offers several advantages within GSCs. One primary benefit is the cost-effectiveness of bulk shipping, as companies can achieve economies of scale by transporting goods via container ships, thereby reducing transportation costs per unit. Another advantage is the flexibility provided by ocean container transport, allowing seamless transfer of containers between different modes of transportation. Additionally, ports serve as storage locations, providing businesses a secure place to keep their goods until they are ready for onward transportation.

As pointed out by Lee and Song (2017), transportation plays a critical role in SC performance, especially as SCs become more globalized and operations are increasingly outsourced and relocated overseas. Containerized ocean transport has become an integral part of nearly all GSCs, with the rise of offshore manufacturing operations in Asia, particularly China, contributing significantly to the growth of worldwide container trade in the past decade. In container-based SCs, it is common for shippers to engage third- or fourth-party logistics providers, such as Non-Vessel Operating Common Carriers (NVOCCs), to manage the shipping containers.

Despite its advantages, ocean container transport also presents challenges. One significant concern is the risk of damage or loss during transportation due to rough handling, extreme weather conditions, or accidents. Container theft or loss poses additional

financial risks for businesses. Environmental concerns also arise from ocean container transportation, as the shipping industry contributes significantly to greenhouse gas emissions and raises questions about its impact on marine ecosystems. However, ocean container transport remains a vital component of GSCs. Technological advancements, including more efficient and environmentally friendly ships, as well as the adoption of digitalization and automation in ports, are helping address these challenges and enhance the efficiency and sustainability of ocean container transportation.

International shipping has become a vital component of modern GSCs. According to a study by Lloyd's Marine Intelligence Unit in 2009, 75% of the world's trade, in terms of volume, is transported by sea, accounting for 60% of its value. Among several types of cargoes transported by sea, container ships account for 52% of the total value. Lee and Song (2017) argue that containerization allows for efficient transportation of containers from origin to destination using multiple modes of transportation, such as vessels, trains, and trucks, without the need for reorganizing or handling the contents. This seamless integration makes containerization naturally suited for GSCs. In international trade, a consignor (seller) and consignee (buyer) enter into a buy-sell arrangement, generating demand for international logistics, including maritime transportation.

As highlighted by Levinson (2006), container shipping has evolved into a global trade system, with standardized container sizes of 20 and 40 feet, enabling shipment across the world with fixed dimensions and properties. However, Lee and Song (2017) note that container shipping operations within GSCs remain fragmented, and the market exhibits volatility. Due to the unique characteristics of sea transport, container transport companies employ fewer operations management strategies and tools compared to other modes of transportation, such as air transport. The figure 12, below illustrates six key planning issues in maritime container transportation. These issues encompass competition and cooperation among carriers, ports, and terminals, pricing and contracting as strategic planning concerns, network design and routing, ship scheduling, and slow steaming as tactical planning

elements, and operational management issues like empty container repositioning, safety, and disruption management.

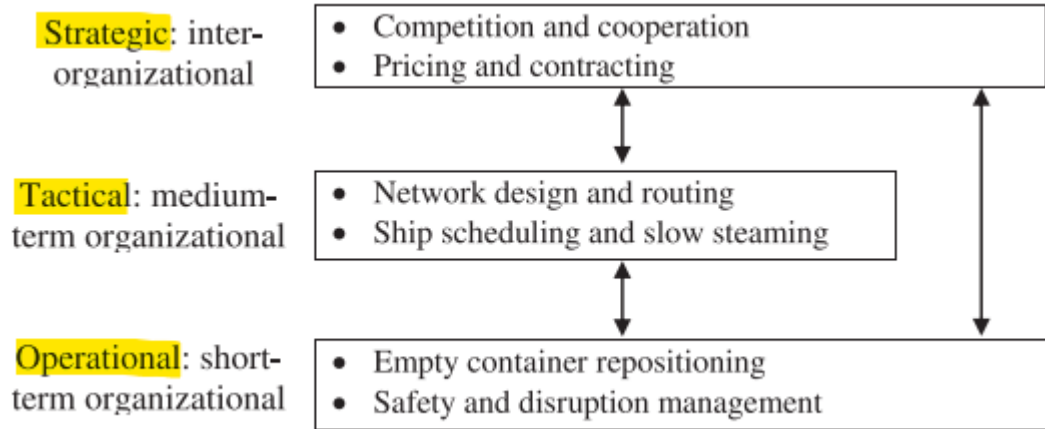


Figure 12: Planning issues in maritime container transportation.

Source: Lee and Song (2017).

According to Fransoo and Lee (2013), maritime container transport has become a crucial component of GSCs due to the globalization of trade. They also emphasize that transportation has a greater impact on SCP as GSCs, outsourcing, and offshore operations continue to expand. An increasing proportion of intercontinental cargo shipments now utilize shipping containers, and containerized ocean transportation is a fundamental element of every international SC today. Maritime logistics has gained significance within GSCs as shipping plays an increasingly key role in overall logistics processes. Seaports are acting as platforms in GSCs and production networks. These SCs are highly adaptable, constantly evolving in response to changes in global trade patterns, customer preferences, and advancements in SCM and information technology (IT).

The shipping container industry within GSCs involves multiple participants. There are various individuals and organizations engaged in container shipping, each with their own agendas and needs to consider. Participants in a container shipping SC can include consignors, consignees, ocean carriers, freight forwarders, inland carriers, financial

institutions, legal advisors, insurance brokers, customs officials, port/terminal operators, and inland depot operators. These participants can be broadly classified as either service consumers or service providers. The shippers and receivers are the recipients of the service, while the other participants are the service providers. Therefore, ocean container transport plays an essential role in today's GSCs.

Ocean container transport is not only utilized for consumer goods but also for transporting intermediates within the SC, indicating the presence of multiple maritime connections. The significant trend of manufacturing outsourcing and offshoring has direct implications for the types of goods transported via ocean transport. As Feenstra (1998) explains, while historically ocean transport primarily carried raw materials and agricultural products, it has shifted towards consumer products and is now dominated by intermediate products, which undergo further value-adding operations in the importing country. Levinson (2006) has conducted extensive research on the effects of the information technology revolution on the logistics industry, providing both anecdotal and statistical evidence.

Global trade relies on reliable transportation networks, and according to Notteboom et al. (2022), the increasing importance of global trade is driven by global economic integration. The globalization of production and trade are interconnected, as emphasized by Notteboom et al. (2022). Their research highlights that the provision of distribution and transactional services is crucial for global trade, leading to a significant increase in demand for these services. This growth has resulted in the expansion of carriers, cargo owners, terminal operators, third-party logistics service providers (3PLs), and freight forwarders. International transportation and transaction service providers form a complex ecosystem to facilitate international trade and generating value. Given the expansive markets they serve, transportation service providers, similar to manufacturing companies, have evolved into international organizations.

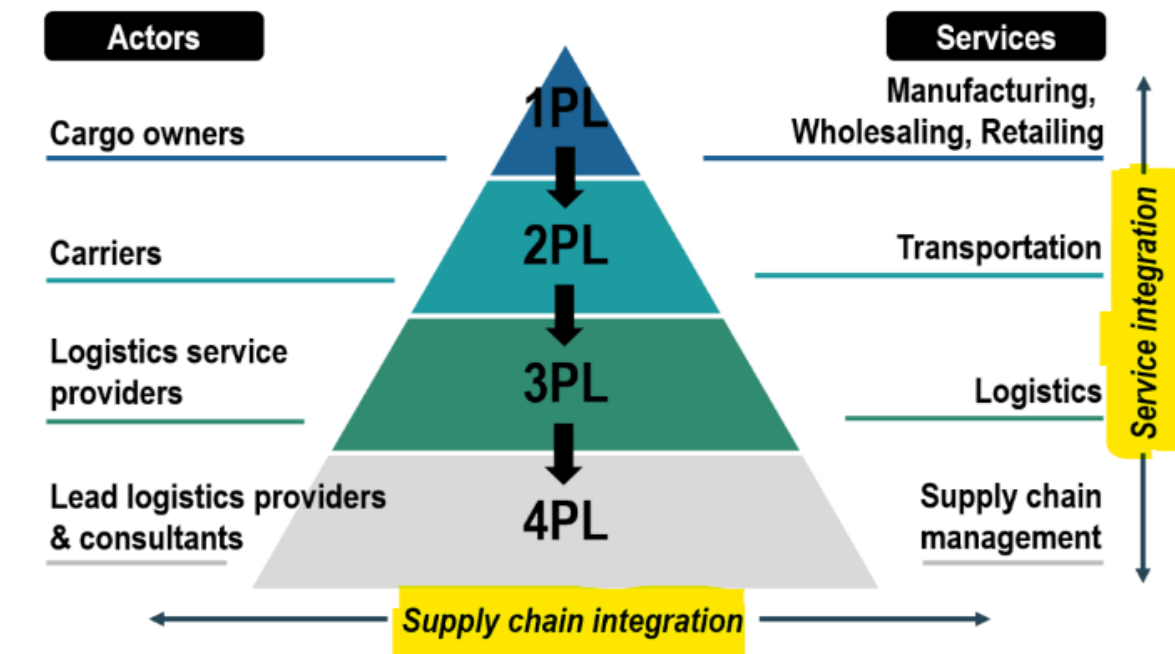


Figure 13: Maritime container transportation.

Source: Notteboom et al. (2022).

Conclusion: Ocean container transport play a crucial role in GSCs, offering cost-effectiveness and flexibility. However, challenges like damage, theft, and environmental impact existed. Technological advancements addressed these concerns. Container shipping dominated global trade, providing seamless integration in GSCs. Various planning issues and participants were involved in the container shipping industry, supporting international trade and logistics. The globalization of production and trade led to the growth of transportation service providers in facilitating international trade.

2.1.9 SC visibility

SC visibility (SCV) refers to the ability to monitor and trace materials and products from their point of origin to their point of consumption. Having comprehensive visibility into the SC allows business leaders to track the movement of their products and supplies

at any given time. Greater visibility in complex supply networks leads to fewer disruptions, increased customer satisfaction, and lower costs. According to Spekman et al. (1998), visibility plays a crucial role in fostering productive SC partnerships. The concept of SCV encompasses not only the internal operations of a business but also those of its external collaborators. It begins with the procurement of raw materials and extends through production, assembly, and final delivery to the customer's doorstep. Increased transparency throughout this extensive network can enhance SC efficiency, corporate profits, and customer happiness. The complexity of modern SCs has grown as companies have come to rely on multiple supplier networks spread across the globe.

SCV enables tracking and tracing of products, components, and raw materials as they move through the SC network. It allows businesses to monitor the flow of their products, identify potential bottlenecks or challenges, and make informed decisions regarding inventory management, logistics, and customer support. SCV commonly utilizes technologies such as Radio Frequency Identification (RFID), barcoding, Global Positioning System (GPS) tracking, and cloud-based software platforms. These solutions enable organizations to collect and analyse real-time information about the location, condition, and status of their items. With increased insight into the SC, businesses can improve operational efficiency, reduce costs, and enhance customer satisfaction. SCV assists organizations in identifying the optimal route and mode of transportation for their products, tracking inventory levels, and ensuring timely delivery to consumers. In today's global and complex SCs, SCV is gaining importance as businesses must manage multiple partners, suppliers, and customers across various geographic locations and time zones.

SC's mission is to strengthen the SC by making data easily accessible to all parties involved, including the end user, or consumer, as articulated in figure 14.



Figure 14: SC visibility.

Source: TechTarget (2022).

To investigate the potential risks of SCs, Behnezhad et al. (2013) conducted an extensive literature review. They found that visibility in the SC is inversely proportional to performance, as greater visibility allows for better optimization of efficiency and reduces the risk of disruptions. If business leaders are unaware of the status of individual orders or the types of products being manufactured in specific locations worldwide, they are unable to proactively prevent disruptions. Enhancing SC visibility can be achieved through investments in SCM software, automation of SC activities for maximum efficiency, and utilizing software insights to drive decision-making. Visibility in SCs refers to a company's ability to trace a product from its manufacturing stage to its consumption stage (Somapa et al., 2018). Transparency in identifying a product's origin, material composition, carbon footprint, and reusability builds greater consumer and customer trust. Additionally, visibility can help reduce supply disruptions, as it enables companies to reorganize their SC resources for a competitive advantage.

According to Goh et al. (2009), SC visibility is a term unique to the study of SCM and logistics. While the term is often used interchangeably, there are various meanings associated with it that approach the topic from different perspectives. SCV serves as the foundation for entirely new business models and plays a crucial role in enabling the circular economy. It allows for traceability of parts from material suppliers and manufacturers to wholesalers, retailers, and the end-user, providing insights even beyond the initial use cycle and creating opportunities for product reuse, remanufacturing, and recycling. The goal is to optimize all chain operations, reduce risk, and maintain or increase the original value across all usage cycles. Goh et al. (2009) also argue that as SCs become increasingly complex, having high SC visibility can help companies streamline processes and reduce complexity by addressing inaccuracies.

Visibility throughout the SC has been a topic of discussion among academics and practitioners. Keppner (2015) argues that the best way to mitigate micro-risks is to prevent them from occurring in the first place, emphasizing the importance of resilience. On the other hand, other analysts suggest that major disruptions, such as natural disasters or geopolitical conflicts, must be balanced with micro-risks. These micro-risks can range from computer viruses to seemingly beneficial events like technological innovation, which can pose a risk to businesses that are unable to keep up. As SC managers deal with incidents that are likely to occur, some incidents may catch firms off guard without safeguards or contingency plans in place. Business leaders must provide intelligent solutions with clear action options to address these risks.

SCV refers to the visibility of demand and inventory information across the SC. To provide more value to customers and the extended business organization, including SC partners, agility and responsiveness are crucial. While pursuing individual business objectives may seem overwhelming, leveraging existing SC connections can make it achievable. Therefore, collaborative SCM practices have become increasingly important. According to Samaddar and Kadiyala (2006), collaborative relationships between

organizations have garnered significant attention. Aligning the SC structure with customer needs in demand chain management leads to improved performance. Thus, a successful SC requires tight integration between suppliers and customers (Vereecke and Muylle, 2006).

To achieve SC visibility, a company must systematically and reliably track and account for all materials and parts received from suppliers and manufacturers. Business leaders need to monitor the flow of goods entering, transiting through, and exiting their facilities. According to Parry et al. (2016), SC visibility is determined by the perception, type, and usefulness of the information exchanged, as well as the firm's ability to act on that information. Transparency promotes a more trusting environment and facilitates collaboration. It also aids in risk management and compliance. Increased visibility throughout the SC reduces compliance risks, as cash flows can be traced, making corruption less likely. Processes such as contract allocation from tier-one to tier-n vendors can benefit from enhanced transparency.

Conclusion: SCV allowed businesses to monitor and trace materials and products, leading to fewer disruptions, increased customer satisfaction, and lower costs. Technologies like RFID, barcoding, and GPS tracking facilitated tracking and informed decision-making. SCV addressed the complexities of GSCs, enabling efficient management across partners, suppliers, and customers. It played a vital role in optimizing operations, building trust, and supporting the circular economy. Enhanced visibility reduced risks, improved collaboration, and facilitated risk management and compliance throughout the SC.

2.1.10 Service-driven GSCs

Service-driven GSCs involve the procurement, production, and delivery of services across international borders. Unlike traditional SCs that focus on physical goods, service driven GSCs prioritize the delivery of services. This can include a wide range of services

such as financial services, consulting services, and technology services. Managing service driven GSCs can be challenging due to the coordination required across multiple nations and companies, as well as the complexities associated with the transfer of knowledge, skills, and intellectual property. In recent years, the significance of service driven GSCs has grown as companies seek to enter new markets and leverage specialized talents and expertise from around the world. However, they also present additional challenges in terms of risk control, quality assurance, and intellectual property protection.

According to William and Arvinder (2000), in today's customer-centric global arena, the competition has shifted from companies competing against companies to SCs competing against SCs. This new form of competition requires a rethinking of how service is integrated into operations. Merely connecting the factory to individual stakeholders through factory-based services is not sufficient to compete in GSCs. The application of the service factory concept to GSC management has raised questions that need to be addressed rather than providing definitive solutions. William and Arvinder (2000) also encourage managers and SC leaders to develop and implement action plans for creating service driven GSC strategies to leverage the value-added by services and enhance both GSC performance and customer intimacy.

Services have long played a dominant role in most economies, and the production of SCs has likely become more service intensive. However, the intangibility of services poses analytical and statistical challenges, as highlighted by Park et al. (2013). Only in the past few decades have systematic efforts been made to deepen our understanding of the economic role of services, particularly at the international level. With the increasing prevalence of global value chains, where services play a critical and complex role, these efforts have gained momentum. Within the SC framework, services refer to the process of addressing product issues and ensuring timely and efficient availability of resources for tasks such as repairs and maintenance.

Services with added value enhance a company's competitiveness in the manufacturing sector beyond the conventional metrics of price, quality, flexibility, and timeliness. According to the WTO International Trade Statistics, the proportion of services in international trade presents an even more intriguing narrative as it reveals data deficiencies that the international community has only recently addressed. For many years, it has been calculated that cross-border services transactions account for little more than one-fifth of global trade (Park et al., 2013). Services are commonly referred to as the glue that connects SCs and ensures their seamless operation, as noted by Park et al. (2013). However, this is just one aspect of what services accomplish; they also engage in various production and sales operations.

Traditionally, services have been considered peripheral to the core business of manufacturing firms. However, recently, offering services seems to have emerged as a strategic choice for manufacturers to differentiate their products and generate additional revenue streams (Raddats et al., 2016). Manufacturing companies possess strong technical and product-centric capabilities (Alghisi and Saccani, 2015), but often lack the resources and competencies required to offer goods and services together (Xing et al., 2017). Even with a strong inclination towards servitization and internal skills, enterprises require external support, particularly from major suppliers and customers, to successfully embrace servitization. Adding services to existing products or completely transitioning from a product to a service exemplifies the servitization of products.

To thrive in service driven GSCs, business leaders must establish robust systems for risk management and quality assurance, along with fostering strong connections with suppliers and customers. Additionally, they must be adaptable and responsive to shifting market conditions and customer demands. The foundation of a service-oriented SC is a set of collaborative actions between customers and suppliers that generate value. Designing resources with consideration of the traditional SC elements, including facilities, inventory, transit, information, supply, and pricing, is vital. After-sales service SCs are often

neglected by companies as they are more challenging to manage compared to manufacturing SCs. Despite the obvious benefits of the aftermarket, most businesses fail to capitalize on it. The difficulty of managing after-sales service SCs often leads to their oversight, resulting in decreased efficiency compared to other areas.

According to Cohen et al. (2006), customers do not expect products to be perfect, but they do expect prompt resolution of any problems that arise. Many customers express dissatisfaction with the quality of service provided after the sale. The authors also suggest that the service SC is considerably more complex than the manufacturing SC in various aspects. To deliver service, original equipment manufacturers (OEMs) must utilise more parts, personnel, and equipment compared to what is required for product manufacturing. This needs to be carried out efficiently and profitably. The service SC must operate effectively for all the products and models that a company has previously sold, as well as those it currently manufactures and plans to manufacture in the future. Figure 15, illustrates a comparison between Manufacturing SC and Service SC.

Sr. No.	PARAMETERS		MANUFACTURING SUPPLY CHAIN	AFTER-SALES SERVICE SUPPLY CHAIN
1	Nature of demand	:	Forecasts can be made for predictable events.	Never knowing what to expect, Unpredictable.
2	Required response	:	Standard, can be planned	Instantaneously, the same day, or the day after.
3	Number of SKUs	:	Limited	15 to 20 times more
4	Product portfolio	:	Largely homogenous	Always heterogenous
5	Delivery network	:	It all depends on the product. There must be multiple networks.	With a single network, users can access a variety of services.
6	Inventory management	:	Maximise velocity of resources	Have your tools in place ahead of time
7	Reverse logistics	:	Does not handle	Handles the return, repair, and disposal of failed components.
8	Performance metrics	:	Fill rate- customer orders are instantly filled from available inventory	Product availability
9	Inventory turns (the more the better)	:	6 to 50 years	1 to 4 years

Figure 15: Comparison of Manufacturing SC versus Service SC.

Source: Cohen et al. (2006).

Conclusion: Service-driven GSCs prioritized the delivery of services across borders, presenting challenges in coordination, knowledge transfer, and intellectual property protection. Its significance grew as companies sought new markets and specialized expertise. Business leaders needed to develop action plans to leverage service value and enhance GSC performance. Services played a vital role in SCs, connecting stakeholders and addressing product issues. Manufacturers increasingly offered services to differentiate their products, requiring strong partnerships and resources. Effective risk management, quality assurance, and customer connections were crucial in service oriented GSCs. After-sales service SCs were often overlooked but had significant potential for efficiency and customer satisfaction. The service SC was more complex than the manufacturing SC, demanding efficient operations for multiple product models.

2.1.11 SC risk management (SCRM)

To mitigate the impact of disruption transmission and amplification within SCs, SCM must adopt a specific strategy. According to Park et al. (2013), one area where both business leaders and policymakers can immediately recognize the value of the SC concept is in addressing the new risks that have emerged in an increasingly interconnected world. As a result of globalization, Faisal et al. (2006) assert that firms now have access to a new world of resources. However, firms have had to expand their capabilities beyond their traditional boundaries to capitalize on these new opportunities. Consequently, today's market is primarily characterized by competition among teams rather than competition among individual firms. Similarly, the fate of a firm is now to some extent collectively shared, and risks that were previously dismissed have acquired new significance due to increased network exposure.



Figure 16: Four steps to a safer corporate SC.

Source: Herrera (2022).

Hendricks and Singhal (2003) analysed the economic impact of SC disruptions on shareholder wealth using the event study methodology. The event study methodology helped researcher assess the market's reaction to specific events, providing insights into the economic impact and investor sentiment associated with those events. It was widely used in various fields, including finance, economics, and corporate finance research.

In their study, Sodhi and Tang (2012) identified three emerging characteristics that underlie the recent changes driving the growth of risks in SCs.

Firstly, there is a growing number of firms involved in SCs, resulting in an increasing number of potential disruption points.

Secondly, the increasing length of the SC reduces visibility and transparency, making it challenging to detect and respond to disruptions effectively.

Thirdly, the global consequences of local SC actions are expanding, increasing the risk of globally disastrous outcomes resulting from locally optimal decisions.

These risks, which arise from the systemic interactions typical of SCs, were recognized through a series of events at the turn of the millennium.

The potential for disruptions in SCs is likely to remain a top concern for businesses and governments. The benefits of international trade will continue to grow as modern technologies and business models develop. According to a well-known study by Hendricks and Singhal (2005), unprepared businesses stand to lose significantly. Their analysis of over 800 firm announcements related to SC disruptions over a 10-year period revealed that negatively impacted companies experienced stock returns that were 33% to 40% below industry benchmarks. Even if there is a rise in protectionism or isolationism that slows down the trend of global interconnectedness, the existing connections are still at risk of being severed, which represents a distinct category of SC risks. Figure 17, adapted from Manuj and Mentzer (2008), provides a useful example of an SC risk management framework that encompasses all the discussed steps.

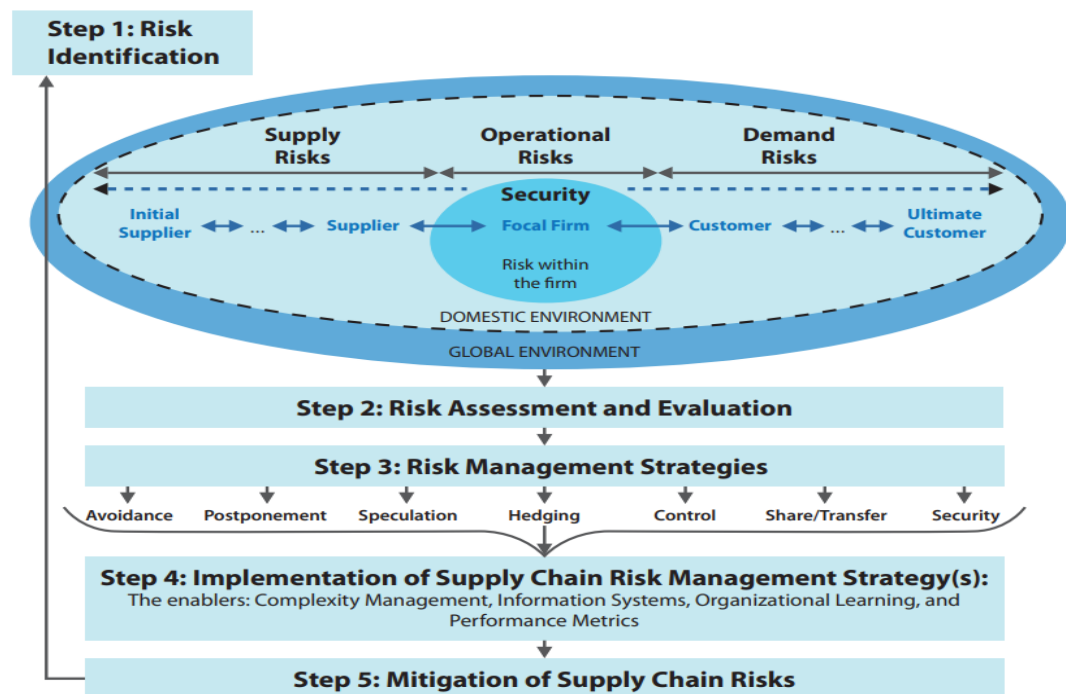


Figure 17: SC risk management framework.

Source: Manuj and Mentzer (2008).

According to Manuj and Mentzer (2008), GSCs serve as a source of competitive advantage. The global configuration of enterprises provides access to cost-effective labour and raw materials, improved financing opportunities, broader product markets, arbitrage opportunities, and additional incentives offered by host governments to attract international capital. Alongside the enticing benefits that drive organizations to expand globally, business leaders operating in GSCs must also contend with uncertainty and the associated risks. As highlighted by Barry (2004), a company might possess the most economical costs in a stable global setting, but it could encounter the greatest level of risk should any of the numerous gating factors disrupt the extensive GSC. Viewing risk and uncertainty through a strategic lens is a recent and arguably one of the most critical capabilities and contributions that can enhance a company's competitiveness and sustainability (Barry, 2004).

Conclusion: To address the risks and disruptions in GSCs, SCM needed to adopt specific strategies. The interconnected nature of the globalized world highlighted the importance of the SC concept in managing emerging risks. With access to untapped resources, firms expanded their capabilities and faced competition among teams rather than individual firms. The economic impact of SC disruptions was analysed, revealing the significance of preparedness. The complexity and global consequences of SC actions increased the risk of disruptions. Effective risk management frameworks were essential for competitive advantage and sustainability in GSCs.

2.1.12 Perspectives in GSC risk management

Uncertainty and dynamics represent two of the most critical challenges in GSC management. Tang (2006) categorises various GSC risks into two categories: operational risks and disruption risks. With the increasing occurrence of both natural and fabricated disasters, GSC risk has become a prominent topic on the corporate agendas of leading global corporations. According to Ivanov et al. (2017), operational risks are associated with

day-to-day disruptions in GSC operations, such as changes in lead-time and demand, while disruption risks pertain to low-frequency, high-impact events. Ivanov et al. (2019) provide examples of disruption risks, including natural disasters such as earthquakes, tsunamis, and others. The 2011 Japanese disaster had a significant impact on global supply networks. Furthermore, legal challenges, strikes, and industrial explosions, like the one that occurred at a BASF factory in Germany in 2016, can also be considered as examples of disruption risks.

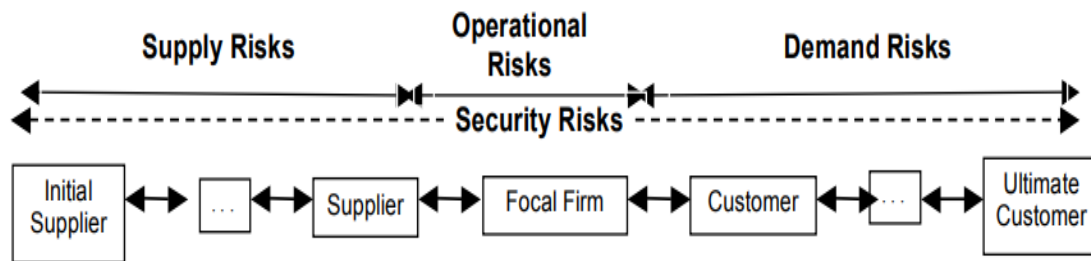


Figure 18: Risk management strategies in GSC.

Source: Manuj and Mentzer (2008).

Supply risk refers to the probability of an incident occurring related to incoming supply, which could lead to failures in suppliers or supply markets. These failures may result in the focal firm's inability to meet customer demand within projected prices or pose risks to customer life and safety (Zsidisin et al., 2004). As materials flow from the supplier's suppliers to the focal firm, various supply risks may arise, such as supplier dependability, the choice between single or dual sourcing, make or buy decisions, centralized or decentralized sourcing, and security concerns. Many of these threats are interconnected and cannot be addressed in isolation. Manuj and Mentzer (2008) classify SC threats as quantitative or qualitative. Quantitative risks include stock-outs (leading to lost sales), overstocking, obsolescence, customer discounts, or an insufficient supply of components and supplies in the SC. Qualitative risks pertain to components and materials that are inaccurate, unreliable, or imprecise. Addressing both quantitative and qualitative risks may require detailed assessments of SCs.

Globalization has heightened the risks to GSCs due to the unpredictability of when and how an SC may be affected by a disaster. The financial challenges of GSCs have been further exacerbated by long shipping times and inflated costs. The Alco Bev industry faces several challenges in GSC management, including port congestion and delays, limited warehouse space, high shipping costs, service disruptions, inadequate shipping capacities, price hikes by carriers during high-demand periods, damaged and expired goods, and increased vulnerability. According to Lee et al. (2011), there is a growing concern, both in developed and developing countries, that the economic benefits derived from participating in GSCs do not always translate into good jobs or stable employment. In the worst-case scenario, economic upgrading may be associated with a significant deterioration in labour conditions or social downgrading.

According to Ivanov et al. (2014), the design of the SC network can be significantly impacted by several types of risks. Manufacturing facilities, supply points, logistics hubs, and transportation routes may experience temporary delays, leading to material shortages and supply disruptions. These disruptions have a ripple effect on downstream activities within the SC, resulting in reduced revenue, service levels, and productivity. Internal risks include overstocking, including redundancy and shrinkage., defective items, extended product life cycles, and process risks such as high labour costs and limited production scalability. External risks, on the other hand, originate from factors outside the organization's control, such as natural disasters, terrorist attacks, piracy, and unanticipated drops in aggregate demand. Different industries take different measures to strengthen their GSCs based on product characteristics, manufacturing processes, and target markets.

The current commercial GSC represents a dynamic global network of interconnected corporate enterprises. Business executives rely on GSCs to efficiently transport commodities across countries, fostering competitiveness, job creation, and economic progress. The GSC approach provides a comprehensive perspective on global industries from both top-down and bottom-up viewpoints. Bottom-up upgrading focuses

on strategies employed by countries, regions, and economic players to maintain or enhance their positions in the global economy. Conversely, top-down governance of GSCs emphasizes leading corporations and global industry organizations, as summarized by Gereffi (2011).

Buglass (2011) concluded that both within and outside the European Union (EU), national governments impose additional or specific legislation governing the manufacturing of specific distilled Alco Bev. These regulations aim to minimize fraud, counterfeiting, and ensure product quality. For instance, Irish whiskey must be brewed and matured in Ireland according to certain rules, while Bourbon must be made and matured in the US under its own regulations. Most whiskies produced worldwide are grain spirits and can be marketed in nations such as the EU or the United States, which have established these conditions. However, low-cost Indian whiskies made from molasses spirit, or a combination of molasses and grain spirit cannot be sold in such countries as whisky or whiskey.

GSC serves as a complex and interconnected network that connects manufacturers to the final users of goods or services. Within the Alco Bev manufacturing industry, there has been an increasing reliance on GSC, leading to a more fragmented production landscape. The current structure of durable goods production has become vulnerable due to the rapid growth in demand for these commodities and the global nature of the pandemic. The Covid-19 outbreak caused significant disruptions in many SCs, prompting some experts, such as Crow and Saran (2021), to advocate for decoupling America from foreign SCs, particularly in critical areas with risks posed by Chinese and Indian suppliers. The Covid-19 pandemic, which spread rapidly worldwide, had a profound impact on public health, quality of life, and the global economy, affecting Alco Bev business SCs and countries globally. Ignoring the potential disruptions in GSCs could have severe economic consequences.

Conclusion: Uncertainty and dynamics posed significant challenges in the management of GSCs. Risks in GSCs were categorized as operational risks and disruption risks, including natural disasters and fabricated events. Supply risk and the design of the SC network were crucial considerations. Globalization increased the risks to GSCs, affecting industries such as the Alco Bev industry. The complexity of GSCs required a comprehensive perspective, considering both top-down governance and bottom-up upgrading. Legislation and regulations also influenced the manufacturing and marketing of specific Alco Bev products. The Covid-19 pandemic highlighted the vulnerability of GSCs and the need to address potential disruptions.

2.1.13 Drivers of GSC disruptions

Due to the increased globalization and advancements in information technology, multinational organizations operate in a dynamic environment (Edwards et al., 2016). Recent global events such as the Ukraine conflict and China's Covid-19 lockdown have caused significant disruptions to GSCs. These events have resulted in critical supply shortages, increased material costs, unpredictable demand patterns, and logistical and capacity bottlenecks that may continue to pose challenges in the future. The Covid-19 pandemic has had a substantial negative impact on the food industry, as highlighted by Cappelli and Cini (2020), and it has underscored the importance of shorter SCs and local production.

The bottom line of any company is its net income, and disruptions in the SC can significantly impact it. Therefore, it is crucial to examine the effects of these issues on profitability so that management can better prepare for and mitigate future disruptions. Top executives are increasingly pressuring global companies to adopt more autonomous, transparent, and predictable SCM practices. Without proper planning, SC interruptions can have severe consequences for a company's bottom line.

The vulnerability of GSCs has been brought to the forefront by the ongoing coronavirus pandemic, which has demonstrated how the breakdown of even a single link in the chain can have far-reaching consequences. Natural disasters, global health pandemics, political instability, economic upheavals, cyber and terrorist attacks, supplier threats, and rapid shifts in customer preferences and demand are among the factors that can cause disruptions in the SC. Businesses need to ensure stability in the face of uncertainty by proactively preparing their GSCs for events such as political protests, extreme weather conditions, and acts of terrorism, which are increasingly prevalent worldwide. The pandemic has highlighted the importance of having robust business continuity strategies that account for various potential natural disasters, including disease outbreaks.

Some specific drivers of disruptions in the Alco Bev industry's GSCs include:

1. **Scarcity of Raw Materials:** The production of Alco Bev products relies on raw materials such as grains, fruits, and other agricultural items. Climate change and extreme weather events can lead to crop failures and shortages, causing disruptions in the SC.
2. **Trade Policies and Regulatory Changes:** Tariffs, quotas, and embargoes can have an impact on the import and export of Alco Bev goods, creating challenges within GSCs. Additionally, regulatory changes, such as modifications in labelling or packaging standards, can also cause interruptions.
3. **Transportation and Logistics Challenges:** The transportation and logistics of Alco Bev products are complex, involving multiple transit routes and storage facilities. Port closures, transportation strikes, and customs delays can all disrupt the GSC.
4. **Production Shutdowns:** Alco Bev goods are often concentrated in specific regions, such as wineries or breweries. Production shutdowns due to labor conflicts, facility closures, or natural disasters can lead to disruptions in the SC.

5. **Demand Fluctuations:** Surges in demand, such as during the holiday season or sporting events, can strain the SC and result in shortages. Conversely, sudden declines in demand can lead to excess inventory and waste.

These factors highlight the vulnerabilities and challenges faced by the Alco Bev industry in managing their GSCs. Few major factors that can cause interruptions in GSCs are broken down into the following categories seen in figure 19.

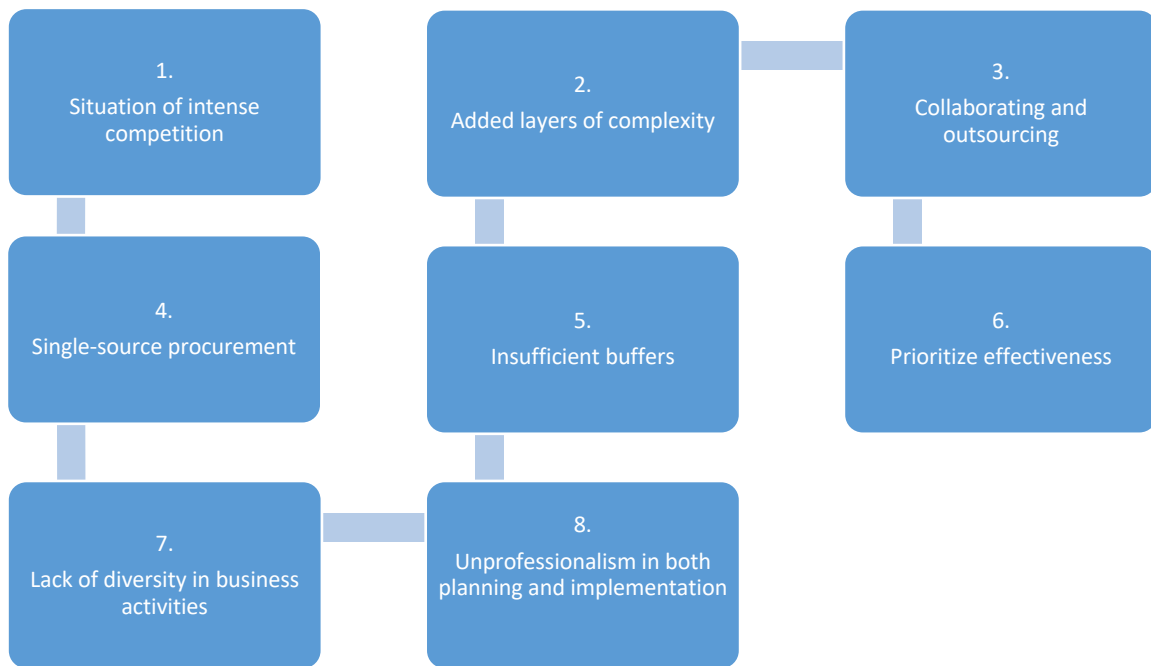


Figure 19: Drivers of GSC disruptions.

Source: Shetty (2023).

1. **Situations of intense competition:** The Alco Bev industry, like numerous others, operates in a drastically different competitive environment than it did even a decade ago. Today's marketplaces are characterized by increased product diversity, shorter product life cycles, unpredictable consumer demand, and intense competition. These trends are expected to worsen over time. Meeting demand fulfillment is particularly challenging in the current market environment. Companies are finding

it more difficult than ever to anticipate demand and adapt to unexpected changes in product life cycles and consumer preferences. According to Porter (2008), businesses merge and consolidate not only to increase efficiency and productivity but also to reduce the impact of rivals. The marketing strategy of Alco Bev revolves around competition for market share among various beverage companies.

2. **Added layers of complexity:** Supply networks are becoming more complex due to factors such as global sourcing, multiple SC partners, the need for collaboration across multiple tiers of SCs, and extended lead times. With increased complexity, it becomes more challenging to balance supply and demand, increasing the likelihood of disruptions. The risk escalates when SC partners do not work together, when the SC lacks flexibility, and when different partners focus solely on optimizing their part of the process. Additionally, the influence of Alco Bev advertising on the drinking patterns of young people has become a contentious topic of debate. The primary question addressed here is whether exposing young people to Alco Bev advertising increases the likelihood that they will experiment with and engage in risky forms of alcohol consumption (Smith and Foxcroft, 2009).
3. **Collaborating and outsourcing:** The increased reliance on outsourcing and partnerships has heightened the interdependencies between various nodes in global supply networks, increasing the risk that a disruption or malfunction in one link of the SC can rapidly ripple through the rest of the chain, bringing it to a standstill. For outsourcing and partnerships to realize their full potential, SC partners must interact, share data and plans, and have visibility into each other's operations. Large investments need to be made in networked information systems, performance evaluations must be adjusted, a commitment must be made to share gains, and SC partners must build trust. Tannous and Yoon (2018) found that MNCs are utilizing SCs to compete for global market share and consumer satisfaction through social, environmental, and economic activities. Consistent progress in these areas enables

MNCs to pursue future goals such as bringing renewable resources to emerging and developing markets, providing cheaper goods and services as SCs improve their operations, and fostering cultural awareness as numerous nations and organizations collaborate. Creating this synergy between SC stakeholders and the surrounding environment fosters economic, environmental, and social sustainability.

4. **Single-source procurement:** Single-sourcing strategies may make SCs more susceptible to interruptions if the primary supplier fails to meet its delivery obligations. ArrowSmith (2010) argues that monitoring the use of single-source approaches is necessary to prevent their misuse. Relying on a single source increases vulnerability to SC interruptions whenever the primary source experiences an unforeseen halt in operations. Multiple sourcing may be effective for businesses that prefer to distribute their demand among a wider number of suppliers with greater capacity and shorter response times. However, when a product comprises multiple components that no single supplier can produce, this approach becomes indispensable to meet the buyer's demands. O'Connor et al. (2022) mention that multi-sourcing can help SCs promote non-financial objectives, such as those related to environmental and social activities, and that multi-sourcing can affect the use of management controls in the presence of varying buyer-supplier power dependencies.
5. **Insufficient buffers:** As inventories are used to meeting demand requirements, it is essential to have accurate forecasts of demand, quantity, and time. Additionally, it is crucial to know how long orders will take to be delivered. The focus on reducing inventory and excess capacity, as well as minimizing waste in SCs, has tightened the connections between various links, leaving less room for error. While just-in-time delivery and zero inventory are often cited as desirable outcomes, the potential instability of the SC is rarely emphasized. Inventory carries costs, and a company with a large inventory may be less attractive to investors. The pandemic

has reshaped the relationship between efficiency and resilience. According to research conducted by Priyan and Uthayakumar (2014), inventory managers in today's highly competitive business contexts are interested in simple and straightforward application procedures. However, decision-making is often ambiguous.

6. **Prioritize effectiveness:** Chopra and Sodhi (2014) agree that reducing disruption risk often comes at a higher cost. Leaders can improve SC effectiveness by assessing SC performance against a standardized framework and identifying the most impactful action measures. SCs often involve a significant number of products or commodities that are sourced, manufactured, or stored in multiple locations, further complicating the scenario. There has been an overemphasis on productivity improvement or cost reduction in supply systems, and companies are increasing the risk of disruption as a result of their cost-cutting efforts. Many businesses overlook the fact that greater efficiency entails greater risk. An increase in disruptions is a side effect of productivity-boosting strategies.

7. **Lack of diversity in business activities:** According to the findings of Scheibe and Blackhurst (2018), the ripple effects of a company's disruption can be felt throughout the SC, and this risk increases as SCs become more global and companies strive for greater speed and efficiency. To leverage economies of scale, volume discounts, and lower transaction costs, businesses have concentrated their operations in one location or with a limited number of suppliers and customers. When a SC is overly reliant on a few sources, it loses resilience and becomes more vulnerable to disruptions caused by fluctuations in demand or changes in supply. A commitment to ethical procurement practices is essential not only for business leaders and consumers but also for corporate employees. Diversity is an important and strategic foundational strength that a company can develop and lead with.

8. **Lack of professionalism in planning and execution:** According to Hendricks and Singhal (2014), a SCM system consists of many subsystems, including forecasting, order management, supplier management, procurement, production planning and control, warehousing and distribution, and product development. Demand-supply mismatches (DSMs) may indicate that some or all of these subsystems are not functioning as expected, creating uncertainty regarding the overall capabilities and effectiveness of the SCM system, which can increase the organization's risk. Insufficient planning and execution capabilities lead to more instances of demand-supply mismatches. Most plans are overly broad, lack necessary specifics, and are based on inaccurate estimates of available resources and production capacity.

According to Hellingrath and Lechtenberg (2019), emerging technologies such as artificial intelligence (AI) have the potential to make significant contributions to the digitalization of SCs. When a company's information systems are unreliable, its leaders have a poor understanding of ongoing operations. Forward-looking analytics play a crucial role in projecting future business situations. Without access to such analytics, businesses cannot effectively prepare for and respond to potential future issues. Business owners often struggle to gain visibility into the activities of their upstream and downstream suppliers. The upstream process involves getting materials to the manufacturer, while the downstream process involves getting products from the manufacturer to the final consumer. Most businesses have limited capabilities for detecting and addressing SC anomalies. The gap between SC strategy and execution further exacerbates the situation. Key concerns in GSCs include visibility, cost control, risk management, meeting increasing consumer demands, and navigating the challenges of globalization.

Conclusion: GSCs faced challenges due to globalization and technology advancements. Events like Ukraine conflict and Covid-19 caused disruptions, emphasizing the need for shorter and local SCs. SC disruptions impact profitability, urging transparent practices. Factors such as raw material scarcity, trade policies, transportation challenges,

production shutdowns, and demand fluctuations contribute to disruptions. Research suggests that intense competition, complexity, collaboration, single-sourcing, insufficient buffers, lack of diversity, professionalism, and underutilization of technology also disrupt GSCs.

2.1.14 Impact of the pandemic on the GSC

Through the exchange of both finished and semi-finished products, much of the world has become increasingly interconnected. Reductions in the supply of foreign intermediates, or a country's exports falling flat on foreign markets, could deepen the global recession if governments simultaneously slow down economic activity through domestic lockdown policies (Baldwin, 2020). Consequently, there is a widespread belief, shared by policymakers and the general public alike, that the lessons of the pandemic will eventually lead to a renationalisation of SCs. The question of whether renationalising the SC would make GDP more resistant to pandemic-type shocks remains unanswered. The structure of the domestic economy would change if intermediates were produced domestically rather than abroad, which would alter the economy's response to a pandemic.

The GSC has been severely impacted by the Covid-19 pandemic. Among the most significant effects are:

1. **Production disruptions:** The pandemic has led to factory closures, reduced production capacity, and transportation disruptions, causing delays in the production and delivery of goods.
2. **Increased demand for certain products:** The pandemic has resulted in a surge in demand for specific products such as medical supplies, personal protective equipment (PPE), and essential food items. This has strained the SC, leading to shortages and price increases.
3. **Border closures and trade restrictions:** The pandemic has triggered border closures and trade restrictions, resulting in a decrease in the flow of goods across

borders. This has caused disruptions in the SC, particularly for companies that rely on imports or exports.

4. **Workforce shortages:** The pandemic has caused workforce shortages due to illness, quarantine requirements, and social distancing measures. As a result, production capacity has been reduced, and deliveries have been delayed.
5. **Changes in buying habits:** The pandemic has changed consumer behavior, with more consumers opting for internet buying and avoiding physical stores. This has led to a surge in e-commerce sales and a shift in the SC's focus towards online retailers. Therefore, the pandemic has highlighted the vulnerability of GSCs and emphasized the importance of integrating resilience and flexibility into SC systems.

Due to the immense Covid-19 outbreaks, both humanity and the corporate world have faced a period of significant difficulty. While the Covid-19 pandemic has affected the world as a whole, emerging nations like India have been particularly hard hit. India ranks second in terms of population and is one of the country's most severely affected by the pandemic. According to Yu et al. (2021), the Covid-19 pandemic has not only claimed millions of lives but has also had a profound impact on the global socioeconomic structure. Unforeseen lockdowns and disruptions in operations have affected the GSC market for perishable products, jeopardizing food, and health security worldwide (Sharma et al., 2021). All industries, including the food and beverage sector, have been abruptly disrupted by the global Covid-19 pandemic, resulting in a catastrophic state for humanity.

According to research conducted by Queiroz et al. (2020), adopting relevant theories of operations could contribute to studying the impact of pandemic outbreaks on SCs. For example, mathematical optimization theories can be applied to optimize plans and schedules, thus preventing shortages and meeting ramp-up requirements. Simulation tools enable the development of comprehensive resilience plans that consider novel and severe shocks. For instance, agent-based simulation allows for the examination of operational behaviors, considering the simultaneous interactions of multiple agents during

and after Covid-19. Additionally, the authors argue that given the complexity of Covid-19, strategies could be implemented using network and complexity theories. By combining simulation theory with reliability analysis, decision-makers can develop intricate scenarios to address resource scarcity and the simultaneous supply and demand substitutions required at each stage of a pandemic.

Figure 20 summarizes the findings of the aforementioned analysis as an emerging research agenda for operations and SC management (OSCM) in the context of pandemic and epidemic outbreaks.

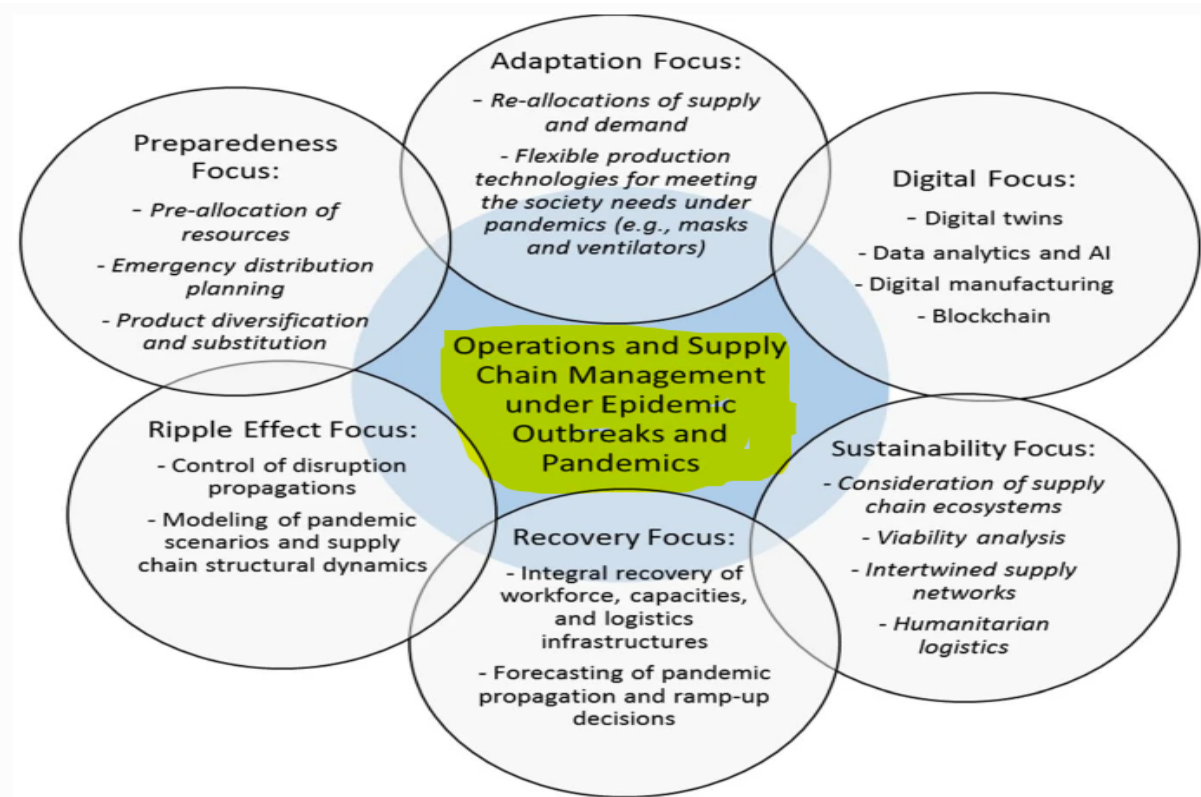


Figure 20: Impacts of pandemic outbreaks on SCs.

Source: Queiroz et al. (2020).

The Covid-19 outbreak is not the first catastrophe to abruptly impact GSCs. Several other natural disasters, such as the 2011 mega-earthquake in Japan, the 2003 SARS pandemic in China, and the 2004 tsunami in Indonesia (Tan & Enderwick, 2006), have

resulted in component and goods shortages. To prevent widespread infections, governments implemented various preventive measures, including travel restrictions, temporary closures of factories and stores, and mandatory confinement measures. These limitations caused shortages of labor, active ingredients, and raw materials. Additionally, the situation was aggravated by stricter rules within the logistical system. According to Kissler et al. (2020), as a result, GSCs experienced delays and inventory shortages. Some analysts predict that the effects of Covid-19 will persist for an extended period, which motivates businesses to enhance their preparedness for rapid recovery and mitigation of unplanned disruptions.

People in poorer nations faced even greater challenges, such as severe hunger. During Covid-19, many individuals in developing countries lost their jobs, income, and food security due to a combination of factors, including a decline in economic activity caused by extensive and severe disruptions in the SC. The rising demand for food and beverages led to increased panic buying by consumers and merchants. The pandemic prompted panic buying of essential items and altered consumer purchasing patterns (Barrett, 2020). Despite the complexity of SCs and the need to monitor and evaluate the behavior of suppliers and buyers, the lack of digitization and transparency hinders the acquisition of transparency, communication, and information sharing within GSCs (Marques, 2019). Multiple layers of disruption have occurred, affecting sourcing, mobility, lead time, and employee safety. The scarcity of labor, transportation, and logistics has resulted in decreased production, impacting operational efficiency.

The food and pharmaceutical industries have been most severely affected by the Covid-19 outbreak. Additionally, the pandemic has caused significant economic stress, leading to various national initiatives. Unprecedented policy actions taken by central banks and governments worldwide, including significant short-term changes to tax and spending policies, as well as the implementation of economic recovery packages offering stimulus and incentives, have resulted in increased government deficits and debt. Developing

resilience has become a management priority during this uncertain time. The primary challenge for governments and policymakers in the current Covid-19 outbreak scenario is to ensure food and healthcare security for the population (Shanker et al., 2021).

Since the eruption of Covid-19 outbreaks worldwide, the number and scope of disruptions in SCs have dramatically increased and spread throughout the entire network. The severity of the Covid-19 pandemic has compelled people worldwide to adapt to new ways of life, from self-isolation to coping with food shortages. The restrictions imposed on restaurants, bars, and other on-premises vendors, along with concerns about maintaining adequate social distancing, have led many customers to seek alternative ways to socialize and recreate experiences they previously had in establishments, including consuming Alco Bev at home. According to Saberi et al. (2019), in a disruptive environment, there is also a need for system tracking and tracing to improve operational efficiency.

Conclusion: The Covid-19 pandemic has had a profound impact on GSCs, resulting in significant disruptions in production, increased demand for specific products, border closures, workforce shortages, and shifts in consumer behavior. This has highlighted the vulnerability of GSCs and the need for resilience and flexibility. Developing countries, like India, have faced significant challenges, and adopting relevant strategies can address resource scarcity. Governments have taken initiatives to ensure food and healthcare security. System tracking and tracing are crucial for improving operational efficiency in disrupted environments.

2.1.15 GSC resilience and the Covid-19 pandemic

Since 2020, research on the effects of Covid-19 on various sectors has proliferated. These publications encompass conceptual frameworks, case studies, literature reviews, and quantitative models that investigate how Covid-19 impacted SCs, the economy, and industries such as agriculture, manufacturing, hospitality, and tourism. Sharma et al. (2021)

examined the impact of Covid-19 on FMCG in India and developed a framework to enhance company survival. Dovbischuck (2022) formulated a framework across Asia, America, Australia, the Middle East, Europe, and Africa that links dynamic innovation with dynamic resilience and performance. Moosavi and Hosseini (2021), while addressing manufacturing order fulfillment in Iran, found that an extra inventory strategy outperforms relying solely on backup suppliers. However, different sectors and regions may require distinct strategies.

The spread of Covid-19 represents a significant crisis in modern history and exemplifies a low-probability, high-impact systemic risk that has profoundly affected international trade, reshaping globalization. Low-frequency, high-impact (LFHI) events pose substantial risks to SCs (Ivanov et al., 2014), and businesses have enhanced the resilience of their GSCs to risks arising from natural or industrial LFHI events, such as Hurricane Katrina in 2005, the earthquake and tsunami in Japan in 2011, and the BASF plant explosion in 2016. There exists a significant variation in the level of professionalism regarding SCRM. Some businesses still prefer to react slowly to SC disruptions, while others have adopted proactive strategies.

Every link in the GSC has experienced the effects of the Covid-19 pandemic, with the transportation industry being particularly hard-hit. The epidemic has had a devastating impact on the transportation industry, leading to significant vacancies in passenger and freight capacity. Consequently, air, land, and sea travel have been severely disrupted. Many top executives, however, remain uncertain about how to navigate this crisis. The Covid-19 crisis has raised concerns about the future of GSCs and the design of SCs in general. The era of GSCs is not ending. No crisis lasts indefinitely, and when things return to normal, GSCs will continue to be more efficient and effective than their domestic or regional counterparts.

Conclusion: Research since 2020 has examined the impact of Covid-19 on sectors such as agriculture, manufacturing, hospitality, and tourism. Frameworks and models have been developed to enhance business survival and resilience. The pandemic has reshaped globalization and highlighted the risks to GSCs. The transportation industry has been severely affected, but GSCs will remain efficient and effective eventually.

2.1.16 Scenarios for SC in the post-Covid-19 era

Due to significant weaknesses in GSCs highlighted by the Covid-19 pandemic, making long-term predictions about the global economic order is risky. Globalization has facilitated the free movement of people and capital, as well as the relocation of manufacturing to the most productive regions. However, countries are now evaluating their reliance on external sources and determining which crucial technologies, resources, and production capacities should be maintained domestically. For instance, France's finance minister recently urged French businesses to reconsider their SCs to reduce dependence on China and other Asian countries (Irwin, 2020). The focus will shift towards enhancing SC resilience and redundancy, and governments may increasingly gravitate towards regional trade blocs. Irwin (2020) further argues that in the face of such uncertainty, making overly confident predictions about the future global economic order in five years or even five months would be unwise.

According to Irwin (2020), the limitations of globalization were already becoming evident prior to the Covid-19 outbreak. The idea of a world economy centred on the United States was already disintegrating due to China's rise and America's growing emphasis on nationalism. The Covid-19 crisis appears to be exacerbating and solidifying these shifts. To maintain their status as primary drivers of economic competitiveness and growth, entrepreneurship, innovation, the knowledge economy, the development of sustainable intellectual capital, and digitalization must be prioritized in the future (Păunescu, 2013).

While we may not know where this crisis will ultimately lead, one thing is certain: when the outcome is uncertain, history can be unsettling (Irwin, 2020).

After the Covid-19 situation ends, few businesses will want to return to the pre-pandemic "normal" in the hopes of avoiding a similar crisis in the future. On the other hand, other businesses will have learned from the crisis and will be better equipped to respond swiftly and implement solutions in the future. According to Barbosa and Azevedo (2019), complexity, workload, design reuse, project type, outsourcing, and technology experience/knowledge are key factors influencing SC performance. Based on their research, they propose three new aspects of SCM. Firstly, duration, which includes the number of suppliers and their tiers. Secondly, reliance on a limited number of critical suppliers with low substitutability. Thirdly, openness and responsibility demonstrated through performance management systems and Key Performance Indicators (KPIs).

Conclusion: The weaknesses exposed by the Covid-19 pandemic have made long-term predictions about the global economic order risky. Countries are re-evaluating their reliance on external sources and prioritizing SC resilience. The crisis has accelerated shifts in the global economy, emphasizing the need for entrepreneurship, innovation, and digitalization. Businesses will strive to avoid a similar crisis in the future and implement effective SCM strategies.

2.1.17 A concise introduction to the Alco Bev industry

Cultures worldwide have established norms regarding socially acceptable levels of alcohol consumption and attitudes towards Alco Bev. Alcohol use is influenced by genetics, upbringing, culture, age, gender, accessibility, exposure, and personality. Both conventional and nonconventional drinking practices are learned behaviors, acquired by observing and imitating role models who demonstrate and encourage such actions. Bandura's study (1971) confirms that British colonial rule over India significantly impacted

the country's alcohol production and consumption. The colonial government established a brewery in the country to reduce costs associated with imports. In India, alcohol consumption, like other non-instinctive behaviors, is learned through a process psychologists refer to as modeling and selective reinforcement.

Scientific studies can be valuable in identifying new opportunities for value addition in traditionally prepared Alco Bev, and modern science can be applied for necessary improvements (Syed et al., 2021). It is crucial to preserve traditional Alco Bev and cultural practices in the country as they contain numerous healthy ingredients such as vitamins and proteins. Alco Bev with historical significance often serve as a vital link in preserving cultural traditions and the health of Indigenous peoples. Homemade alcohol is socially acceptable in India and other countries. The methods and ingredients used to prepare Alco Bev vary to accommodate regional differences in the availability of raw materials. While most fermented beverages are grain-based, a small percentage utilizes a variety of plants and fruits as the primary raw material, each contributing to the distinct flavor profile of the drink.

According to Mergers (2008), Alco Bev companies employ various marketing methods to promote themselves and their products. Brand mergers and acquisitions result in multiple brand entities with distinct positioning and market focus. Alco Bev businesses have achieved consistent growth and long-term survival by acquiring and rebranding well-known brands with global potential in response to evolving customer preferences, increased competition, stricter regulations, and expansion into new, culturally unfamiliar markets. However, diversification into other businesses primarily occurred within the home markets of the investing enterprises due to the risks associated with foreign investment and the lack of significant physical and knowledge linkages. Alco Bev manufacturers did not engage in irrelevant diversification tactics with geographical diversification, except for food and soft drink ventures worldwide.

Corporate governance and ownership structure have an impact on the financial performance of a corporation. Choi et al. (2021) discovered that specific corporate governance characteristics significantly influence the financial performance of Alco Bev businesses. Many of the largest Alco Bev-producing companies trace their origins back to the United Kingdom, the United States, or Canada, where corporate governance systems are characterized by the widespread distribution of ownership among a small number of investors and the centralization of control among a small group of professional managers. Furthermore, several Alco Bev companies adopt a governance model that concentrates ownership in the hands of a limited number of investors, with decision-making power resting with the entrepreneurs who control the management of the organization.

According to Da Silva (2007), brands in the Alco Bev industry allow firms to command premium prices, achieve distribution efficiencies, and accumulate marketing knowledge. The evolution of Alco Bev brands reflects the ownership structure of the company, distinguishing between businesses managed by family members and those led by outside professionals. Alco Bev companies run and controlled by families have an advantage in building enduring brands due to the knowledge and experience passed down through generations. In the age of globalization and information explosion, the creation and sharing of market knowledge have become increasingly important in organizations, as noted in a study conducted by Achrol and Kotler (1999).

Based on Kalyani's findings (2018), Indians have a deep appreciation for diversity and are constantly exposed to it. Indians possess the ability to simplify complex matters. The drinking habits of Indians mirror the country's cultural diversity. People in India consume alcohol for several reasons, including personal enjoyment, socializing, religious observance, and intoxication, similar to the rest of the world, as stated by the Alcohol and Public Policy Group (2010). Consumption occurs in celebratory contexts (parties, official meetings, social and religious occasions) as well as in mournful contexts (to cope with stress, melancholy, recession, or financial losses). These factors contribute to the thriving

and enduring popularity of the Alco Bev industry, making it resilient to economic downturns.

In India, unlike many other nations, the consumption of Alco Bev and the ritualized intake of alcohol as part of a religious practice are not widely accepted. In traditional Indian tribal cultures, Alco Bev was offered with reverence to the nature gods and other sacred powers due to the belief that it was a divine gift to humanity (Rao and Rao, 1976). According to Indian tribal traditions, alcohol could also counteract the effects of sorcery, witchcraft, and black magic. It could be used offensively against adversaries or defensively against spirits believed to cause drought. Urbanization in India, as highlighted by Kalamkar (2009), shares many similarities with the urbanization of other developing nations. The growing population in India has led to increased migration to major cities where a wider variety of Alco Bev products can be found.

According to a report by the World Health Organization (2006), India's constitution encourages the prohibition of alcohol, although alcohol policy is the responsibility of each state. Each state has complete authority over alcohol-related legislation, excise rates, manufacturing, distribution, and sales. Following independence, India implemented alcohol prohibition policies until the mid-1960s, and by 1970, only Gujarat had a complete prohibition policy. Nowadays, consumers can find a greater variety of Alco Bev brands and types at government-licensed stores, government shops (monopoly), privately licensed retail chains (allowed in recent years), restaurants, or bars. India's drinking habits are as diverse as the country itself, reflecting geographical disparities, differences between rural and urban citizens, socioeconomic status, and religion.

Ozer's research (2013) reveals a concerning increase in alcohol consumption among the youth of developing nations, including India, as a result of globalization and acculturation. Rapid economic growth and a more permissive cultural orientation have contributed to the normalization of alcohol consumption in Indian society in recent years.

The rapid growth of India's alcohol industry, aggressive marketing of Alco Bev products, and widespread availability of alcohol have made alcohol-related issues a major public health concern. This situation has been exacerbated by the lack of sensible alcohol legislation and the widespread misconception that profits from alcohol sales can be used to improve society. While increased revenue may provide short-term benefits, the long-term costs and consequences associated with increased alcohol consumption continue to burden society.

Da Silva (2003) describes the global Alco Bev industry as an interesting example of a non-science-based industry where enterprises have grown into large entities, with brands playing a crucial role in business strategy. The industry has evolved from being dominated by small and medium-sized firms, operating in specific product categories with a limited portfolio of brands in a restricted geographical region, to becoming highly concentrated, with large multinational firms holding a growing share of global production. Multinational companies have formed alliances to develop global brands, exerting dominance in the industry. Seagram and Distillers Corporation, now defunct, were among the first to become truly global Alco Bev companies by building a portfolio of global brands.

Tax revenues demonstrate the economic significance of India's Alco Bev sector. According to a research report published by the Statista Research Department, global alcohol sales exceeded 1.49 trillion U.S. dollars in 2019, but in 2020, annual revenue dropped by approximately 200 billion dollars. In 2021, the global market size of Alco Bev reached 1.45 trillion U.S. dollars, representing an increase of 72 billion dollars compared to 2019. While projections suggest that the market size will continue to grow in 2021, it is expected to take until 2023 for the market to recover and surpass the pre-pandemic revenue of 2019. However, according to the Statista consumer market outlook, the global market size of Alco Bev is estimated to exceed 1.98 trillion U.S. dollars by 2025 (Statista, 2021).

Singh (2002) evaluates that the wave of liberalization sweeping across developing countries has opened new opportunities for multinational businesses. Prior to the reforms of 1991, the production of Alco Bev was predominantly controlled by domestic enterprises. Following liberalization, the government authorized international private enterprises to enter the industry, leading to increased competition. To foster brand loyalty, manufacturers began focusing on improving packaging, raising brand awareness, and incorporating superior ingredients into their products. Currently, India permits 100 percent foreign direct investment (FDI) in the distillation and brewing of Alco Bev through an automated process. While it is recognized that increased and industrialized alcohol supply in a developing society may have negative consequences on public health and order, it is generally believed that it will have favorable effects on economic development.

Conclusion: Alcohol consumption in India is influenced by genetics, culture, upbringing, and accessibility. British colonial rule impacted alcohol production. Scientific studies can improve traditional Alco Bev's. Alco Bev companies use marketing strategies, and MNC's dominate production. India's Alco Bev sector is economically significant. The industry has faced challenges during the pandemic but also experienced increased sales. India is a major alcohol producer and has high domestic consumption.

2.1.18 An overview of Alco Bev business in India

As concluded by Mathur (2014), due to its population and economic growth, India possesses the third-largest Alco Bev market globally, trailing only behind China and Russia. The consumption of spirits and imported Alco Bev brands is increasing, contributing significantly to India's developing economy. The Indian Alco Bev industry is considered high-risk due to high taxes and numerous regulations. However, there are many opportunities in India's thriving alcohol market, segmented into subsets for Indian-made Foreign Liquor (IMFL), imported liquor, beer, and locally produced Alco Bev. Challenges such as rising costs of raw materials like Extra Neutral Alcohol (ENA), glass, and molasses,

along with advertising restrictions and state regulations that restrict industry operations, pose significant issues. Nonetheless, with favourable demographics, increasing disposable income levels, and growing social acceptability of such products, the outlook for the Alco Bev business in India remains positive.

The Alco Bev market in India is mainly divided into four categories:

1. **Indian-made Foreign Liquor (IMFL):** This definition refers to India manufactured liquors, in addition to indigenous Alco Bev such as Arrack and Feni. Spirits such as Rum, Brandy, Whisky, Vodka, Gin, and others are included in the IMFL category.
2. **Beer:** All types of beer are included within this term, whether mild or strong. Kingfisher beer, which is produced by United Breweries (UB), holds a dominant position in the Indian beer market.
3. **Wine:** Red wine, white wine, and rosé wine are included within this category. India is a significant market for both imported and domestically produced wine, with consumption driven by the urban middle class. Karnataka and Maharashtra are home to some of the largest vineyards in India.
4. **Indian-made Indian liquor (IMIL) or Country Liquor (CL):** These are beverages manufactured within specific regions. For instance, Feni is a well-liked indigenous drink created in various areas of Goa, using either cashew or coconut as its base ingredients. Mahua is an additional local beverage discovered in regions of Jharkhand, Bihar, and Bengal. Each state in India possesses its own regional beverages that are preferred by the local populace.

India's Alco Bev industry not only has significant domestic consumption but also plays a role in international exports. The industry has faced numerous challenges in the past two years due to the Covid-19 pandemic, including factors such as lockdowns, high taxes, post-pandemic increased sales, changes in distribution patterns, and the emergence of new product combinations. Startup Talks (2022) reports that alcohol consumption has been on

the rise in India over the past three decades. Despite the challenges posed by the pandemic, the alcohol industry was among the first to recover, highlighting the country's large consumer base. With India's rapidly growing population, there are now approximately 13 million adults of legal drinking age in the country each year, with a sizeable portion consuming alcohol regularly, estimated to be around 3-5 million individuals.

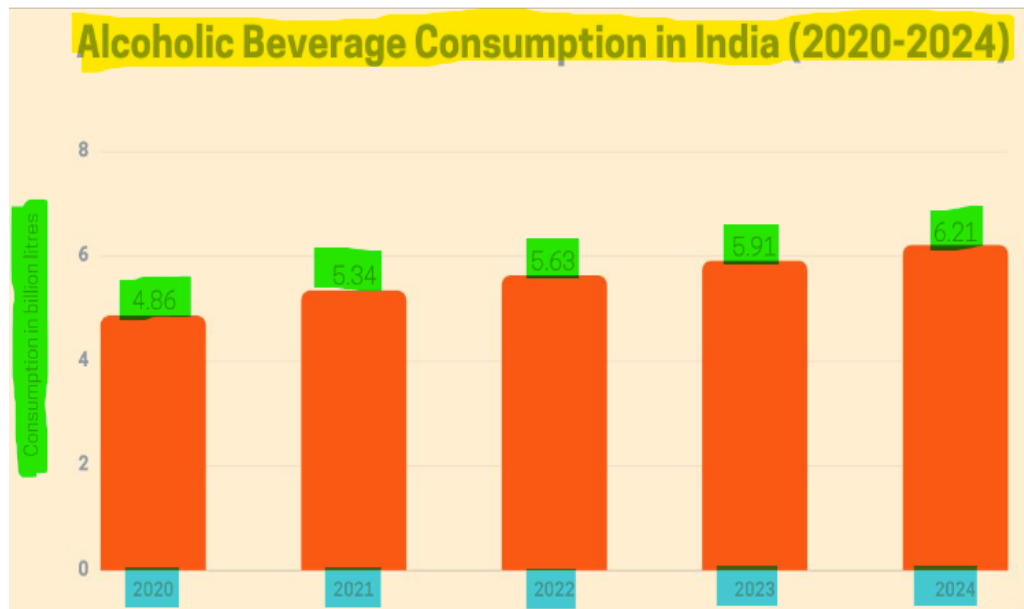


Figure 21: Alco Bev consumption in India.

Source: Startup Talks (2022).

Conclusion: India's Alco Bev market is the third largest globally, driven by increasing spirits and imported brands consumption. The industry faces high taxes and regulations but offers opportunities. It includes IMFL, beer, wine, and regional drinks. Despite pandemic challenges, alcohol consumption in India is on the rise, with a large consumer base and growing population.

2.1.19 Constraints by Alco Bev companies in India

According to research conducted by Rehm et al. (2003), the global informal or 'unrecorded' production, trade, and sale of alcohol is significant. It accounts for at least two-thirds of alcohol consumption in the Indian subcontinent, approximately half of consumption in Africa, and a third of consumption in Eastern Europe and Latin America. However, in India, the Alco Bev industry faces various constraints that affect its operations and profitability. One major challenge is the high taxes imposed on alcohol, making it expensive for consumers. The tax structure is complex and varies by state, leading to uncertainty and fluctuations in demand. Regulatory challenges also hinder the industry, as each state has its own set of rules and regulations governing the production, sale, and consumption of Alco Bev.

The social and cultural sensitivity towards Alco Bev in India contributes to the strict regulation of the industry. Some states have even banned the online sale of alcohol, limiting the industry's reach and revenue. Counterfeit products are another issue, which can damage brand reputation and revenue. Strict labelling requirements and a ban on advertising further restrict the industry's ability to promote its products. Limited retail outlets and the social stigma associated with the industry also pose challenges. Distribution challenges, changing consumer preferences towards healthier and premium products, and the rise of e-commerce are additional factors impacting the industry.

Conclusion: The Alco Bev industry in India faces constraints such as high taxes, regulatory challenges, bans on online sales and advertising, counterfeit products, labelling requirements, limited retail outlets, social stigma, distribution challenges, and changing consumer preferences. While the industry is grappling with these challenges, the Indian government has taken some initiatives to address them and improve the business environment of Alco Bev.

2.1.20 Vital role of Alco Bev industry

The Indian Alco Bev industry plays a vital role in generating revenue, creating jobs, and enhancing India's tourism sector and foreign exchange reserves. This sector involves the manufacturing and distribution of Alco Bev, such as beer, wine, spirits, and related products.

Here are some of the ways that the Alco Bev industry contributes to the Indian economy:

1. **Revenue generation:** The Alco Bev business contributes significantly to the Indian economy through taxes and excise levies. According to a Confederation of Indian Alcoholic Beverage Companies (CIABC) estimate, this industry contributed more over Rs. 2.5 lakh crore (more than 250 billion British pounds) to the Indian GDP in fiscal year 2019-20.
2. **Opportunities for employment:** The Alco Bev sector employs a huge number of people, including farmers, manufacturing workers, salespeople, logistic service providers, marketing specialists and many more. This industry directly and indirectly employs approximately 2 million people.
3. **Tourism:** The Alco Bev business contributes significantly to India's tourism industry. Beer, Whisky, Rum, and Wine are all popular Alco Bev in India and many tourists come to India to learn about the country's thriving Alco Bev culture.
4. **Foreign exchange earnings:** The Alco Bev business also contributes significantly to India's foreign exchange reserves. IMFL and beer are exported to various countries, earning valuable foreign exchange for the country. Moreover, India sells a significant number of Alco Bev to countries such as the United States, the United Kingdom, and France, generating foreign currency.

The Alco Bev industry is a legitimate business that provides consumers with a legal product and that it contributes to the economic growth of the nation. In addition, this industry is extensively regulated and taxed, and that it provides the government with a source of revenue through taxation. Therefore, the Alco Bev industry plays a key role in India's economy and provides valuable employment opportunities, revenue, and foreign exchange earnings.

Conclusion: The Alco Bev industry was a vital contributor to the economy, generating revenue, employment, and bolstering India's tourism and foreign exchange reserves. This study aimed to provide insights into agile GSCM in the industry, with practical relevance for post-Covid-19 recovery. Collaboration, visibility, and agile practices were highlighted as crucial for SC success. Future research should focus on understanding the impact of global events on network structures, evaluating risk mitigation strategies, and advancing agile SCM knowledge. Overall, this study contributes to existing literature and sets the stage for further research in the Alco Bev industry.

2.1.21 Provider of services to Alco Bev business

The service providers in the GSC for the Alco Bev business include:

1. **Breweries, Distillers, and Wineries:** They are responsible for producing Alco Bev, including spirits, wine, and beer. They use various ingredients such as grains, fruits, and hops, following specific production processes to create desired flavors and alcohol content. Compliance with regulations related to production, distribution, and sale of Alco Bev in India is necessary. This includes obtaining licenses, permits, and following required procedures for compliance.
2. **Distributors:** These companies manage the transportation and distribution of Alco Bev from producers to wholesalers, retailers, and end customers. They play a crucial role in the GSC for Alco Bev, acting as a link between suppliers and

customers. They ensure efficient delivery, provide support services like marketing, inventory management, and customer service.

3. **Importers and exporters:** These companies manage the imports and exports of Alco Bev across international borders. They facilitate the movement of products worldwide by providing infrastructure, expertise, and market access.
4. **Customs brokers / Customs House Agents (CHA):** These firms assist with customs clearance and documentation for international shipments, ensuring regulatory compliance and minimizing transit delays. They manage the complex customs clearance process, ensuring compliance and smooth movement of goods across borders.
5. **Freight forwarders:** These businesses handle the transportation of Alco Bev domestically and internationally. They coordinate product movement and collaborate with multiple transportation service providers, facilitating a seamless SC.
6. **Warehouse operators:** These companies provide storage and management services for Alco Bev, ensuring proper temperature control and inventory management. They manage Customs-bonded warehouses and Excise Trade on behalf of importers and manufacturers, following regulations for storage and handling.
7. **Quality control and inspection companies:** These firms offer services to ensure Alco Bev meets quality standards and regulations. They evaluate alcohol for quality and safety parameters, managing risks associated with manufacturing and distribution.
8. **Packaging and labeling providers:** These companies design and produce packaging and labeling materials for Alco Bev, ensuring compliance with regulations and effective branding. They contribute to attractive, informative, and compliant packaging, differentiating products and building brand value.
9. **Point of Sale (POS) and inventory management software providers:** These companies specialize in software for stores and bars to manage stock levels,

customer purchases, and SC processes. Their services assist with stock control, sales analysis, and operations optimization, boosting productivity and customer experience.

10. **Legal and compliance consultants:** These professionals offer guidance on legal and regulatory compliance regarding the production, distribution, and sale of Alco Bev.

Conclusion: The GSC for the Alco Bev business involves various service providers, including breweries, distributors, importers, customs brokers, freight forwarders, warehouse operators, quality control companies, packaging providers, software providers, and legal consultants. These providers play vital roles in ensuring compliance, efficient distribution, and quality management throughout the SC.

2.1.22 The pandemic's significant impact on Alco Bev

To create and manage an agile and effective SC in the Alco Bev business, it is crucial to have knowledge in both areas. An end-to-end design of an agile SC encompasses all stages from conception to execution, considering aspects such as transportation, handling, procurement, and operational expenses. Flexible and agile SCs can lead to reduced costs and improved efficiency. However, implementing flexible SCs without effective data management can be challenging. Research by Hsieh (2009) reveals that the Indian sector falls short of the SC standards set by developed nations, presenting a significant opportunity for national-level SC integration (Park et al., 2012). Managing the prompt and effective distribution of goods across multiple SCs is an ongoing task. The globalization of the industry has ushered in a new era of intercontinental competition, transforming international trade and the industry as a whole.

Due to the knowledge-intensive nature of the Alco Bev sector, SCs tend to rely on specific suppliers and knowledgeable individuals who often cluster in specific geographic

regions. Consequently, disruptions in the SC can lead to limited supplies of Alco Bev in areas outside of these zones. For example, the Scotch Whisky Regulations (2009) dictate that Scotch whisky must be produced in Scotland using three ingredients: cereals, yeast, and water. Scotch whisky holds significant importance in Scotland's social fabric and is a well-known export. The process has been legally defined in the UK for many years, and the specifics are outlined in the 2009 Scotch Whisky Regulations. Similarly, the term "champagne" has historically been exclusive to France based on prior or contemporaneous usage (Jay and Taylor, 2013).

The Covid-19 pandemic exacerbated existing SC challenges and underscored the significance of visibility, resilience, and digitization. According to Bobdey and Ray (2020), the world has become a single global community where major events in one region can have repercussions worldwide. Since 2020, the Covid-19 pandemic has severely disrupted international trade and disrupted daily life across the globe. Governments worldwide implemented comprehensive responses to the pandemic, including travel restrictions, social distancing measures, hygiene regulations, and economic interventions.

Governments, including India, deployed their armed forces to the Wuhan province in China to evacuate and quarantine healthy citizens in large military bases for a maximum of 14 days, as indicated by the Centres for Disease Control (CDC), to account for the incubation period. During the Covid-19 pandemic, governments adopted various measures to control the sale and availability of Alco Bev. Some countries chose to outright prohibit the sale of Alco Bev, while others declared off-premises sales and Alco Bev delivery services as essential, allowing for alternative forms of delivery and easing restrictions on availability (Rehm et al., 2020). However, several countries, including South Africa, Thailand, and India, implemented total bans on Alco Bev sales during the pandemic. These bans aimed to mitigate the risks of alcohol-related domestic violence during lockdowns, alleviate the burden on healthcare systems from alcohol-related health emergencies, and

prevent further spread of the virus, as intoxicated individuals may disregard physical distancing and personal hygiene practices (Nadkarni et al., 2020).

According to Hamilton (2020), classifying Alco Bev as an essential service during a pandemic seems contradictory and may indicate the strong relationship and influence that the Alco Bev industry has on policymakers. Additionally, Hamilton asserts that in many affluent North American and European nations, alcohol has been deemed indispensable. For example, Alco Bev retailers were listed as essential services in Canada, New Zealand, the United States, and the United Kingdom, and were allowed to remain open during the lockdown. However, based on the provided evidence, the only situation in which Alco Bev may be considered essential is for its diversion for disinfection purposes. Due to the initial shortage of food-grade and medicinal ethanol, several countries resorted to using fuel- and industrial-grade alcohol, which contains more impurities than Alco Bev (Deutsche Apothekenzeitung, 2020).

Covid-19 has caused significant changes in global consumption patterns of Alco Bev, and these changes have been customized to fit each country's unique political, social, economic, and cultural circumstances. Additionally, consumers have reduced their shopping frequency due to concerns about contracting Covid-19 and a desire to avoid crowded lines, resulting in increased sales of larger packs. Despite the substantial impact of Covid-19 on the Alco Bev industry in 2020, there is an ongoing trend of premiumization as customers adopt new purchasing patterns. A recent opinion survey conducted in Russia revealed that 90% of respondents reported stockpiling alcohol at home as a precautionary measure against the pandemic. However, only 5% of them planned to use it as a hand sanitizer, and 69% believed that alcohol consumption helps protect against Covid-19 (Ria ru, 2020).

The state-wide lockdown implemented due to the Covid-19 outbreak resulted in a complete ban on the sale of Alco Bev for forty-one consecutive days, marking the longest

such ban in the history of independent India. Bars, taverns, and restaurants that served Alco Bev also experienced significant losses due to the shutdown. During the Covid-19 pandemic, there was a noticeable shift in drinking habits, with consumption moving from bars and restaurants to private residences. Furthermore, consumer behavior underwent a remarkable change as individuals showed increasing interest in trying new Alco Bev products while at home during the lockdown. Sheth (2020) concludes that the Covid-19 pandemic, lockdown measures, and social distancing guidelines have influenced consumers' purchasing and shopping behaviors. Consumers have adapted to new habits and have shown the ability to improvise when physical access to stores is limited.

While it may be justifiable to redirect alcohol for other life-saving purposes during the pandemic, the use of surrogate alcohol should be avoided at all costs, both during and after the global crisis. There is a widespread misconception that beer consumers cannot develop alcoholism. However, it should be acknowledged that beer does contain alcohol, and some stronger beers can have extraordinarily high alcohol content. There are numerous myths surrounding alcohol and Covid-19, particularly regarding the perceived health benefits of drinking. For example, reports suggesting that alcohol would protect against the pandemic led to at least 5,000 poisonings and over seven hundred deaths in Iran, a country heavily affected by the pandemic and where alcohol is prohibited (Farmer, 2020). In certain Iranian provinces, the mortality rate from alcohol poisoning surpassed that from Covid-19.

The introduction of Covid-19 has had a significant impact on the Alco Bev industry in several ways, including changes in individual consumption habits, distribution, and sales methods as well as socializing, drinking preferences, in addition to consumer beliefs regarding future Alco Bev consumption patterns. To control the spread of the disease, governments had to close major production centres, and many consumers discovered the convenience of e-commerce and other online activities during the Covid-19 pandemic. According to a survey conducted by Kawasaki et al. (2022) in 2020, the share of e-market commerce has grown two to five times faster than before Covid-19. Traditional habits of

Alco Bev consumption are among the areas severely affected by the numerous changes brought about by Covid-19 and the various efforts adopted by national governments to curb it (Chodkiewicz et al., 2020).

According to Plata et al. (2022), e-commerce has been gradually developing during the Covid-19 pandemic due to constraints in the on-trade channel and customer concerns about Covid-19, which have removed traditional barriers to digital channel adoption. Premiumization, particularly in spirits, has increased during the pandemic as customers try to replicate gourmet experiences typically found in bars and restaurants at home. The growing popularity of online shopping poses a significant threat to the Alco Bev market. Shopping behaviours are transformed when customers do not have to physically enter a store to choose a product. It would be fascinating to study how customers perceive the impact of new distribution channels on their brand choices for Alco Bev. Smaller manufacturers may find it easier to experiment with product improvements and bring them to market faster, driving innovation in the craft beer and spirits industry and leading to numerous market changes.

As SCs continue to grow longer and more efficient, there is little room for error when it comes to supplying the necessary resources at the right time and place. The transfer of products from one stage of a complex SC to the next and the delivery of the final product to customers are highly dependent on logistics, which are determined by the SC's destination. Unexpected lockdowns and seizure operations have disrupted markets for perishable commodities, posing risks to global food and health security. The resilience of food SCs has become crucial during the crisis, and decision-makers must swiftly adapt and respond to manage disruptions and risks arising from both the demand and supply sides (Hosseini et al., 2019).

Figure 22 depicts the pre-Covid-19 and post-Covid-19 E-commerce market share, according to a study by McKinsey & Company (2022).

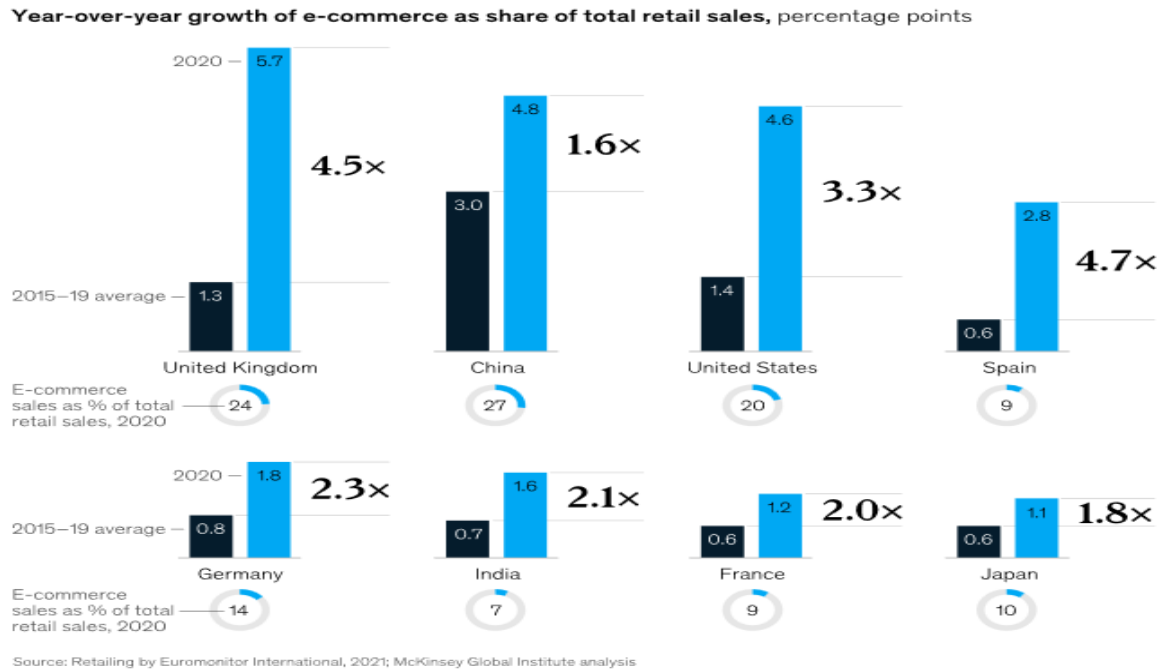


Figure 22: E-commerce market share- pre, and post-Covid-19.

Source: McKinsey & Co. (2022).

Conclusion: Creating and managing an agile SC in the Alco Bev industry involves considering transportation, handling, procurement, and operational expenses for cost reduction and improved efficiency. Data management is crucial for flexibility. SC disruptions can lead to limited supplies. The Covid-19 pandemic highlighted the need for visibility, resilience, and digitization. Governments implemented measures for Alco Bev sales. Consumer behavior shifted to e-commerce. The industry faced challenges and opportunities, adapting, and innovating in distribution. SC disruptions affected food and medical supplies, mitigated through automation and AI. E-commerce sales increased temporarily during the pandemic.

2.2 Theory of reasoned action

According to Fishbein (2008), the Theory of Reasoned Action (TRA) is a social psychological paradigm that explains human behavior by examining the connection between attitudes and actions. It was first proposed by Martin Fishbein and Icek Ajzen in the late 1970s and has since become one of the most popular models in social psychology. The TRA has been influential in assisting researcher in comprehending and predicting human behavior, and it remains a popular paradigm in the social sciences. The fundamental premise of the TRA is that a person's intentions to perform a behavior determine that behavior. Two factors influence these intentions: the individual's attitudes toward the behavior and their subjective norms. Attitudes refer to the individual's evaluation of the behavior, whereas subjective norms refer to the individual's perception of what others believe regarding the behavior.

Ajzen and Fishbein (1980) argue that the TRA is based on the notion that humans typically behave rationally, as they make systematic use of available information and are not controlled by unconscious motives or overpowering desires. Continuous improvement is a critical part of maintaining a company's competitiveness in today's global business environment. The TRA provides a framework that encapsulates the complex phenomenon of human behavior in a simple model. Importantly, the behavior model incorporates both personal and social influences. The TRA is a social psychological theory that explains how attitudes and subjective norms influence the behavioural intentions and actions of individuals.

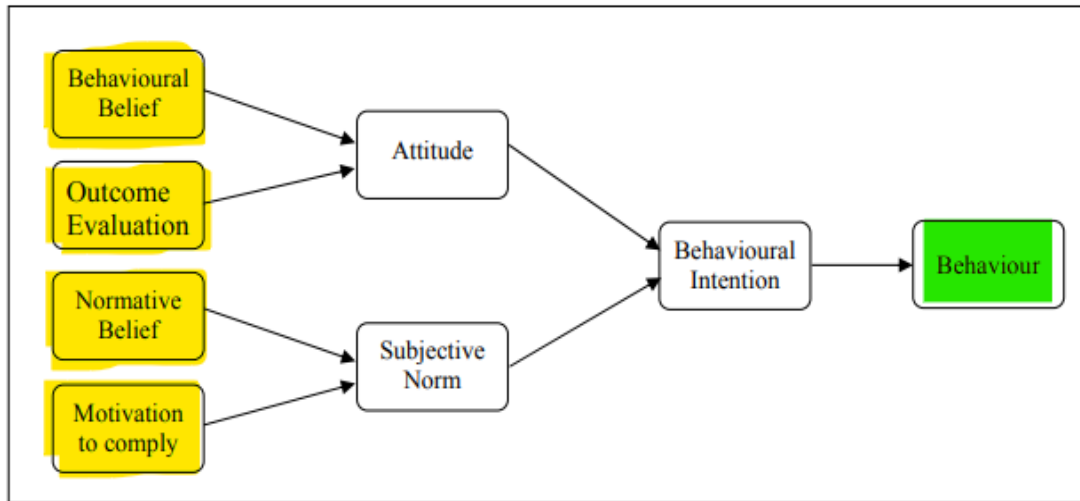


Figure 23: Diagram illustrating the Theory of Reasoned Action.

Source: Ajzen and Fishbein (1980)

The TRA proposes that an individual's conduct is driven by their intention to carry out that action, which is influenced by their attitudes towards the behavior and the subjective norms associated with it. The TRA can be used to describe the behavior of various SC actors, such as suppliers, manufacturers, distributors, and retailers, within the framework of GSC management. For example, a supplier's decision to adopt sustainable practices may be influenced by their attitudes towards environmental concerns and the industry's subjective norms regarding sustainability. Similarly, a manufacturer's decision to adopt a particular technology may be influenced by their attitudes towards innovation and the subjective norms within their industry regarding the use of that technology.

The TRA can also be used to forecast and explain customer behavior in the GSC. For instance, a consumer's decision to purchase a product may be influenced by their perceptions of the product's quality and sustainability, as well as the subjective standards within their social network regarding responsible consumption. Overall, the TRA provides a valuable framework for understanding the factors that influence behavior in the GSC and can assist managers in developing effective initiatives to promote sustainable and

responsible practices. Businesses in the Alco Bev industry can utilize the TRA by conducting market research to understand consumer attitudes towards alcohol consumption and the social norms surrounding it. This data can be used to create marketing campaigns that promote responsible alcohol consumption and address any negative attitudes towards it.

Conclusion: The TRA provides insights into the GSC of the Alco Bev industry. Attitudes and subjective norms influence stakeholders' decisions, shaping production, distribution, and marketing strategies. Positive attitudes can lead to investments and innovation, while conforming to social norms drives responsible practices and sustainability. Understanding the TRA helps optimize operations, build trust, and contribute to the well-being of society.

2.3 Human Society Theory

The theory of human society emphasizes the impact of social factors on human behavior, beliefs, and attitudes. It can be applied in studies to examine how social elements influence various phenomena, including human development, culture, and institutions. According to Doyal and Gough (1984), the concept of human needs and the distinction between needs and wants to play a vital role in debates concerning social policy, the future of the welfare state, and alternative forms of human society.

A human society comprises individuals who share similar ways of life and organization. The theory of human society provides a valuable framework for conceptualizing and investigating complex social phenomena in survey interview research. It enables researcher to generate more nuanced and theoretically informed insights into the social world. Given the increasing interdependence of global social, economic, and ecological systems, predicting the outcomes of social decisions becomes challenging.

This theory encompasses a wide range of perspectives and approaches that aim to understand the dynamics of human social systems. It explores the roles and interactions of individuals and groups, the emergence and perpetuation of social structures and institutions, and the broader historical and cultural contexts that shape social life. The theory of human society can guide the development of research questions, sampling strategies, and data analysis methods in survey interview research. For example, a researcher interested in studying the production and reproduction of social inequalities might use theories of social stratification and class to inform their research questions and sampling design. Similarly, a researcher investigating the emergence and diffusion of innovative technologies may design survey questions and analyse data based on theories of social networks and cultural transmission.

Conclusion: The theory of human society explores social factors' influence on behavior, guiding survey research and providing insights into complex dynamics. It examines behavior, societal factors, and cultural norms in the Alco Bev GSC, enabling businesses to meet consumer demands, promote responsible practices, and prioritize ethics and sustainability.

2.4 Research approach

According to Yang et al. (2010), organizations needed to survey their environments to ensure continued success. Various research methods could be employed in survey interviews, with the choice depending on the research question, data type, and objectives. One commonly used method was the quantitative approach, involving structured surveys to collect numerical data. In this study, a quantitative method was used to gather quantitative data through structured surveys. This study adopted a qualitative approach, exploring participants' perspectives and experiences through surveys.

The survey questions focused on distinct aspects of the business, including eureka moments, challenges, and pivots. Quantitative approaches and secondary data from open sources were used to examine the Alco Bev manufacturing industries and affiliated service providers primarily in India, along with a few other countries. The survey targeted manufacturers, wholesalers, retailers, logistics firms, customs brokers, bonded warehouse operators, and shipping companies in India. The research scope centered on the Alco Bev manufacturing sector and its service providers, with participants selected based on their crucial roles in business development and prosperity.

Conclusion: This study employed quantitative and qualitative survey methods to explore the perspectives and experiences of participants in the Alco Bev manufacturing industry and its service providers.

2.5 Gaps Identified in the Literature Review:

Several gaps were identified in the literature review, indicating the need for further research within the field of SCM in the Alco Bev industry. The review highlighted the value-adding processes in the SC, the importance of innovative approaches to outperform competitors (Christopher, 1995), and the complexity of GSCs involving multiple entities. Efficient SCs required decreased lead times, centralized coordination, and agile practices. The globalization of production and trade reshaped the industry (Gereffi, 2011), and well-managed customs procedures and integration were essential for smooth information and resource flow.

According to Ivanov et al. (2018), SCM was a collaborative philosophy that encompassed methodologies and tools for integrating and coordinating local logistics processes with production processes. Accordingly, SCM involved integrating material, information, and financial flows along the value chain, with collaboration and

interdependence among partners enhancing effectiveness. Stakeholder understanding, meeting consumer demands, and fostering loyalty were crucial for business strategy. Sustainability, comprehensive stakeholder involvement, and efficient information sharing were key components of SCM. The SC, as defined by Stevens (1989), referred to the interconnected operations associated with the planning, coordination, and control of material, parts, and finished items from suppliers to consumers. So, the SC operations involved planning, sourcing, manufacturing, logistics, and delivery stages, while effective management was crucial for cost reduction and customer satisfaction.

SC performance evaluation shifted to proactive approaches with a process orientation, and SC planning (SCP) focused on efficiency, waste reduction, cost savings, and customer satisfaction. Christopher (1995) suggested that companies were increasingly moving towards cooperative relationships to enhance the competitiveness of their SCs. The governance structure in GSCs involved rules, roles, and decision-making processes, emphasizing cooperative relationships and global perspectives. As pointed out by Lee and Song (2017), transportation played a critical role in the SC. Accordingly, ocean container transport played a crucial role, offering cost-effectiveness and flexibility, while SC visibility enabled efficient management across partners, suppliers, and customers. William and Arvinder (2000) encouraged business leaders to develop and implement action plans for creating service driven GSC strategies. So, service-driven SCs, the importance of risk management, and the impact of the Covid-19 pandemic on GSCs were also discussed.

According to Mathur (2014), India had the third-largest Alco Bev market globally, and the industry in India faced various constraints, including high taxes, regulatory challenges, limited retail outlets, and changing consumer preferences. However, it remained a vital contributor to the economy, generating revenue, employment, and supporting tourism and foreign exchange reserves. Mathur (2014) further argued that alcohol played an increasingly key role in India's emerging economy. The study aimed to provide insights into agile SCM in the industry, emphasizing collaboration, visibility, and

agile practices. Future research should focus on understanding the impact of global events, evaluating risk mitigation strategies, and advancing agile SCM knowledge.

The researcher has identified a few gaps in the literature review, as articulated below:

1. Research gaps in the understanding of SCM within the Alco Bev industry.
2. The need for more research on the impact of global events on network structures in SCs.
3. The necessity for evaluating risk mitigation strategies in SCM.
4. Advancement of knowledge in agile SCM.
5. Investigation into the impact of legislation and regulations on manufacturing and marketing specific Alco Bev products.
6. Understanding the vulnerabilities and challenges faced by SCs in developing countries.
7. The role of SCM in addressing disruptions and risks.
8. The impact of the Covid-19 pandemic on GSCs.
9. The need for research on shorter and local SCs as a response to challenges posed by globalization and technological advancements.
10. Enhancing SC resilience and flexibility to mitigate disruptions.

2.6 Chapter Summary

In this chapter, an extensive literature review was presented. It first started with GSC from a general perspective and was then gradually narrowed down specifically to the Alco Bev industry in India. Based on the reviewed literature and background, the pandemic-induced economic crisis revealed vulnerabilities in GSCs and sparked concerns about globalization. Business leaders worldwide had an opportunity to re-evaluate their supply networks, identify weaknesses, and enhance resilience. Giving up on globalization would have allowed other companies to fill the void, so leaders should have sought ways to improve their businesses and gain an advantage while embracing a new vision

appropriate for the current era. Overall, several research gaps related to the literature were identified. The research approach involved developing methodological frameworks, models, and comprehensive instructions for replication. The methodology addressed research questions through data selection, analysis, measurement, and limitations of the research design were acknowledged.

CHAPTER III: METHODOLOGY

In this chapter, the conceptual frameworks for estimating and evaluating the research's multiple goals are detailed. The overall approach that researcher took to design, implement, and analyse the surveys is referred to as the methodology in survey research. To ensure that survey data was reliable, valid, and representative of the population under study, a good methodology was required. This chapter provided an overview of the current state of knowledge on the subject at hand. The background of the subject, as well as its essential elements, were provided, and the significance of the research was emphasized.

This section also explained the research's goals and expected outcomes, as well as the rationale for why the research was necessary and had to be conducted. The problem statement was then presented and used to generate research topics. Methodology was essential in survey-based research because it described the strategies and techniques used to collect, analyse, and interpret data. A clear and well-designed methodology ensured that the study was conducted in a methodical and organized manner, thereby reducing bias, and increasing the validity and dependability of the results.

The following is a summary of the significance of methodology in survey-based research:

1. **Clarity:** A well-defined technique guaranteed that the research questions were clear and that the study objectives were fully understood. This ensured that the acquired data was pertinent and meaningful.
2. **Sampling:** Facilitated the selection of an appropriate sample size and sample design, which was essential for producing accurate and representative results.
3. **Data gathering:** Specified the techniques for data gathering, including the use of surveys, interviews, and observations. This helped to ensure the consistency and reliability of the data collected.

4. **Analysis:** Described the procedures and tools utilized for data analysis. This ensured that the data was correctly processed and that the results were accurately understood.
5. **Ethical considerations:** Outlined the ethical aspects, such as informed consent and confidentiality, which had to be considered during the research.

Therefore, a well-designed technique was necessary to ensure that the research yielded accurate and dependable data. It aided in minimizing bias, ensuring clarity, defining the right sample size and design, specifying the data gathering procedures, outlining the analysis techniques, and taking ethical considerations into account. This section addressed the research design, study population, sampling, data collection methods and instruments, data analysis methods, mechanisms ensuring the quality of the study, study period, timeline for completing the project, participants, and ethical considerations. Data from the survey were collected using the Google Forms platform and analysed using descriptive and bivariate analysis.

The data collection processes were developed to optimize the quality and relevance of the data collected while minimizing the cost and hardship for participants. The survey questions were kept clear, concise, and relevant to the research topic by the researcher. When conducting research using surveys, several procedures for data collection were followed to ensure the reliability and validity of the collected data. Data collection was an important aspect of survey methods in research, and the procedures used by the researcher for data collection in survey research are listed subsequently.

Conclusion: The section provides a detailed explanation of the methodology used in survey-based research. It highlights the importance of a clear and well-designed methodology in ensuring clarity, appropriate sampling, reliable data gathering, accurate analysis, and ethical considerations. The section covers aspects such as research design, study population, sampling, data collection methods, data analysis, quality assurance, study

period, participant considerations, and ethical guidelines. The data were collected through Google Forms and analysed using descriptive and bivariate analysis techniques, while ensuring the relevance and quality of the data collected.

3.1 Overview of the research problem

This study focused on the situation of Covid-19 in the Alco Bev business in India, revealing how the pandemic affected the food and beverage industries and what was done to ensure the long-term viability of GSC. Covid-19, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), appeared in China in December 2019 but quickly spread to other countries (Li et al., 2020) in Asia, Europe, and North America. The World Health Organization (WHO) declared it a pandemic on 11 March 2020 (Remuzzi et al., 2020). The Covid-19 crisis caused many issues, the most notable of which were the extremes of ambiguity and complexity that it introduced. GSCs had to be quick, digitized, brief, and the result of a collaborative effort from all parties involved to be effective.

Not only did the horrific Covid-19 virus outbreak result in human deaths, but it also severely impeded economic activity. Production and logistics were interrupted as a result of strict lockdown measures, which affected the pricing and availability of numerous commodities in stores. The effects of Covid-19 were seen in every kind of machinery across all industries, and SC shortages demonstrated that Covid-19 exposed long-standing flaws in how business leaders manufactured and transported goods. Whether this was a result of workforce shortages in industries and road transport or displaced container ships, the GSC was to blame. This research also emphasized the importance of having a reliable SC that could endure disruptions during a pandemic.

Conclusion: The study explored the impact of Covid-19 on the Alco Bev business in India, revealing flaws in SC management and the need for resilient SCs during

pandemics. The pandemic exposed vulnerabilities in GSCs and prompted businesses to reconsider their strategies.

3.2 Operationalization of theoretical constructs

The operationalization of theoretical constructs refers to the process of defining and quantifying abstract concepts in such a way that they can be defined and analysed empirically. Theoretical constructs, such as intelligence, motivation, and contentment, were often intangible concepts that could not be immediately observed or assessed. To operationalize a theoretical construct, researcher had to identify observable indicators or variables that were related to it and could be quantified. These indicators had to be precise, quantitative, and reliable. Researcher have utilized indicators such as test scores, academic success, or problem-solving skills to operationalize the concept of intelligence.

The significance of operationalization is that it enables academics to explore abstract concepts systematically and rigorously. If researcher define and measure constructs consistently, they can compare data across studies and derive more valid conclusions. The process of defining and measuring a theoretical notion in such a way that it can be empirically explored is known as operationalization. In survey research, operationalization involves converting abstract notions into specific quantitative indicators or variables.

Here were some strategies for making theoretical conceptions operational in survey research:

1. **Defined the concept:** The first step was to define the theoretical construct to be studied. This required determining its essential features and elaborating on its connections to other ideas.

2. **Identified indicators:** Once the construct had been defined, researcher had to identify the indicators that could be used to measure it. These were specific observable behaviours, attitudes, or qualities associated with the construct.
3. **Created survey questions:** The next step was to create survey questions that captured the indications researcher specified. The questions should have been straightforward, brief, and unambiguous, as well as designed to measure the concept validly and reliably.
4. **Tested the survey in a pilot study:** Before distributing the survey to the target market, it was critical to pilot test it with a small sample of participants to ensure that the questions were intelligible and that they measured the intended construct.
5. **Administered the survey:** Once the survey questions had been finalized, researcher could send the survey to the target group. To ensure that the results were generalizable to the larger population, researcher had to select a representative sample of individuals.
6. **Analysed the data:** Once the survey data had been collected, researcher could have used statistical techniques to test the hypotheses and draw conclusions about the link between the theoretical concept and the measurable variables.

The use of theoretical ideas in survey research necessitated precise attention to detail as well as a disciplined approach to measurement and analysis. By following these steps, researcher could ensure that their research was legitimate, reliable, and provided significant insights into the complex topic they were studying.

Conclusion: Operationalization involves defining and quantifying abstract concepts for empirical analysis. It enables systematic exploration and comparison of data, facilitating a rigorous examination of the GSC in the Alco Bev business. By operationalizing theoretical constructs, researcher and industry professionals can identify areas for improvement and enhance the GSC's performance and competitiveness.

3.2.1 Research philosophy

According to Saunders et al. (2012), research philosophy is an umbrella term that describes the development and nature of knowledge. They assert that a researcher's study philosophy will depend on their expectations regarding facts and the development process. Furthermore, they mention that the researcher considers the philosophy of an area of study, which concerns its foundations and knowledge, when developing an approach.

The following section provided a summary of the researcher's research philosophies, as well as the rationale for selecting research methodologies. Quantitative, qualitative, and mixed methodologies were the three primary approaches in survey research. Research questions, data types, and study objectives all played a role in determining which research approach was best suited for a particular survey.

To acquire meaningful and valuable data, the researcher carefully assessed which approach was most appropriate for this study.

1. **Quantitative research** involves gathering numerical data and analyzing it using statistical methods. This research method is commonly used to quantify attitudes, behaviors, or opinions among a large group of people. Surveys, questionnaires, and experiments are a few examples of quantitative methods. These surveys frequently use closed-ended questions, such as multiple-choice questions, where respondents select predetermined response options. Quantitative survey data may be analyzed to identify trends, patterns, and relationships between variables (Saunders et al., 2012).
2. **Qualitative research** involves gathering non-numerical data such as words, images, or observations. This type of research is commonly used to gain a thorough understanding of a specific phenomenon or experience. Interviews, focus groups, and case studies are a few examples of qualitative methods. These methods are

frequently used to gain a deeper understanding of complex social phenomena because it allows the researcher to investigate participants' perspectives, attitudes, and experiences (Saunders et al., 2012).

3. **Mixed methods research** combines quantitative and qualitative research methods to gain a more complete understanding of a research question. This method is especially useful when one type of data is insufficient to answer the research question. Surveys with open-ended questions or interviews with numerical data are a few examples of mixed methods research. These methods are useful when a more comprehensive understanding of a topic was required or when the research question necessitated data triangulation from multiple sources (Saunders et al., 2012).

Table 1: Research philosophies.

Source: Saunders et al. (2012).

	Approach	1 Pragmatism	2 Positivism	3 Realism	4 Interpretivism
1	The Researcher's view on the fundamental nature of reality or existence.	The approaches are external and varied in choice.	Approaches are used that are both external and multifaceted.	Uninfluenced by the opinions of others and existing objectively.	Subjective and socially constructed.
2	A researcher's perspective on what constitutes acceptable knowledge.	Research with a real-world focus, using several viewpoints to better	The application of norms and procedures, the simplification	Give attention to explaining in the context of a given	As determined by the specifics of the scenario and the surrounding Time frame.

		understand the data.	of complex occurrences, and the development of universal laws.	setting or situation.	
3	Beliefs of Value in Research by Researcher.	It is important to consider both objective and subjective perspectives.	Maintains an objective stance despite data independence.	World views, cultural experiences, and upbringing all influence the researcher.	Researcher bias, subjective results, and a lack of objectivity characterize this study.
4	Methods of Data Collection.	Quantitative and qualitative designs with mixed methods.	Highly structured, large sample sizes, and primarily quantitative, but qualitative data can be used.	A quantitative or qualitative approach.	Qualitative studies, in-depth samples, and small sample sizes.

Conclusion: Research philosophy guided knowledge development in various disciplines. The researcher selected methodologies based on the objectives, types of data, and research questions. Both quantitative and qualitative methods were employed to collect pertinent data.

3.2.1 Positivism

Positivism is a research methodology that emphasizes the use of empirical and scientific methods for studying social phenomena. In survey research, positivism typically involves the use of quantitative methods to collect and analyse data in order to identify objective facts and patterns. It is often associated with the use of quantitative methods such as surveys, experiments, and statistical analysis. The researcher aims to evaluate hypotheses and theories through empirical data collection, often relying on statistical analysis to determine the significance of their findings. Positivism also involves applying existing theory to the development of hypotheses to be evaluated during the research process.

According to Bryman (2001), positivism uses quantitative research methods like statistics, surveys, large samples, and structural equation modelling. By using a questionnaire, constructs can be set, relationships between different variables can be evaluated using regression techniques, path analysis, and objectivity can be maintained. It is a philosophical approach to research that holds that knowledge can only be gained empirically through observation and measurement. Positivists believe that scientific research should be objective, value-free, and centred on figuring out empirical facts about the natural world.

Bryman (2001) provides additional insight by elaborating that positivism serves as an alternative theory promoting the use of scientific methods employed in natural sciences to investigate social phenomena and beyond. However, the term encompasses more than just this principle, although the specific components may differ among researchers. It is characterized by its commitment to objectivity and rejection of subjective interpretations of reality. Positivists believe that personal biases and opinions should not influence the research process, and they strive to eliminate these biases through rigorous methodology and careful data collection. Critics argue that positivism excessively prioritizes measurable

data and disregards the subjective experiences of research participants. They also contend that positivism favours the perspectives of those in positions of power and may overlook the viewpoints of marginalized groups. Overall, positivism remains an important research approach, particularly in natural sciences, but it is not without limitations and criticisms.

Conclusion: Positivism is a research methodology that emphasizes empirical and scientific methods, often using quantitative approaches such as surveys and statistical analysis. It aims to identify objective facts and patterns, applying existing theory and maintaining objectivity. While positivism has advantages, it also faces criticisms for prioritizing measurable data and overlooking subjective experiences. In the context of the Alco Bev business, positivism emphasizes data-driven decision-making and efficiency in the SC through advanced technologies and analytics.

3.2.2 Interpretivism

Interpretivism is a term used to describe a conceptual framework that differs from positivism. According to Bryman (2001), interpretivism is typically seen as an alternative to the positivist orthodoxy that has dominated research for decades. It is based on the belief that a different method is needed to account for the differences between humans and the objects studied in the natural sciences. Interpretivism asserts that social scientists need to understand the subjective significance of social action and the individual's role in creating subjective meanings through their experiences. These subjective meanings cannot be reduced to objective, measurable data. Therefore, interpretivism often utilizes qualitative methods such as interviews, ethnography, and participant observation to study social phenomena in-depth and gain a profound understanding of individuals' experiences.

Interpretivism is a philosophical approach to social science research that places importance on understanding the subjective experiences of individuals and their interpretations of the world around them. It stands in contrast to positivism, which

emphasizes the use of objective empirical evidence and quantitative methods to study social phenomena. According to Saunders et al. (2012), interpretivism rejects structural frameworks and instead embraces flexible research structures that recognize the differences between researching people and researching objects. This distinction is crucial for researcher to understand the unique characteristics of human social actors. Overall, interpretivism offers a valuable perspective in research, emphasizing the significance of comprehending individuals' subjective experiences and interpretations of the world.

Conclusion: Interpretivism is a research approach that emphasizes understanding subjective experiences and interpretations. It contrasts with positivism by focusing on qualitative methods to study social phenomena. In the context of the Alco Bev SC, interpretivism highlights cultural contexts, stakeholder perspectives, and ethical considerations to foster collaboration and sustainability.

3.2.3 Pragmatism

The pragmatic research philosophy, as described by Johnson and Onwuegbuzie (2004), occupies a middle ground between positivism and interpretivism. Pragmatism in research recognizes that the ultimate goal of research is to generate knowledge that can be practically applied to solve real-world problems. As a result, pragmatic researcher focuses on research questions that are relevant to practical issues and employ research methods that are best suited to address these questions. This philosophical approach emphasizes practicality and usefulness in determining the meaning and truth of ideas. In research, pragmatism involves considering the practical implications of research findings and prioritizing the usefulness of research outcomes. One distinguishing feature of pragmatism in research is its emphasis on mixed-methods research, which combines qualitative and quantitative methods to gain a comprehensive understanding of the research topic.

By integrating multiple methods, pragmatic researcher can produce more robust and nuanced findings that can be effectively utilized to solve real-world problems. Pragmatism prioritizes research questions and goals by employing various data collection techniques. Additionally, according to Saunders et al. (2012), pragmatic philosophy involves embracing the researcher's perspective and acknowledging the subjective nature of observation based on the researcher's interests. Pragmatism allows researcher to approach their research in innovative and engaging ways in pursuit of answers to their research questions. This is because pragmatic research designs are guided by operational judgments based on "what will work best" in addressing research questions. Overall, pragmatism in research emphasizes the importance of conducting research with practical implications and real-world applications in mind. It encourages researcher to focus on producing knowledge that can be effectively used to solve practical problems and to collaborate with practitioners to ensure that research findings are useful and relevant.

Conclusion: Pragmatism is a research philosophy that focuses on practical applications and problem-solving. It takes a middle ground between positivism and interpretivism, emphasizing research questions relevant to real-world issues. In the context of the Alco Bev SC, pragmatism highlights adaptability, problem-solving, customer-centricity, and collaboration. By adopting a pragmatic approach, companies can navigate market changes, address SC challenges, and deliver value to customers. Pragmatism enables optimization of SC operations and helps businesses maintain competitiveness in the Alco Bev industry.

3.2.4 Realism

Realism is a philosophical approach that emphasizes the existence of a real world that exists independently of our beliefs and can be studied and understood through scientific investigation. Rather than relying on our feelings or beliefs, realism in research emphasizes the importance of understanding the world as it is. According to Saunders et

al. (2012), realism adopts a scientific approach to knowledge development, which typically involves collecting and analysing data, often taking a quantitative approach. Realism research philosophy is based on the idea that reality is independent of the human mind, and it seeks to understand the world through empirical observation and measurement.

There are two types of realism: **direct realism** and **critical realism**. Direct realism portrays the world through the individual's sensory experiences. Critical realism, on the other hand, acknowledges that humans do experience real-world sensations and images. In research, realism acknowledges the existence of an objective reality that can be studied through scientific inquiry. Realists aim to understand the world through empirical observation and measurement, seeking to identify the underlying causes and mechanisms that explain the phenomena under investigation. The use of quantitative research methods is a key feature of realism in research. Realist researcher often employ statistical analysis to quantify and comprehend the phenomena under investigation, searching for patterns and relationships in data that can help explain the underlying causes of the phenomenon.

Realism in research also emphasizes the importance of objectivity and detachment in the research process. Realist researchers strive to minimize the impact of their biases and beliefs, employing systematic and rigorous research methods to ensure the reliability and validity of their findings. Overall, research realism emphasizes the importance of understanding the world as it is, free from personal feelings or beliefs. It highlights the significance of objectivity and detachment in the research process, as well as the use of empirical observation and measurement to study the world. Furthermore, realism in research recognizes that our knowledge of the world is always tentative and subject to revision.

Conclusion: Realism is a research philosophy that emphasizes the existence of an objective reality that can be studied through scientific investigation. It rejects personal beliefs and focuses on empirical observation and measurement. In the context of the Alco

Bev SC, realism recognizes external forces, emphasizes market demand and competition, risk management, data-driven decision-making, and geopolitical influences. By adopting a realist approach, companies can adapt to market conditions, mitigate risks, make informed decisions, and excel in the Alco Bev industry's SC operations.

3.2.5 Primary & Secondary data

Both primary and secondary data are essential sources of information in research. Primary data are gathered specifically for the current research endeavour and provide researcher with first-hand information. On the other hand, secondary data provides context and background information for the research topic.

Primary data refers to the original data acquired by the researcher for the study. This can be accomplished using a variety of techniques, including surveys, interviews, focus groups, observations, experiments, etc. Primary data are specific to a given research topic and are frequently utilized to answer specific research questions or test hypotheses (Saunders et al., 2012).

Secondary data refers to data that someone else obtained for a different purpose but that the researcher can use for their study. This may include information from government agencies, academic institutions, market research businesses, and other entities. Secondary data can be gathered from a variety of sources, including published reports, academic publications, and online databases (Saunders et al., 2012).

The following are some differences between primary and secondary data:

1. **Originality:** The researcher collects primary data from the start, directly using surveys, interviews, or other means, whereas secondary data already exists and is derived from previously published reports, government databases, or company records, which were acquired for a different purpose by someone else.

2. **Control:** Primary data collection methods, sample selection, and study design were more under the researcher's control than secondary data gathering methods, sample selection, and research design, which were frequently predefined. Moreover, the researcher also had more control over raw data because they created the survey questions and chose the sample. With secondary data, the researcher had less control over how the data was collected, and they may have had to work with the limitations of the data that was already available.
3. **Relevance:** Primary data is more likely to be highly relevant to the research topics being addressed, whereas secondary data may be less specific or require more analysis to be relevant. When conducting research, primary data is preferable over secondary data since it is more directly related to the subject at hand.
4. **Accuracy:** Since the researcher has greater control over the data collection process and can ensure the quality of the data acquired, primary data is more likely to be accurate. Secondary data may have limitations in terms of precision, exhaustiveness, or replicability.
5. **Cost and time:** Primary data collection can be time-consuming and costly, but secondary data is frequently more accessible and affordable.

Both primary and secondary data have advantages and limitations, and researcher should carefully assess which form of data is best suited to their study questions and objectives. In many instances, a combination of primary and secondary data can be employed to create a more thorough understanding of the research issue.

Conclusion: Primary data provided originality, control, relevance, and accuracy but was time-consuming and costly. Secondary data offered context but had limitations. Thus, a qualitative approach was conducted, and primary data was gathered through targeted surveys and used secondary data for a comprehensive understanding of the SC dynamics in the Alco Bev industry.

3.3 Research Purpose

The objective of conducting a survey on the fragility of the GSC in the Alco Bev industry in India was to investigate and analyse the vulnerabilities and obstacles encountered by the GSC of the Alco Bev business in India. The survey method was utilized to collect primary data directly from relevant stakeholders.

Through this survey, the researcher aimed to accomplish the following goals:

1. **Identified SC vulnerabilities:** The survey helped identify potential weak points, bottlenecks, and risks within the SC of the Alco Bev industry in India. Factors such as logistics, distribution, inventory management, regulatory compliance, and market dynamics were assessed.
2. **Explored the impact of external factors:** The survey examined the influence of external factors on the fragility of the GSC. This included evaluating the impact of global economic conditions, geopolitical factors, trade policies, and local regulations on the stability and resilience of the SC in India.
3. **Assessed stakeholder perspectives:** Insights were gathered from different stakeholders to understand their perspectives, experiences, and challenges within the Alco Bev SC. This included perspectives from manufacturers, distributors, retailers, and consumers, providing a holistic view of the SC dynamics.
4. **Evaluated contingency planning and risk management:** The survey assessed the preparedness of the Alco Bev industry in India to manage GSC disruptions and unforeseen events. This included examining the effectiveness of contingency planning, risk mitigation strategies, and the adoption of technology and data analytics for SC resilience.

By employing the survey method, researcher was able to gather primary data directly from the relevant stakeholders in the Alco Bev industry in India. The survey responses provided valuable insights that were analysed to understand the fragility of the GSC in this

specific sector. The findings from this research can help identify areas for improvement, inform decision-making, and contribute to the development of strategies to enhance the stability, efficiency, and resilience of the SC in the Alco Bev business in India.

The purpose of the study was to obtain answers to the following questions:

- 1) What risks did the GSC pose to global business operations?
- 2) Did the backup plan save any organization's GSC during global disruptions?
- 3) Did the business leaders switch to locally sourced, high-priced production that was more secure and less vulnerable to trade wars and other global events?
- 4) Did you think the GSC could become more customer-focused considering the shifts in demand caused by the pandemic?
- 5) It was recommended that companies create digital supply networks that could foresee SC disruptions in operations.
- 6) Did the Covid-19 pandemic have an impact on GSC governance?
- 7) What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?
- 8) What strategies did these companies employ to manage risk, build resilience, and ensure a steady stream of supplies?

Conclusion: The survey examined vulnerabilities and obstacles in India's Alco Bev industry's SC. It identified weaknesses, assessed external factors, and evaluated contingency planning through stakeholder perspectives. Primary data provided insights for improvement, decision-making, and enhancing SC stability. The study addressed GSC risks, backup plans, localization, customer focus, digital supply networks, pandemic impact, and risk management strategies.

3.3.1 Survey research request to participants.

In the study, the survey research request served as a vital mechanism for data collection, representation, and participant engagement. It also allowed researcher to gather diverse perspectives, enhance the statistical power of their analyses, and contribute to the advancement of knowledge in various fields. By inviting participants to complete surveys, the researcher had the opportunity to directly gather data on the topics of the study, including opinions, attitudes, behaviours, and demographics. This data served as a valuable resource for analysis, interpretation, and the generation of knowledge for this study.

I am Santosh Shetty, a doctorate researcher from the Swiss School of Business and Management, Geneva. By this means, I have the honour of inviting you in taking part with your free opinions in my data research needed to complete my thesis.

All responses are completely anonymous; the information gathered from this survey will be used solely for my research paper and will not be shared with a third party. I would greatly appreciate it if you could take a few minutes to answer the following questions.

I agree that any information obtained from this research may be used in any way thought best for this study. In case you need further clarification, would request you to draft me a mail at santosh2@ssbm.ch

3.3.2 Informed Consent

In survey research, informed consent is an essential ethical principle that requires study participants' voluntary agreement to participate in the research after providing them with clear and comprehensible information about the nature of the study, its purpose, the procedures involved, and the potential risks and benefits. In addition, it is a crucial aspect

of research ethics, as it ensures that participants are thoroughly informed about the research and its potential consequences and have voluntarily agreed to participate in the study.

Research must obtain informed consent from all participants before performing any study, and in this study, the researcher obtained the following consent from every participant filled out the Google form in the survey.

- Please read the below consent and answer it as per your choice.
- I certify that I have been told of the confidentiality of information collected for this research and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning research procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the research or activity at any time without prejudice.
- I agree to take part in one or more electronic surveys for this research. I understand that such surveys and related materials will be kept completely anonymous and that the results of this study may be published in any form that may serve its best.
- All questions are compulsory.

Conclusion: It is a fundamental ethical criterion in this study since it guarantees that participants are aware of and able to evaluate all aspects of the study before deciding whether or not to take part in the survey.

3.3.3 Mapping of research questions to survey questions

Mapping research questions to survey questions involves establishing a connection between the specific research questions under study and the survey questions. This is a crucial phase in the survey design process since it ensures that the survey questions are relevant and effective in answering the research questions. ensures that the survey instrument is valid and reliable, that is, that it accurately measures what it is intended to measure and produces consistent results over time. It also ensures that the research

concerns are effectively addressed, which is essential for producing meaningful and useful findings. Accordingly, the researcher has mapped all the eight research questions to the survey questions, in Appendix E.

3.4 Research design

Research design in research refers to the overall plan or blueprint that guides the conduct of a study. It encompasses various elements, including the study's purpose, the selection of participants or subjects, the data collection methods, and the statistical analyses employed. The design also considers ethical considerations, practical constraints, and the resources available for the study. Burgess (2001) emphasized the importance of questionnaire design in research, stating that it should align with research requirements. In this study, a questionnaire comprising closed-ended questions was used.

Closed-end questions allow respondents to quickly choose from various alternatives, while open-ended questions capture diverse perspectives without preselecting categories. In this study, the researcher chose closed-end questions for their high response rate, ease of analysis, and straightforward comparisons. The choice of research design depended on the research questions, the nature of the phenomenon under investigation, and the available resources. A well-designed research study ensured that the data collected was reliable, valid, and contributed to the understanding of the research topic.

3.5 Population and Sample

It is critical to carefully consider both the population demographics and sample selection processes when undertaking a study on the fragility of the GSC in India's Alco Bev business, as outlined below.

3.5.1 Population selection

In this study, surveys were used to examine the viewpoints and experiences of participants. The research was conducted within three distinct categories:

1. People who are currently employed by Alco Bev.
2. Former Alco Bev employees who were currently employed by other FMCG (Fast Moving Consumer Goods) companies.
3. Service providers to the Alco Bev industry.

The research focused on the Alco Bev manufacturing industries and associated service providers, including manufacturers, wholesalers, retailers, logistics businesses, customs brokers, bonded warehouse operators, and shippers. Several business functions within the Alco-Bev industries were selected for analysis, including:

1. Manufacturing / SC professionals.
2. Human Resources / Legal / Administration.
3. Finance & Accounting.
4. General Administration.
5. Providers of services to the Alco Bev industry.

This sample was deemed suitable for the study as the individuals' different occupational responsibilities provided sufficient data.

The study specifically targeted the population of Alco Bev manufacturers and service providers. Careful consideration was given to selecting individuals who have played instrumental roles in the growth and success of their respective organizations. To ensure that the survey sample was representative of the entire population of Alco Bev sector decision-makers, the researcher used a sampling technique that allowed for the selection of a varied and unbiased collection of participants. Random sampling was a common approach that involved randomly selecting individuals from the demographic of

interest. This approach lowered the likelihood of discrimination and ensured that every member of the population had an equal chance of being selected.

3.5.2 Sample selection process

In survey research, sample selection referred to the process of selecting a representative sample of individuals or entities from a larger population to undertake a study or collect data. Typically, the sample was chosen based on particular criteria or qualities thought to be relevant to the study issue or topic under consideration. Sample selection was essential to ensuring the validity and dependability of survey research results.

To assess the generalizability of the findings, it was essential to employ rigorous methods and precisely document the sampling procedures and sample characteristics, as explained below:

1. **Defined the Population:** The first step the researcher took while conducting the survey was to designate the target population, or the group of individuals or entities that would be the subject of the study.
2. **Created a sample frame:** After defining the population, the researcher determined the sample size, or the number of individuals or objects included in the survey.
3. **Performed the sampling procedures:** The researcher conducting the study had to ensure that the sample was representative of the population, that is, that it accurately reflected the characteristics of the population.
4. **Compiled the data:** The survey was conducted with the help of the chosen sample. To ensure consistency in data collection, it was critical to adhere to a standardized procedure, such as using the same survey questions and administration methods for all participants.

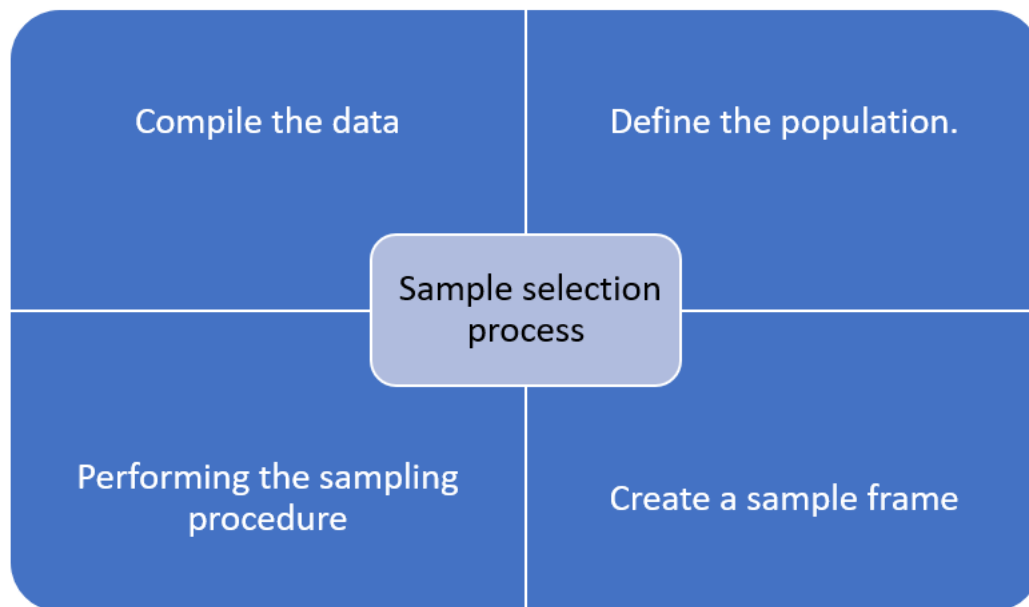


Figure 24: Sample selection process.

Source: Shetty (2023)

Conclusion: In survey research, sample selection was the process of choosing a representative group from a larger population. It involved defining the population, creating a sample frame, performing sampling procedures, and collecting data consistently. Rigorous methods and documentation were crucial for ensuring valid and dependable research results.

3.6 Method of Participant selection / Target population

The method of participant selection can have a substantial effect on the reliability and validity of the research findings. It is critical to identify the specific group of people that the researcher intends to study, known as the target population. This target population should be well-defined, specific, and relevant to the researcher's research objectives.

The researcher employed various forms of social media platforms, such as emails, survey websites, and computer-aided interviews using video calls and telephone

interviews, to identify and recruit participants. When conducting surveys, it is crucial to have a sample size and sampling method that are appropriate for the specific study being conducted. The following demographics were taken into consideration when selecting respondents for a survey on the Alco Bev industry in India:

The study has provided a holistic insight into the Alco Bev sector in India and has identified opportunities for improvement and growth by surveying current employees, previous employees, and service providers.

1. Present employees, previous employees, and service providers of the Alco Bev industry were surveyed.
2. Several business functions within the Alco-Bev industries were included, such as:
 - a) Manufacturing / SC Professionals,
 - b) Human Resources / Administration,
 - c) Finance & Accounting,
 - d) General Administration, and
 - e) Providers of services.

The study offered a comprehensive understanding of the Indian Alco Bev industry, identifying opportunities for improvement and growth through surveys of current and previous employees, as well as service providers. Many SC professionals in the Alco Bev industry may have frequently changed jobs to gain experience in different FMCG sectors. The FMCG industry offers a diverse range of products, packaging requirements, distribution networks, and evolving consumer demands, including healthier and sustainable options. With its stability and consistent growth, even during economic downturns, the FMCG sector became an attractive and secure long-term career option for SC professionals, prompting them to switch from Alco Bev to FMCG companies.

The Alco Bev industry in India is unique and niche, posing specific challenges for SC professionals. However, it holds significance within the broader FMCG sector due to

its substantial consumer base. SC professionals in Alco Bev possess specialized skills applicable to other FMCG companies. The FMCG industry in India is significantly larger in terms of market size and revenue compared to the Alco Bev industry. However, despite being a smaller segment, the Alco Bev industry still provides career growth opportunities within the broader FMCG landscape in India. This survey may have included 10% of SC professionals from the Alco Bev industry, considering its niche nature compared to FMCG.

Conclusion: Participant selection played a crucial role in research validity. The researcher targeted specific demographics in the Alco Bev industry in India, including current and previous employees, service providers, and various business functions. The study aimed to gain comprehensive insights and identify areas for improvement and growth in the industry.

3.7 Instrumentation

The process of constructing and deploying survey instruments, such as questionnaires or interviews, to collect data from a sample of respondents is referred to as instrumentation in survey research. Instrumentation played a crucial role in survey research as the quality of the acquired data depended on the quality of the survey instruments used. The researcher conducted a survey questionnaire using the Google Form instrumentation, which provided numerous benefits to the researcher.

Google Forms was a user-friendly platform that was simple to understand and apply. It was a free tool, so researcher could save money on survey design and administration. It helped the researcher to tailor survey questions as per the needs of the study. Furthermore, it allowed researcher to effortlessly distribute survey links via email, social media, and other platforms, enabling them to reach a larger audience. This instrumentation enabled the researcher to examine and evaluate replies in real time, allowing them to modify their study strategy or survey questions, as necessary. Moreover, this expedited

data analysis. It allowed the researcher to view and analyse responses in real-time, which meant that they could quickly adjust their research approach or survey questions if needed. This also allowed for faster data analysis. Google Forms enabled the researcher to readily download data in a variety of forms for further analysis.

Conclusion: The researcher utilized Google Forms as an instrument to conduct a survey questionnaire. Google Forms offered advantages such as user-friendliness, cost-effectiveness, customization, easy distribution, real-time response analysis, and data downloading options, making it an efficient tool for data collection in a large sample size.

3.8 Data collection procedures

According to Saunders et al. (2012), sampling allows the amount of data researched to be reduced to a manageable size and generalisation to be understood. They also contend that there are two major sampling techniques: 1) probability sampling and 2) non-probability sampling. Probability sampling entails selecting a sample that is statistically representative of the population and suitable for quantitative research. Non-probability sampling is most commonly used for qualitative data collection, according to Saunders et al (2012).

In survey research, data collection techniques referred to the methods used to collect data from a sample of respondents using survey instruments like questionnaires or interviews. The effectiveness of a survey research project relied on the quality of the collected data, highlighting the significance of data collection processes within survey research. The data collection processes were developed to optimize the quality and relevance of the data collected while minimizing the cost and hardship for the participants. The researcher ensured that the survey questions were clear, concise, and relevant to the research topic. Various procedures for data collection were followed to ensure the

reliability and validity of the collected data. Below are the procedures used by the researcher for data collection in survey research.

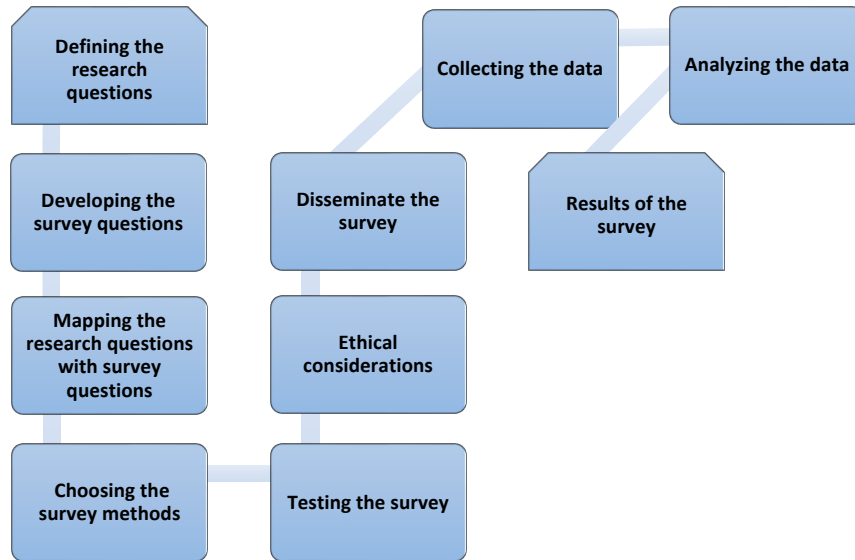


Figure 25: Data Collection Procedures.

Source: Shetty (2023).

The researcher used the following data collection procedures in this study:

- 1) **Defining the research questions:** Before beginning to create the survey, the researcher precisely identified the study questions, which allowed for more efficient question development and more precise audience targeting.
- 2) **Developing the survey questions:** The researcher has written clear and concise questions that are easily understood by the target audience. Furthermore, it is ensured that the questions are objective and unbiased, and that they do not influence the respondent's answer. The survey questionnaire was designed to collect relevant data that is clear and easy to understand by Alco Bev industry participants.
- 3) **Mapping the research questions with survey questions:** To ensure that the data collected is relevant to the research question and that meaningful insights

can be generated that can be used to form conclusions and make decisions, the researcher first mapped the research questions with survey questions.

- 4) **Choosing the survey methods:** Researcher can select from a variety of survey methods, including online surveys, paper surveys, and phone surveys. Considering the benefits and drawbacks of each method, the researcher has selected the online survey method via Google forms that is best suited to the research question and target audience.
- 5) **Evaluating the survey:** Before distributing the survey to the wider populace, the researcher evaluated it on a small sample to ensure that it functions properly and that the questions are easily understood. The pilot test is conducted to ensure that it is effective and efficient.
- 6) **Ethical considerations:** The researcher has ensured that the process of data collection is conducted ethically. This includes getting participants' informed consent, protecting their privacy and confidentiality, and avoiding biased or leading questions.
- 7) **Disseminate the survey:** Once the researcher was satisfied with the survey, it was circulated to the target audience via multiple methods, including email, WhatsApp, and social media. The researcher has called every target audience to inform them about the survey.
- 8) **Collecting the data:** Once the survey has been distributed to the intended audience, the responses must be collected. Researcher has collected the data using a Google forms online survey instrument.
- 9) **Analyzing the data:** After data collection, researcher analyzed the information. This process has been assisted by statistical software, allowing the researcher to identify patterns and trends in the data.
- 10) **Results of the survey:** Finally, the researcher has presented the findings clearly and concisely. This will help the audience in understanding the study question and survey responses.

Conclusion: Researcher highlighted the importance of sampling in research to manage data and achieve generalization. They distinguish between probability sampling, suitable for quantitative research, and non-probability sampling, commonly used for qualitative data. Data collection procedures involve defining research questions, developing survey questions, mapping them, selecting methods, ensuring ethics, disseminating surveys, collecting, and analysing data, and presenting the findings.

3.9 Data analysis

Data from the survey was collected using the Google Forms platform and analysed using descriptive analysis. The completed responses were downloaded and imported into an Excel sheet for easier interpretation of the results. The results of the quantitative data questions were presented using visual graphs, which aided the researcher in comparing the opinions of the participants.

An overall summary of the data analysis is described below:

1. **Cleaning the data:** The researcher meticulously cleaned the data to ensure the validity and reliability of the results, a crucial step in the research process. Duplicates, errors, and typos in respondents' company names were removed to eliminate misleading data. Correcting errors ensured data consistency and accurate association of respondents with their respective companies. The procedure involved searching for inaccuracies, addressing errors, and transforming the data for appropriate analysis.
2. **Data visualization:** The researcher benefited from data visualization as it facilitated the identification of relationships and trends that might have been concealed in the raw data. In this study, the researcher utilized charts and graphs to visually present the information and enhance understanding.
3. **Interpretation and analysis:** The researcher employed a basic exploratory statistical analysis, including summary of the findings, to gain a holistic perspective

on the data. By doing so, the researcher obtained a better understanding of how the data was distributed and identified potential trends within it. Furthermore, the researcher discussed proportions as well as percentages of each of the survey answers, in order to highlight any insights as well as notable patterns, including the link to the demographics.

Conclusion: The researcher ensured data validity and reliability by meticulously cleaning it, eliminating duplicates and errors. Data visualization enhanced understanding by revealing hidden relationships. This step was followed by analysing as well interpreting the results.

3.10 Research design limitations

Research design limitations refer to the constraints and shortcomings inherent in the design of a research study that may impact the validity, reliability, and generalizability of the findings. Kumar (2008) asserts that the survey interview process carries notable limitations, including the impact of the interviewer-interviewee interaction on data quality, which can differ among respondents. Recognizing the constraints of the research design is crucial to ensure accurate and valid results, particularly when collecting data in the Alco Bev industry using survey methods.

A few important limitations of the research design within this study are highlighted below:

1. **Participation bias:** The survey results could have been biased if the sample was not representative of the entire population and the response rate was low. Efforts were made to encourage participation from Alco Bev producers and service providers, but a small subset of the population responded, potentially due to concerns about revealing company identity.

2. **Emotional response limitations:** Surveys could not capture participants' emotional responses or non-verbal cues, which could have provided additional depth to the conversation beyond an online questionnaire.
3. **Lack of personalization:** Surveys lacked personalization, making it challenging to generate interest as no value was promised to respondents, and the collected information was generic in nature.
4. **Sampling bias:** The possibility of sampling bias existed if the sample was not representative of the target population. To address this, data collection focused on various Alco Bev industry stakeholders, such as manufacturers, wholesalers, retailers, logistics firms, etc.
5. **Social desirability bias:** Respondents may have provided socially acceptable or desirable answers instead of truthful or accurate responses, particularly in surveys on sensitive topics.
6. **Control restrictions:** The level of control in survey research was lower compared to controlled research laboratories, making it difficult to attribute causes as the researcher had no control over respondents' conditions during survey completion.
7. **Limited scope:** Survey research often had a narrow focus, providing limited insights into specific issues. For example, a survey on attitudes towards the GSC of Alco Bev might not capture other factors influencing alcohol consumption.
8. **Self-selection bias:** Self-selection bias could occur when respondents chose to participate based on their characteristics or interests, potentially skewing the results. Operational issues like raw material shortages and distribution disruptions might have affected participants' expertise.

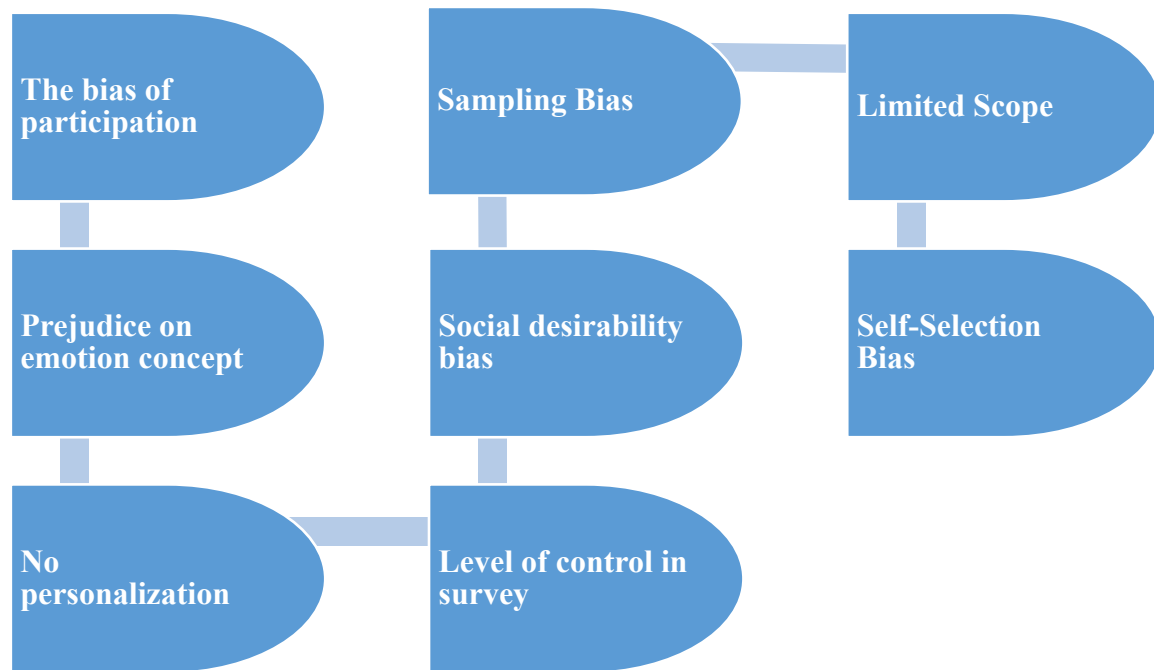


Figure 26: Research design limitations.

Source: Shetty (2023).

To address these limitations, the researcher carefully designed the surveys, conducted pilot tests with a diverse sample, and employed appropriate statistical methods to analyse the data. The researcher also acknowledged and considered any potential biases or limitations in the study's conclusions. As a result, although survey research provided valuable insights into the vulnerability of the GSC in the Alco Bev industry, the researcher was aware of its limitations and took steps to minimize bias and ensure accurate representation of the target population's attitudes and behaviours.

Conclusion: Researcher acknowledges limitations in survey interviews, such as data quality dependence on interviewer-interviewee interaction. In Alco Bev industry survey, limitations include biased participation, lack of emotional depth, sampling bias, and social desirability bias. To mitigate, researcher designed surveys carefully, conducted pilot tests, and used appropriate analysis methods while acknowledging limitations.

3.11 Ethical considerations

According to Saunders et al. (2012), ethical concerns were present at every stage of the study. In survey research, ethical considerations played a crucial role in ensuring the research was conducted in a responsible and trustworthy manner, while respecting the rights and welfare of the participants.

The researcher incorporated the following ethical considerations throughout the study:

1. Participants were provided with prior informed consent, and the study's purpose was clearly communicated.
2. Participants were treated with dignity, and confidentiality was upheld.
3. Fair treatment and equal opportunities were given to all personnel involved in the research.
4. Confidentiality was regarded as the foremost ethical consideration in this study.
5. The researcher adhered to the ethical standards of the university, seeking permission, and explaining the study's background and ethics in an initial cover letter. As the survey was voluntary, participants had the choice to participate.

Conclusion: The researcher adhered to ethical considerations in the survey study, which encompassed obtaining informed consent, preserving participant dignity, ensuring confidentiality, providing fair treatment, and complying with university norms. Anonymity was maintained as only the researcher had access to the data.

3.12 Chapter Summary

This chapter presented a comprehensive overview of the methodology used in the study. First an overview of the research problem was presented, as a reminder to the reader, followed by operationalization of theoretical constructs. Then definitions of research philosophies (positivism, interpretivism, pragmatism, realism), definitions of primary as

well as secondary data were highlighted which were the basis to the research design, where closed-ended survey questions were chosen. These sections were followed by collection methods, sample selection, instrumentation, and the utilization of Google Forms for data collection. Finally, the research design limitations of the survey interviews and ethical considerations were addressed.

CHAPTER IV: RESULTS

4.1 Introduction

This chapter of the dissertation focused on the research findings derived from the survey questionnaires. As a reminder to the reader, the researcher employed three distinct categories for the survey:

1. Current employees of the Alco Bev industry,
2. Former Alco Bev employees who worked for other FMCG companies, and
3. Various service providers associated with the Alco Bev industry.

The study specifically concentrated on Alco Bev industries in India and related service providers, such as breweries, distillers, wineries, distributors, duty free operators, retailers, logistics companies, customs brokers, customs bonded warehouse operators, transport service providers and shipping companies etc. Additionally, several business functions within the Alco-Bev industries were considered, which include:

1. Manufacturing / SC Professionals,
2. Human Resources, Administration, and Legal,
3. Finance & Accounting
4. General Administration.

The sample used for this research was relevant, as the participants' diverse job responsibilities provided adequate data for the study.

The researcher made significant efforts to secure participation from a substantial sample of Alco Bev producers and related service providers. However, only 66 participants from the target population of 250 participants participated in the survey, as some employees in the Alco Bev industry were hesitant to disclose their company's identity. The survey exclusively targeted current and former Alco Bev employees and service providers, excluding others from participation. Therefore, participants were required to mention the

name of their Alco Bev company in the survey. This chapter critically examines the research findings, addressing and answering each research question outlined in the initial chapter through separate sections.

4.2 Qualitative Data Analysis

In this chapter, the research findings are evaluated, with each research question from the first chapter being assessed and answered individually. The researcher focuses on the key insights obtained from in-depth survey interviews. As a reminder to the reader, the qualitative data analysis, conducted on the fragility of the GSC in the Alco Bev industry in India, involved gathering and analysing data from multiple sources to derive meaningful conclusions.

The study specifically concentrates on the Alco Bev industry in India, including related service providers such as brewers, distilleries, wineries, distributors, retailers, logistics companies, customs brokers, bonded warehouse operators, and shipping firms. The survey encompasses three distinct categories: 1) current employees of the Alco Bev industry, 2) former Alco Bev employees who now work in other FMCG companies, and 3) various service providers associated with the Alco Bev industry.

4.2.1 Structural survey questionnaires

In the research conducted, a structural survey questionnaire was employed as a tool to collect data and information pertaining to the structural aspects of the specific study topic. The questionnaire consisted of a total of 31 questions, including seven demographic questions and 24 survey questions. As previously mentioned, these survey questions were categorized into three distinct groups: 1) current employees of the Alco Bev industry, 2) former Alco Bev employees who had transitioned to other FMCG companies, and 3) different service providers linked to the Alco Bev industry.

4.2.2 Demographic information

Demographic information played a crucial role in the research as it allowed the researcher to gain insights into the sample and assess its representativeness of the target population. Additionally, the researcher examined potential demographic variations in the study outcomes and analysed how different demographic groups might have responded to the variables. The collection of demographic data was conducted ethically, with a strong emphasis on safeguarding participant privacy. In this study, participants were provided with the choice to omit or decline answering any demographic questions that made them uncomfortable, and all gathered data was aggregated and anonymized to ensure confidentiality. The total number of years of work experience for survey participants is shown in Table 2.

Table 2: Demographic of participants' overall experience.

Source: Shetty (2023).

Particulars	Age group	%	Conclusion
Number of years of experience of the survey participants.	Less than 5 years	5%	Majority of the participants possess substantial professional experience, demonstrating their expertise and knowledge in their respective fields.
	Between 6 to 9 years	11%	
	Between 10 to 19 years	24%	
	Above 20 years	61%	
	Total	100%	

Seniority and professional experience played a significant role in this research because they offered a deep understanding of the field, expertise, credibility, and practical insights. Participants with substantial professional experience brought specialized knowledge, a broad network of connections, and a wealth of real-life examples that enriched the research findings. Their contributions enhanced the accuracy, reliability, and applicability of the research, ultimately benefiting the field and the wider community.

The diverse experience levels of participants in the Alco Bev industry provided valuable perspectives, fostered understanding, facilitated mentoring, and promoted knowledge-sharing. This enhanced the relevance and applicability of the research findings, leading to more informed decision-making and practical implications for the industry. Table 3 specifies the number of years participants were associated with the Alco Bev industry.

Table 3: Demographic of participants' experience in Alco Bev business.

Source: Shetty (2023).

Particulars	Age group	%	Conclusion
Participants of experience in the Alco Bev industry.	Less than 5 years	17%	The diverse experience levels in the survey offer valuable perspectives on the Alco Bev industry, fostering understanding, mentoring, and knowledge-sharing.
	Between 6 to 9 years	18%	
	Between 10 to 19 years	38%	
	Above 20 years	27%	
	Total	100%	

4.3 Research questions results.

In this section, the results from this study are presented. The eight research questions are presented one by one, both visually and verbally, along with the findings and the mapping of the relevant survey questions. As a reminder to the reader and in order to provide further clarification, all the research questions are defined at the beginning of each sub-chapter.

4.3.1 Research Question One

The first research question was the following: **What risks does the GSC pose to global business operations?**

The GSC posed several risks to global business operations, including those in the Alco Bev industry in India. Steps were necessary to assess and manage process risk identification. The risks identified included disruptions in logistics and transportation, trade barriers and tariffs, SC complexity and transparency, regulatory compliance and legal risks, currency exchange rate fluctuations, political and geopolitical risks, and environmental and sustainability concerns.

It has been observed that these risks could lead to delays, increased costs, compliance challenges, and impacts on product integrity and market access. Adapting to these risks and implementing appropriate measures became crucial for businesses operating in the Alco Bev industry in India.

Results of SQ One mapped with RQ one.

The following was the first survey question mapped with research question one: **Do you agree that our livelihoods, i.e., food, employment, and energy - depend on resilient and functional GSC s?**

As indicated in Figure 27, the survey revealed that 98.5% of respondents acknowledged the vital role of a robust and functional GSC in supporting human livelihoods, while 1.5% remained neutral. This consensus highlights the recognition of risks and benefits associated with GSC disruptions.

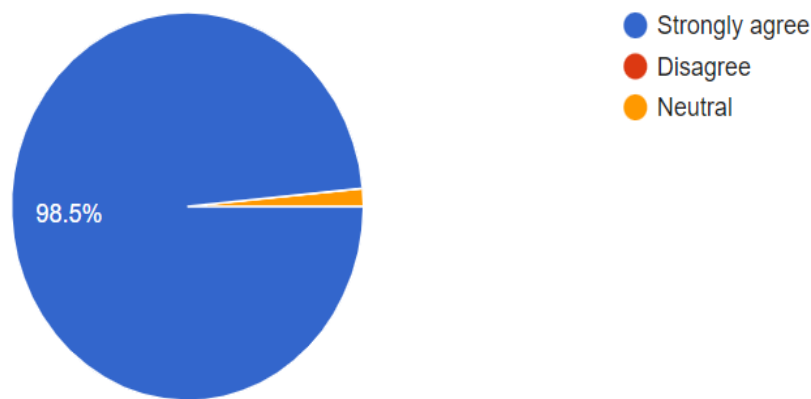


Figure 27: Dependability of livelihoods on resilient and functional GSC.

Source: Shetty (2023)

Conclusion: The survey findings offered valuable insights into the factors that contributed to a well-functioning and resilient GSC, highlighting potential areas for improvement. Respondents strongly agreed on the significance of a resilient GSC in sustaining human livelihoods.

Results of SQ Two mapped with RQ One.

The following was the second survey question mapped with research question one:
How risky is the GSC for global business operations?

As depicted in Figure 28, based on the survey results, 42% of respondents perceive GSCs as highly risky for global businesses, while 52% consider them moderately risky. This indicates widespread concern among the surveyed population regarding the risks associated with GSCs in the context of global business.

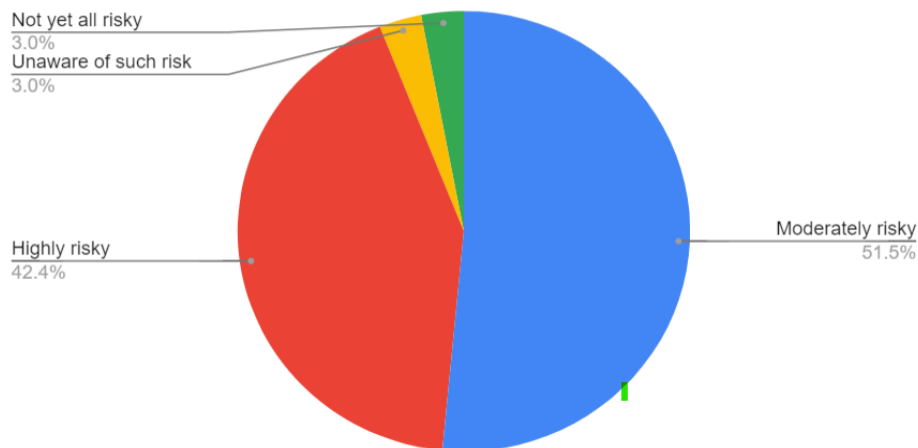


Figure 28: GSC risk for global business.

Source: Shetty (2023)

Conclusion: The survey results provided valuable insights into the specific challenges faced by global businesses, highlighting the respondents' notable level of concern regarding risks associated with GSCs. These findings have played a crucial role in aiding the development of effective risk management strategies. The respondents' recognition of these risks demonstrates their understanding and acknowledgement of the importance of addressing challenges in GSC.

Results of SQ Three mapped with RQ One.

The following was the third survey question mapped with research question one: **Are you aware that the GSC and purchasing practices may expose any organization to compliance and reputational risks?**

According to Figure 29, the survey findings revealed that, 93.9% of respondents agreed that GSC and purchasing practices could expose organizations to compliance and reputational risks. Meanwhile, 6.1% of respondents were unaware of these hazards. The survey findings indicated a consensus among the majority of respondents regarding the

risks associated with GSC and purchasing practices, acknowledging their potential impact on compliance and reputation.

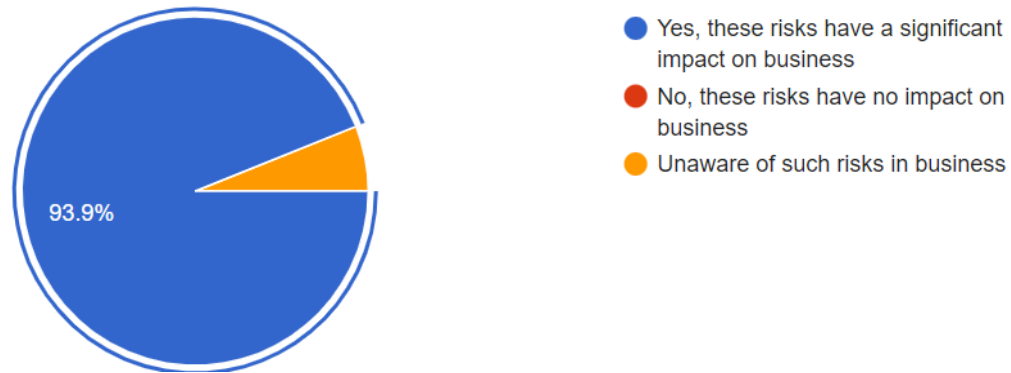


Figure 29: Compliance and reputational risks on GSC and purchasing practices.

Source: Shetty (2023)

Conclusion: The survey results showed a strong consensus among respondents about the compliance and reputational risks linked to GSC and purchasing practices. These findings offer valuable insights for businesses in managing SCs and developing effective risk management strategies.

Results of SQ Four mapped with RQ One.

The following was the fourth survey question mapped with research question one:
Do you believe that every global organization should have a SC risk mitigation strategy?

As per figure 30, the survey results indicate that the majority of respondents (95%) agreed that every global company should have a SC risk mitigation strategy, while a small percentage (5% or less) were unaware of these risks. This consensus suggests widespread

recognition among the surveyed population about the importance of implementing SC risk mitigation strategies in global organizations.

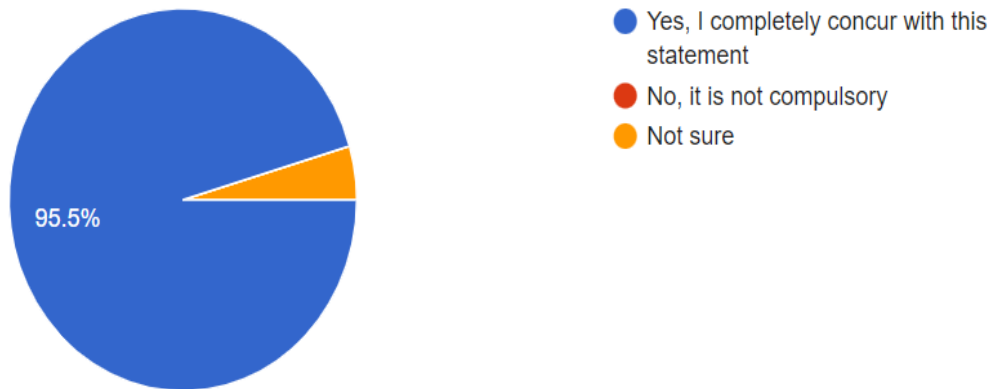


Figure 30: SC risk mitigation strategy by global organization

Source: Shetty (2023)

Conclusion: The survey findings offered valuable insights into effective techniques and approaches for minimizing risks in SCs, reflecting agreement among respondents on the importance of SC risk mitigation strategies. These discoveries can aid in developing superior risk management techniques to ensure the long-term success of global organizations.

Results of SQ Five mapped with RQ One.

The following was the fifth survey question mapped with research question one: **Do you believe there is significant space for improvement in the GSC s of the Alco Bev industry in terms of end-to-end traceability, product delivery speed, coordination, and financing?**

Referring to Figure 31, the survey results indicate that in this survey 92.4% of the participants believe that there is significant room for improvement in the GSCs of the Alco

Bev industry in terms of end-to-end traceability, product delivery speed, coordination, and financing. Meanwhile, 1.5% do not believe so, and the remaining 6.1% of participants took a neutral stance in this survey.

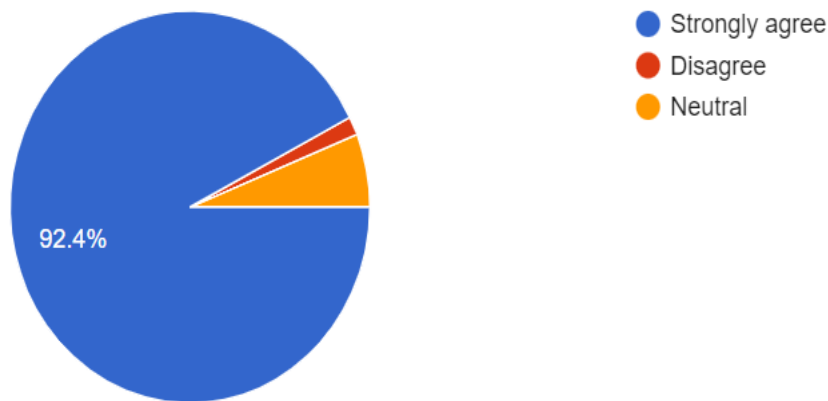


Figure 31 : Scope for improvement in GSC of Alco Bev business

Source: Shetty (2023)

Conclusion: It demonstrates a strong consensus among respondents on the growth potential in the Alco-Bev industry's GSCs, offer valuable insights into areas for improvement such as end-to-end traceability, product delivery speed, coordination, and financing, which can inform the development of specific strategies and approaches to enhance the industry's SC operations.

4.3.2 Research question Two

The second research question was the following: **Will the backup plan save any organization's GSC during global disruptions?**

Implementing a well-designed backup plan is crucial for mitigating disruptions in the GSC of the Alco Bev industry. The plan should address various scenarios, regularly

reviewed, and updated, and tested for effectiveness. While a backup plan is a positive step, its success depends on execution, severity of disruptions, and continuous evaluation.

Results of SQ Six mapped with RQ Two

The following was the Sixth survey question mapped with research question Two: **Do you believe the company is prepared for any future GSC disruptions, such as a pandemic if a backup plan is in place?**

According to Figure 32, there was no clear consensus among the surveyed population regarding the preparedness of businesses for future disruptions in the GSC. While 42.4% of respondents believed that having a contingency plan would signify preparedness for disruptions like a pandemic, 30.3% disagreed. Furthermore, 27.3% of participants chose not to disclose their stance on this issue.

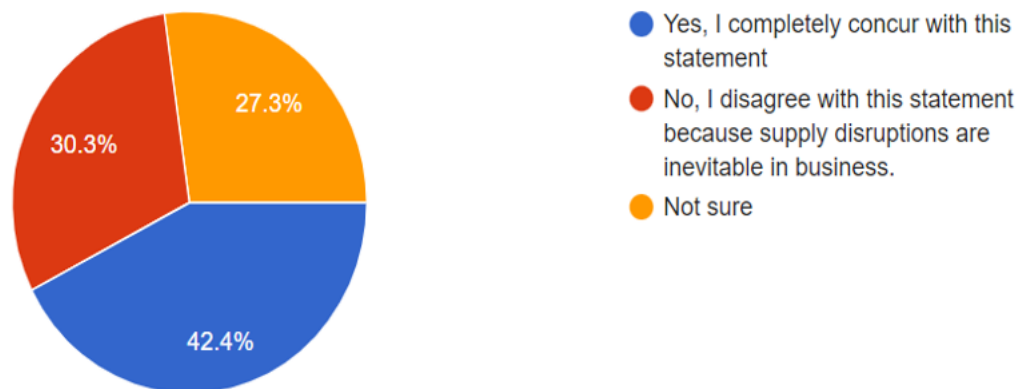


Figure 32: Contingency backup plan on SC disruptions

Source: Shetty (2023)

Conclusion: The absence of consensus suggests differing opinions on the effectiveness of contingency plans in safeguarding businesses from future GSC disruptions. The considerable number of participants withholding their thoughts hinders data analysis. Further research is needed to explore factors contributing to the efficacy of

contingency plans and to identify strategies for enhancing business readiness in GSC disruptions.

Results of SQ Seven mapped with RQ Two

The following was the seventh survey question mapped with research question Two: **Do you agree with the statement that it is easy for business leaders to take the GSC for granted when their business operates without interruption?**

According to figure 33, a significant majority (75.8%) of participants believed that business leaders are more likely to take the GSC for granted when operations are uninterrupted. However, 18.2% disagreed, emphasizing the need for caution due to the excitement and risks in global business. 6.1% did not disclose their stance, limiting conclusive insights from their perspectives.

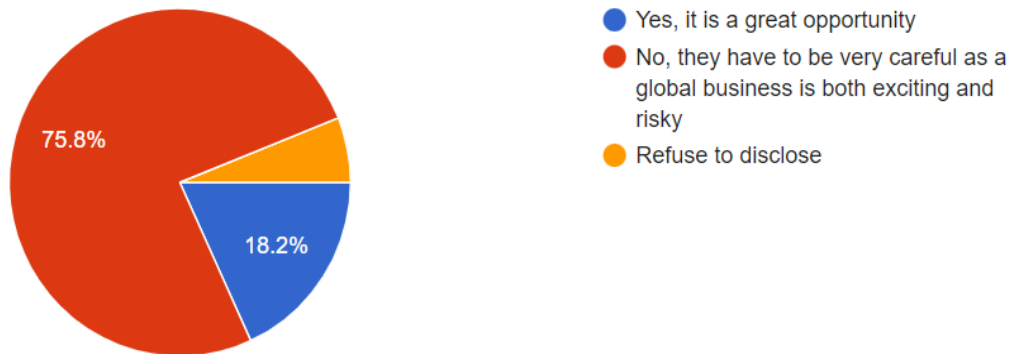


Figure 33: When things go well, leaders overlook the GSC.

Source: Shetty (2023)

Conclusion: The results suggest a potential need for heightened awareness and education about the risks and challenges in GSCs. While some business leaders may become complacent during smooth operations, it is crucial for all leaders to stay vigilant and prepared for potential disruptions, minimizing their business's impact.

Results of SQ Eight mapped with RQ Two

The following was the Eighth survey question mapped with research question Two: **Do you believe organizations are ready to manage unexpected challenges, such as a Covid-19 pandemic, in the GSC, if they have a backup plan?**

Based on Figure 34, the survey findings indicate that the majority of respondents (62.1%) believed that organizations could effectively handle unforeseen challenges in the GSC, like the Covid-19 pandemic, with a backup plan. However, a notable percentage (34.8%) disagreed, indicating the need for improved preparedness. Organizations should consider these viewpoints and work towards enhancing their contingency planning to effectively manage future challenges.

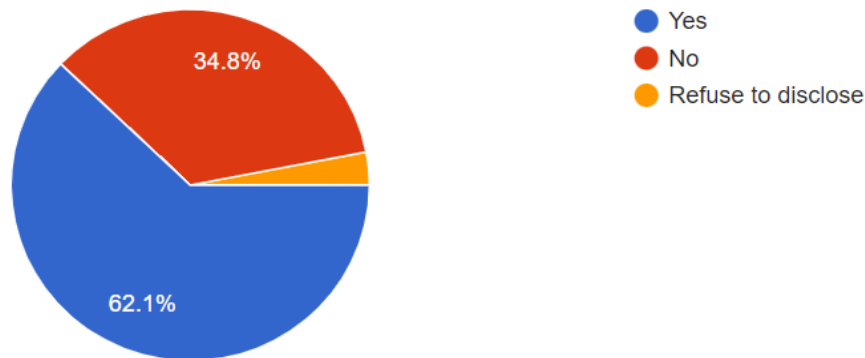


Figure 34: Backup plan to manage unexpected challenges.

Source: Shetty (2023)

Conclusion: The survey emphasized the need for organizations to consistently assess and enhance their preparedness for unforeseen challenges in the GSC. Having contingency plans in place was crucial for organizations to mitigate risks in SC management, particularly during times of crisis.

4.3.3 Research question Three

The following was the Third research question: **Will the business leaders switch to locally sourced, high-priced production that is more secure and less vulnerable to trade wars and other global events?**

Leaders in the Alco Bev industry face unpredictable factors such as market demand, production costs, and global events. However, there has been a recent shift towards locally sourced and expensive production in India, driven by consumer preferences for sustainability and support of local businesses. This trend will continue as consumers prioritize environmental impact and local patronage, but each company's decision will depend on numerous factors.

Results of SQ Nine mapped with RQ Three.

The following was the Ninth survey question mapped with research question Three: **As a precaution, should the business leader shift to locally sourced, expensive production that is more secure and less susceptible to trade wars and other global events?**

Based on Figure 35, the survey findings indicate that a majority of respondents (66.7%) believe that business leaders should transition to locally sourced, albeit expensive, production to enhance security and resilience in the face of global events. However, a significant percentage (18.2%) expressed disagreement, citing concerns about reduced profitability. Furthermore, 15.2% maintained a neutral stance on the issue.

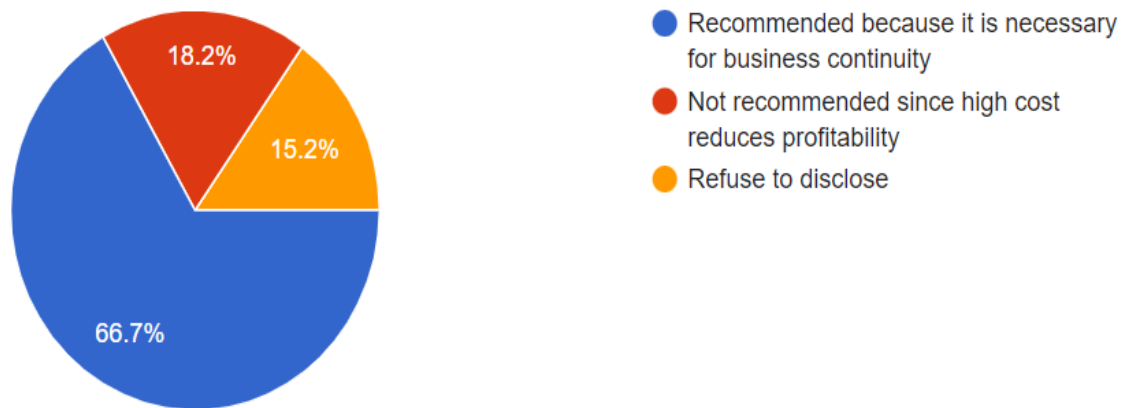


Figure 35: Switching to more expensive, locally sourced productions.

Source: Shetty (2023)

Conclusion: The survey findings indicated that the decision for business leaders to shift to locally sourced, expensive production depended on various business-specific factors. However, a substantial majority of participants believed it was necessary for ensuring business continuity amid trade wars and global events.

Results of SQ Ten mapped with RQ Three

The following was the Tenth survey question mapped with research question Three: **Do you agree that developing nations have the opportunity to create and expand regional value chains through regional treaties and agreements to minimize transaction costs and leverage economies of scale to tackle the SC crisis?**

According to figure 36, The survey indicated that the majority of respondents (90.9%) agreed that developing countries could lower SC costs by establishing and expanding regional value chains through regional treaties and agreements. The researcher believe that this approach could help reduce transaction costs, enhance economies of scale, and address current SC challenges. Developing and expanding regional value chains enables these nations to benefit from economies of scale, enhancing their competitiveness in the global market.

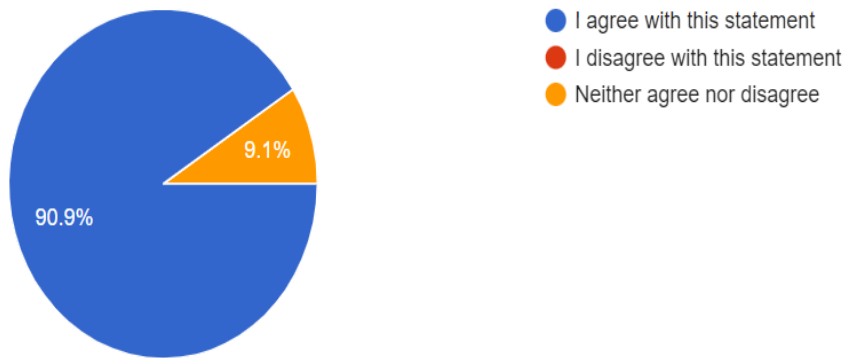


Figure 36: Regional value chains through regional treaties and agreements

Source: Shetty (2023)

Conclusion: Regional treaties and agreements were found to have the potential to reduce trade-related transaction costs and improve SC efficiency. The study revealed significant support for the notion that developing countries could enhance their competitiveness and address GSC concerns through regional value chains and agreements.

Results of SQ Eleven mapped with RQ Three

The following was the Eleventh survey question mapped with research question Three: **Are localized SCs preferable since GSC s are too complex and can put businesses at risk?**

According to figure 37, in this survey 56.10% of participants believe that global businesses cannot survive without a GSC, making localized SCs not preferable. On the other hand, 40.90% believe that local SCs will provide much-needed financial relief to businesses. 3% refused to disclose their opinion.

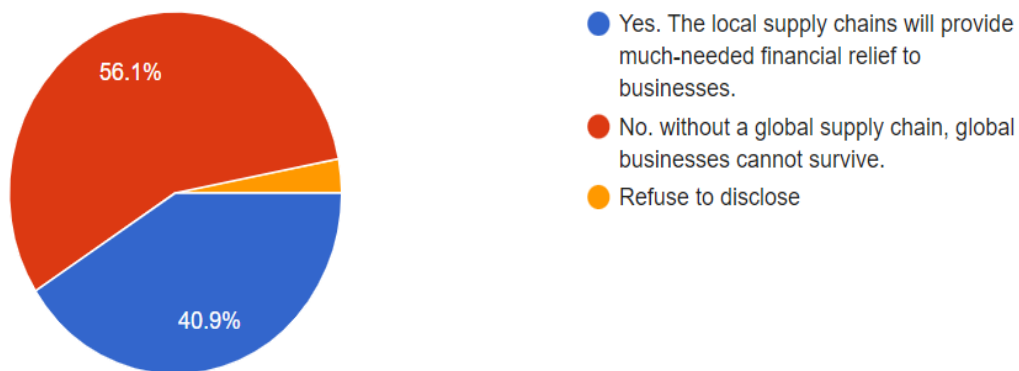


Figure 37: Preference of localized SC over GSC

Source: Shetty (2023)

Conclusion: The survey results show divided opinions, with a majority believing global businesses require a GSC, while a significant minority sees financial relief in local SCs.

4.3.4 Research question Four

The following was the fourth research question: **Do you think the GSC can become more customer-focused considering the shifts in demand caused by the pandemic?**

The GSC can become more customer-focused by using data analytics, agile manufacturing, inventory optimization, enhancing last-mile delivery, and promoting collaboration. The pandemic emphasized adaptability and responsiveness to customer needs.

Results of SQ Twelve mapped with RQ Four

The following was the Twelveth survey question mapped with research question four: **In what ways do you think it would be possible to reduce the costs associated with the GSC?**

Figure 38 indicates that the survey findings indicate that a significant majority of participants, 81.8%, believe that business leaders can reduce costs in the GSC by implementing various actions. These include optimizing transportation options, increasing SC velocity, and minimizing order variability to avoid costly inventory build-up. However, there are differing perspectives, with 9.1% suggesting that maximizing transportation effectiveness alone can achieve cost reduction, 3% emphasizing the importance of increasing SC velocity, and 6.1% expressing scepticism about the feasibility of lowering GSC costs.

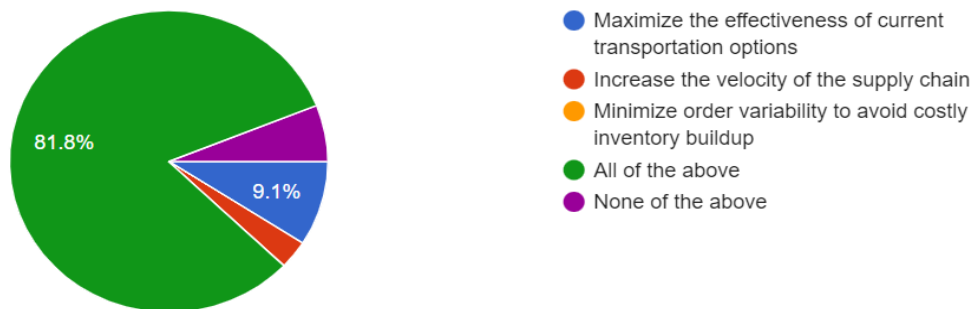


Figure 38: Methods to save costs associated with the GSC.

Source: Shetty (2023)

Conclusion: Businesses can achieve cost savings, product improvement, and customer satisfaction through optimized operations and transformation processes. Most respondents agreed that improving transportation efficiency, speeding up the SC, and reducing order variation are effective strategies for reducing GSC costs. However, only a minority believed that cost reduction can be achieved through a single strategy. Overall, it

is clear that businesses need to optimize their operations to remain competitive in the current global economy.

Results of SQ Thirteen mapped with RQ Four

The following was the Thirteenth survey question mapped with research question Four: **Is it possible for an Alco Bev business to develop a customer-focused SC strategy that meets the customer's needs rather than forcing them to accept the business's terms?**

According to Figure 39, the survey results highlight a lack of consensus among participants regarding the feasibility of developing a customer-focused SC strategy in the Alco Bev industry. The results show that 51.5% of respondents believe it is not possible, 43.9% believe it is possible, and 4.6% did not express their opinion. This disagreement suggests differing perspectives on the challenges and suitability of implementing a customer-centric approach in the SC strategy of the Alco Bev industry.

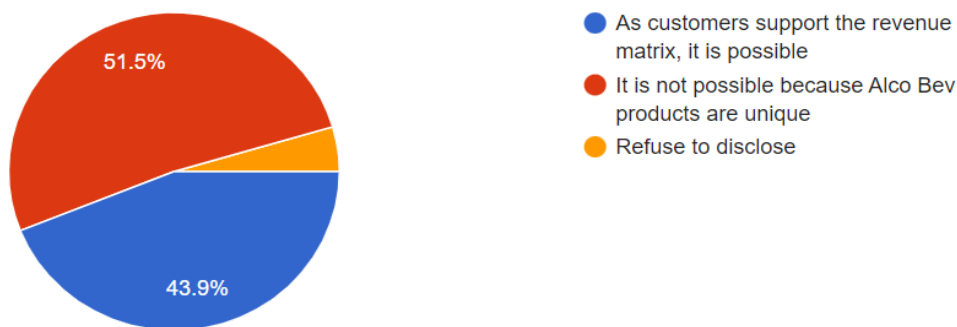


Figure 39: Customer-focused SC strategy in Alco Bev.

Source: Shetty (2023)

Conclusion: In the Alco Bev industry, opinions on the viability of constructing a customer-centric SC strategy are divided, according to the survey. The feasibility of such

a strategy will depend on numerous factors, including the nature of the Alco Bev industry and the specific company's approach to SCM.

4.3.5 Research question Five

The following was the fifth research question: **It is recommended that companies create digital supply networks that may foresee SC disruptions in operations?**

Creating a digital supply network empowers companies with the capabilities to anticipate, respond, and recover from SC disruptions more effectively. It enables them to achieve operational resilience and maintain a competitive edge in a dynamic business environment.

Results of SQ Fourteen mapped with RQ Five

The following was the Fourteenth survey question mapped with research question Five: **It is recommended that Alco Bev business should create digital supply networks such as Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT) that may foresee SC disruptions in operations.?**

Figure 40 indicates that the survey findings revealed that a substantial majority of respondents, 81.8%, acknowledged the advantages of integrating Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT) in the Alco Bev industry to predict SC disruptions. However, it should be noted that a minority, 13.6%, disagreed with this notion, and a small percentage, 4.5%, refrained from sharing their opinion.

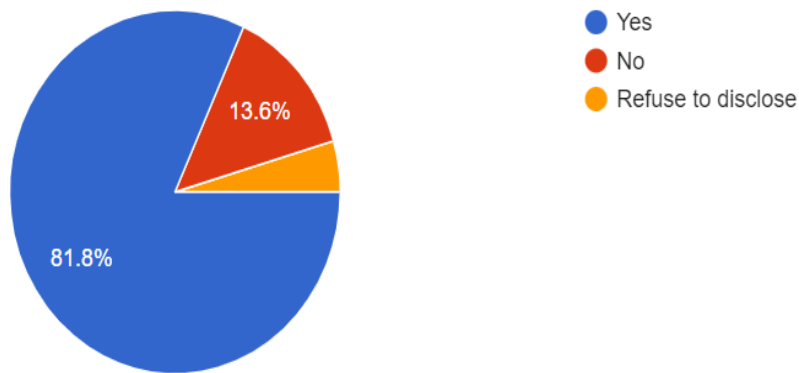


Figure 40: Digital supply networks to foresee SC disruptions.

Source: Shetty (2023)

Conclusion: The survey revealed that a significant majority of respondents supported the adoption of digital supply networks incorporating AI, ML, and IoT in the Alco Bev industry. This indicates a growing awareness among industry professionals about the potential advantages of advanced technologies in achieving efficient and resilient SCM, particularly for predicting and preventing disruptions.

Results of SQ Fifteen mapped with RQ Five

The following was the Fifteenth survey question mapped with research question Five: **Do you think digital supply networks can provide end-to-end visibility, collaboration, agility, and optimization during a pandemic like Covid-19?**

As per figure 41, the survey showed that a majority of respondents, 81.8%, supported the implementation of digital supply networks with AI, ML, and IoT to anticipate and prevent SC disruptions in the Alco Bev industry. However, 13.6% disagreed, suggesting some doubts or concerns about the effectiveness and feasibility of these solutions. The 4.5% who did not share their opinion highlights the need for further research and discussion to address any remaining uncertainties.

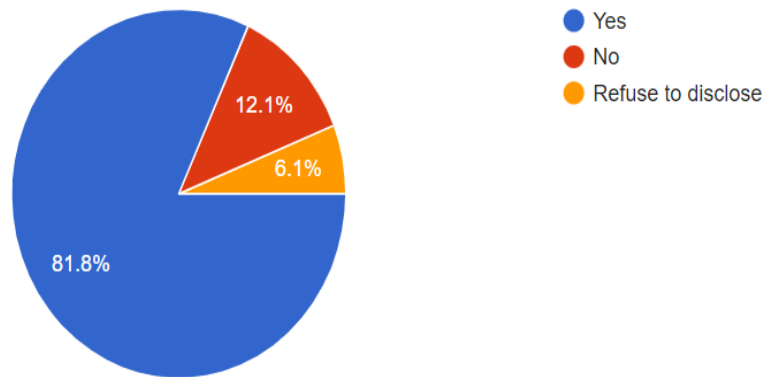


Figure 41: Adapting digital supply networks during a pandemic like covid-19.

Source: Shetty (2023)

Conclusion: During the Covid-19 pandemic, a significant majority of participants believed that digital supply networks could offer benefits such as end-to-end visibility, collaboration, agility, and optimization. However, 12.1% of participants disagreed, suggesting some differing opinions on the efficacy of these technologies in ensuring efficient and resilient SCM.

Results of SQ Sixteen mapped with RQ Five

The following was the Sixteenth survey question mapped with research question Five: **According to you what are the components of a digital SC?**

As indicated in figure 42, participants in the survey defined the components of a digital SC as follows: 63.6% believed it involved transforming a product or service from a physical form to a digital form. 21.2% saw it as adopting an innovative approach to reduce rework or waste. 10.6% considered it as one of the SC procedures. Only 1.5% viewed it as a change from physical to digital offering, while 3% did not identify it with any of the given options.

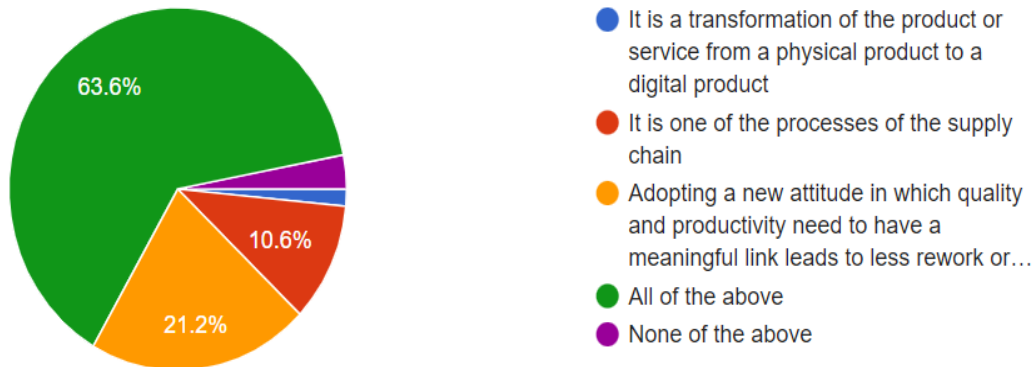


Figure 42: Components of digital supply networks

Source: Shetty (2023)

Conclusion: The survey findings revealed that industry professionals are increasingly aware of the key components of a digital SC and its potential for enhancing efficiency and effectiveness. Ongoing education and awareness initiatives are crucial in promoting a deeper understanding and utilization of digital SC elements for effective SCM.

4.3.6 Research question Six

The following was the Sixth research question: **Will the Covid19 pandemic have an impact on GSC governance?**

The Covid-19 pandemic has significantly impacted Alco Bev SC governance. It highlighted vulnerabilities, leading to calls for transparency, resilience, and diversification. Governments are considering new regulations, including domestic production mandates, oversight of foreign suppliers, and contingency plans for future disruptions. Companies have adapted by diversifying suppliers, increasing local sourcing, and forming strategic partnerships for supply continuity.

Results of SQ Seventeen mapped with RQ Six

The following was the Seventeenth survey question mapped with research question Six: **Do you agree that the economic turbulence created by the Covid-19 pandemic has revealed several vulnerabilities in SC networks and raised concerns about globalization?**

Figure 43 indicates that in this research, 92.4% of the respondents agree that the economic turbulence caused by the Covid-19 pandemic exposed various vulnerabilities in SC networks and raised concerns about globalization. Meanwhile, 4.5% disagree with this view, and 3% chose not to disclose their opinion.

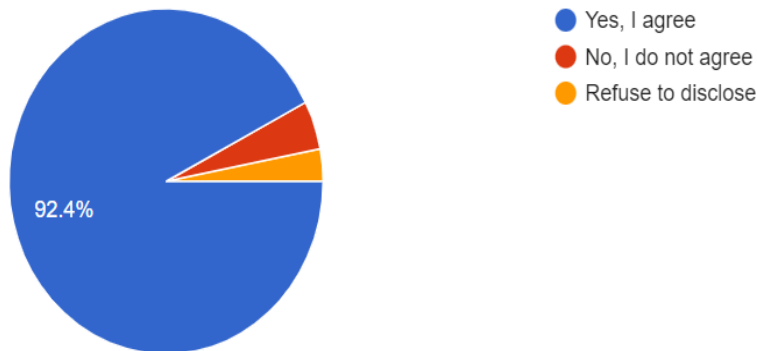


Figure 43: SC Vulnerabilities due to economic turbulence caused by covid-19.

Source: Shetty (2023)

Conclusion: The survey results highlighted the importance of addressing the vulnerabilities and issues exposed by the pandemic in SC networks. It emphasized the need for adopting resilient and agile SCM practices, including enhanced visibility, collaboration, and contingency planning. Furthermore, the findings underscored the significance of ongoing discussions and research on the long-term impacts of the pandemic on SC networks and the role of globalization in SCM.

Results of SQ Eighteen mapped with RQ Six

The following was the Eighteenth survey question mapped with research question Six: **Has the pandemic; impacted the GSC s of the Alco Bev industry?**

As per Figure 44, according to a survey, the Covid-19 pandemic had varying impacts on the Alco Bev industry's GSCs. 62.1% of respondents perceived a moderate impact, 28.8% reported significant negative effects, and 9.1% observed mostly positive outcomes. The opinions of professionals were divided, suggesting a mix of successful adaptation and challenges faced by some businesses.

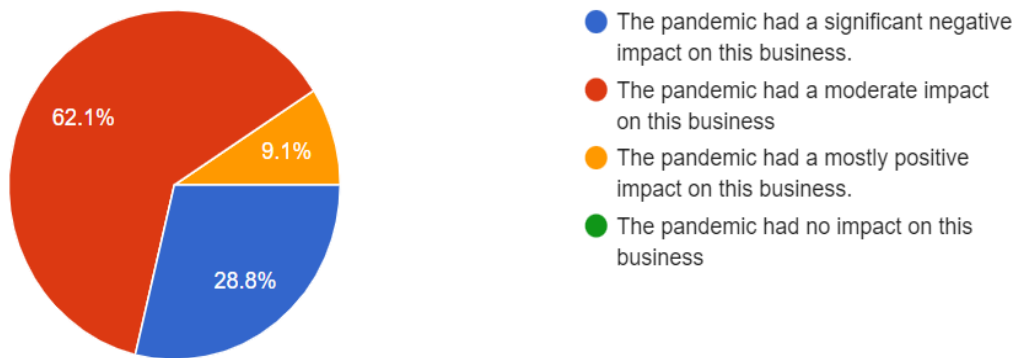


Figure 44: Covid-19's effect on Alco Bev GSC

Source: Shetty (2023)

Conclusion: It is notable that only 9.1% of professionals perceive a generally positive impact of the pandemic on the Alco Bev industry. This may be attributed to shifts in consumer behaviour, such as increased at-home consumption or specific product demands during the pandemic. Overall, the impact of Covid-19 on the industry's GSC varied depending on factors such as company size, location, and product offerings.

Results of SQ Nineteen mapped with RQ Six

The following was the Nineteenth survey question: **Do you agree that the Covid-19 pandemic has increased the strategic importance of SC management, such as ensuring efficiency, optimizing logistics, improving quality, and delivering value to customers?**

As per figure 45, the survey results indicate that a significant majority of respondents (87.9%) agreed that the Covid-19 pandemic has heightened the strategic significance of SCM. This includes areas such as improving efficiency, optimizing logistics, enhancing quality, and delivering value. However, a portion of participants (7.6%) neither agreed nor disagreed, and a smaller percentage (4.5%) completely disagreed with this statement.

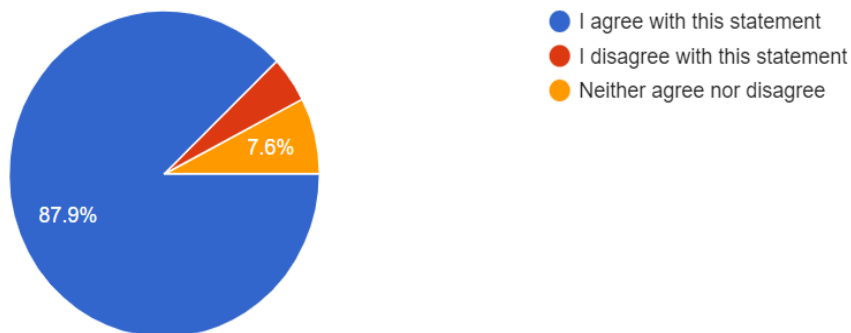


Figure 45: Strategic importance of SCM due disruption by Covid-19.

Source: Shetty (2023)

Conclusion: The survey findings revealed that the Covid-19 pandemic had a significant impact on the strategic importance of SCM. It highlighted the growing necessity for businesses to prioritize effective, adaptable, and resilient supply systems.

4.3.7 Research question Seven

The following was the seventh research question: **What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?**

The Covid-19 pandemic significantly impacted Indian Alco Bev supply networks. The nationwide lockdown led to the closure of liquor stores, disrupting sales, and causing stock accumulation. Movement restrictions affected transportation and availability of packaging materials, resulting in delays and higher costs. Some companies adapted by selling online or producing sanitizers. Challenges persist, but customer centric SCM can lead to post-pandemic success.

Results of SQ Twenty mapped with RQ Seven

The following was the Twentieth survey question mapped with research question Seven: **Do you agree that, while other industries have been severely disrupted by Covid-19 pandemic in India, the Alco Bev industry has not been significantly impacted?**

As per figure 46, this survey indicates that the Alco Bev industry in India faced a moderate impact from the Covid-19 pandemic. Adaptability and continuity were reported by the majority, with 57.6% indicating a moderate impact, 27.3% noting significant negative effects, and 13.65% perceiving primarily positive influences.

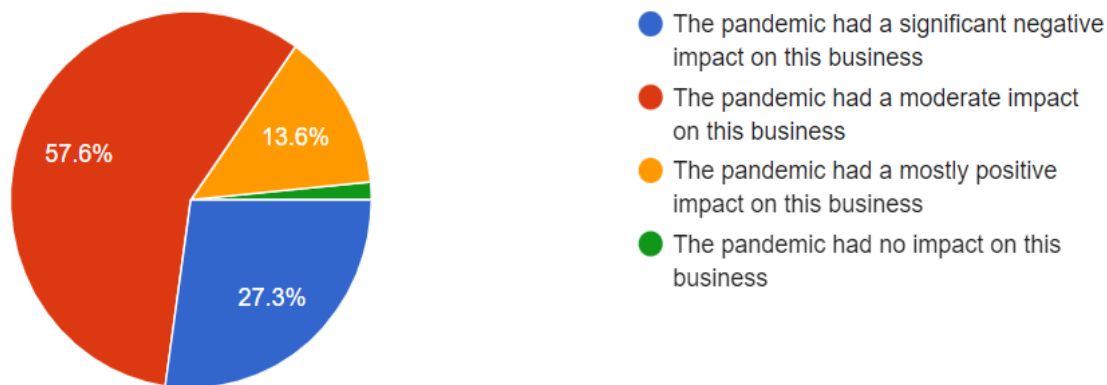


Figure 46: Alco Bev's GSC and disruption by covid-19.

Source: Shetty (2023)

Conclusion: Interestingly, a minority of participants (13.65%) expressed that the pandemic had a predominantly positive impact on India's Alco Bev industry. This could be attributed to shifts in consumer behaviour, including increased at-home drinking and a preference for premium products. Overall, the industry in India faced challenges due to the Covid-19 pandemic, but it fared relatively better compared to other sectors. Many businesses were able to adapt and continue operations despite significant obstacles.

Results of SQ Twenty first mapped with RQ Seven

The following was the Twenty-first survey question mapped with research question Seven: **Are you in agreement that Alco Bev's production and trade contribute considerably to India's economy?**

According to figure 47, the survey revealed that 87.9% of industry experts acknowledged the significant contribution of the Alco Bev sector to India's economic growth, recognizing its role in job creation and revenue generation. However, 4.5% disagreed, suggesting differing opinions, while 7.6% remained neutral, indicating a lack of consensus on the industry's impact.

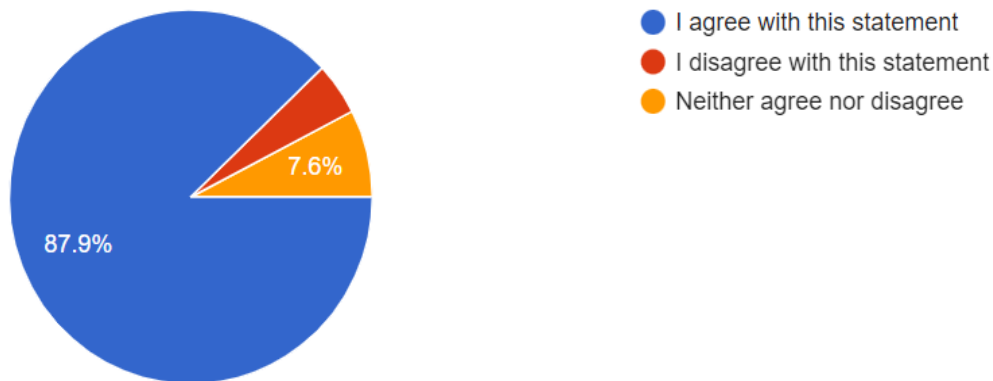


Figure 47: Alco Bev's contribution to India's economic growth

Source: Shetty (2023)

Conclusion: The Alco Bev industry, which includes the production and trade of Alco Bev's, does contribute to India's economic growth. In general, the Alco Bev industry was seen as contributing to India's economic growth, although there were varying opinions on the degree of its contribution compared to other industries. However, the specific extent of its contribution can vary depending on numerous factors, including market conditions, government policies, and consumer preferences.

4.3.8 Research question Eight

The following was the Eighth research question: **What strategies did Alco Bev companies employ to manage risk, build resilience, and ensure a steady stream of supplies?**

Alco Bev companies employ strategies such as demand forecasting, diversification, inventory management, supplier collaboration, risk management, sustainable initiatives, innovation, and corporate social responsibility to reduce risks and ensure a consistent supply. These strategies enhance their resilience, mitigate disruptions, and foster a sustainable and responsible approach to business. While no strategy can guarantee

complete protection, prioritizing agility, transparency, and collaboration in SCM enables businesses to navigate challenges and adapt to changing market conditions.

Results of SQ Twenty-Two mapped with RQ Eight

The following was the Twenty-Second survey question mapped with research question Eight: **According to you, is it vital to boost SC resilience to mitigate the pandemic's impact on GSCs?**

As per figure 48, the survey showed that 93.9% of participants recognized the importance of enhancing SC resilience to mitigate the impact of the Covid-19 pandemic on GSCs. While one participant disagreed and three remained neutral, the majority understood the need for resilient SCs. However, the lack of consensus among a few participants indicated some uncertainty or ambiguity regarding this issue.

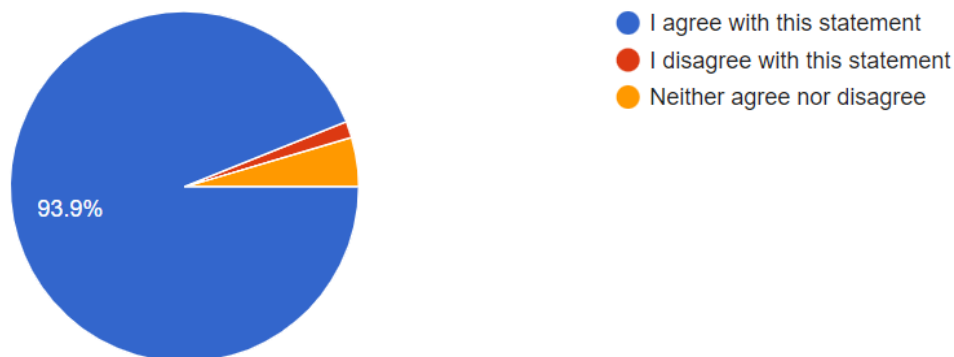


Figure 48: SC resilience to mitigate the pandemic's impact on GSC.

Source: Shetty (2023)

Conclusion: The survey results indicate that businesses recognized the need to prioritize SC resilience to navigate the challenges posed by the COVID-19 pandemic and potential future disruptions.

Results of SQ Twenty-Three mapped with RQ Eight

The following was the Twenty-third survey question mapped with research question Eight: **SC disruptions can be avoided if businesses are proactive and do regular analysis and fresh assessments of their present SC functions.**

As stated in figure 49, the survey indicates that 90.9% of Alco Bev professionals believe that regular analysis and reviews of SC activities can prevent disruptions. However, 4.5% had differing opinions or lacked knowledge on the matter.

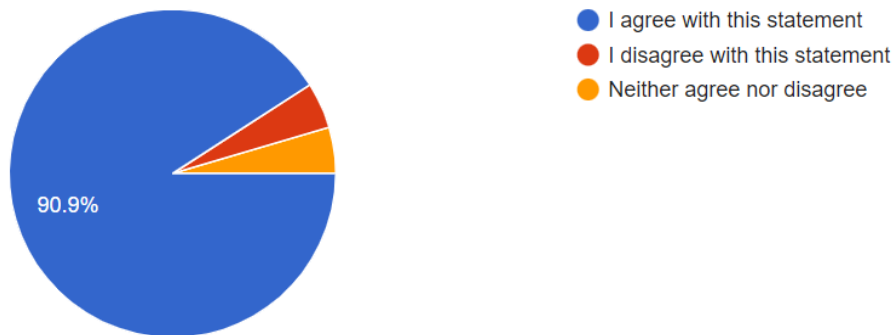


Figure 49: Proactive assessment and regular analysis to avoid SC disruptions.

Source: Shetty (2023)

Conclusion: In the Alco Bev industry, adopting a proactive approach to SCM was seen as an effective way to prevent disruptions. Regularly examining SC activities allowed companies to respond to changing circumstances and mitigate the impact of unexpected disruptions.

Results of SQ Twenty-Four mapped with RQ Eight

The following was the Twenty fourth survey question mapped with research question Eight: **Do you believe blockchain technology can significantly improve Alco Bev SCs by enabling faster and more cost-effective product delivery,**

strengthening product traceability, enhancing partner coordination, and facilitating access to financing?

In agreement with figure 50, in the survey, 77.3% of Alco Bev professionals acknowledged the potential benefits of blockchain technology in improving SCs, including faster delivery, cost-effectiveness, traceability, coordination, and financing. 21.2% remained neutral, and only one disagreed.

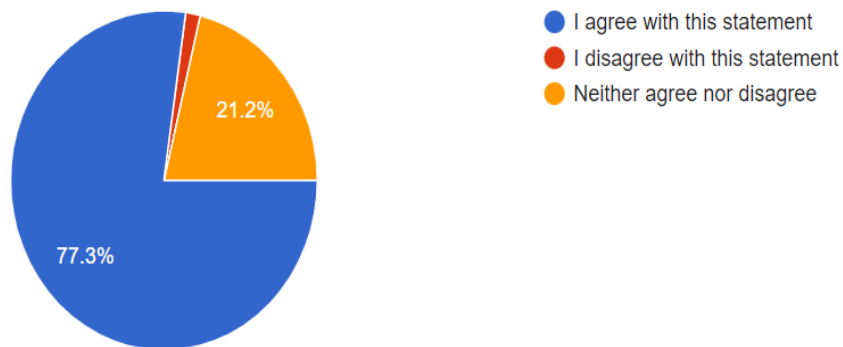


Figure 50: Implementation of BT for Alco Bev SC.

Source: Shetty (2023)

Conclusion: Overall, the survey revealed that a majority of Alco Bev professionals were optimistic about the potential of BT to enhance SC operations. Implementing BT in SCM could lead to notable improvements in efficiency, transparency, and collaboration with partners.

4.4 Summary of Findings

The researcher has summarized the findings of the research questions in Table 4 as articulated below.

Table 4: Summary of findings of the survey.

Source: Shetty (2023).

RQ 1 What risks does the GSC pose to global business operations?

1. The survey provided important insights into the factors that contribute to a well-functioning and resilient GSC, highlighting areas for improvement. Respondents strongly agreed on the importance of a resilient GSC for sustaining human livelihoods. Their high level of concern indicated their recognition of risks associated with GSCs.
2. The survey results also shed light on the specific challenges faced by global businesses, helping to develop effective risk management strategies. Respondents unanimously identified compliance and reputational risks linked to GSC and purchasing practices.
3. These findings offer valuable insights for businesses in managing SCs and implementing risk management strategies. Additionally, the survey highlighted effective techniques for minimizing risks in SCs, emphasizing the significance of risk mitigation strategies.
4. Furthermore, the survey showed a consensus among respondents regarding the growth potential in the Alcohol-Beverage industry's GSCs.
5. It provided valuable insights into areas for improvement such as end-to-end traceability, product delivery speed, coordination, and financing, which can inform the development of specific strategies to enhance the industry's SC operations.

RQ 2 Will the backup plan save any organization's GSC during global disruptions?

1. The lack of consensus among participants indicates differing opinions on the effectiveness of contingency plans in protecting businesses from future disruptions in the GSC. The large number of participants who did not provide their opinions hampers data analysis. Further research is required to investigate

factors that contribute to the success of contingency plans and to identify strategies for improving business readiness in GSC disruptions.

2. The findings highlight the importance of raising awareness and providing education about the risks and difficulties in GSCs. While some business leaders may become complacent during smooth operations, it is crucial for all leaders to remain vigilant and prepared for potential disruptions, minimizing the impact on their businesses.
3. The survey underscores the need for organizations to regularly assess and improve their preparedness for unexpected challenges in the GSC. Having contingency plans in place is essential for organizations to mitigate risks in SCM, especially during times of crisis.

RQ 3 Will the business leaders will switch to locally sourced, high-priced production that is more secure and less vulnerable to trade wars and other global events?

1. The survey findings showed that the decision for business leaders to transition to locally sourced and more expensive production was influenced by various factors specific to each business. However, a significant majority of participants believed that such a shift was necessary to ensure business continuity in the face of trade wars and global events.
2. The study also highlighted the potential of regional treaties and agreements to reduce transaction costs and improve the efficiency of SCs. There was significant support for the idea that developing countries can enhance their competitiveness and address concerns in the GSC through regional value chains and agreements.
3. The survey results demonstrated divided opinions, with a majority of respondents believing that global businesses require a GSC, while a significant minority sees financial relief in local SCs.

RQ 4 Do you think the GSC can become more customer-focused considering the shifts in demand caused by the pandemic?

1. Optimizing operations and transformation processes enables businesses to achieve cost savings, improve products, and enhance customer satisfaction. Most respondents agreed that strategies such as improving transportation efficiency, speeding up the SC, and reducing order variation effectively reduce GSC costs. However, only a minority believed that cost reduction can be accomplished through a single strategy. It is evident that businesses must optimize their operations to stay competitive in the global economy.
2. Opinions in the Alco Bev industry regarding the viability of a customer-centric SC strategy were divided, as per the survey. The feasibility of such a strategy depends on various factors, including the industry's nature and the specific company's approach to SCM.

RQ 5 It is recommended that companies create digital supply networks that may foresee SC disruptions in operations?

1. The survey results demonstrated strong support from a significant majority of respondents in the Alco Bev industry for the adoption of digital supply networks that incorporate Artificial Intelligence (AI), Machine Learning (ML), and Internet of Things (IoT) technologies. This signifies a growing awareness among industry professionals about the potential benefits of advanced technologies in achieving efficient and resilient SCM, particularly in terms of predicting and preventing disruptions.
2. During the Covid-19 pandemic, a substantial majority of participants believed that digital supply networks could provide advantages such as end-to-end visibility, collaboration, agility, and optimization. However, 12.1% of participants disagreed, indicating some differing opinions on the effectiveness of these technologies in ensuring efficient and resilient SCM.

3. The survey findings highlighted the increasing awareness among industry professionals regarding the essential components of a digital SC and its potential to enhance efficiency and effectiveness. Ongoing education and awareness initiatives are crucial in promoting a deeper understanding and utilization of digital SC elements for effective SCM.

RQ-06 Will the Covid19 pandemic have an impact on GSC governance?

1. The survey results emphasized the need to address vulnerabilities and challenges exposed by the pandemic in SC networks. Adopting resilient and agile SCM practices, including enhanced visibility, collaboration, and contingency planning, was deemed crucial. The findings also underscored the importance of ongoing discussions and research on the long-term effects of the pandemic on SC networks and the role of globalization in SCM.
2. It is noteworthy that only 9.1% of professionals perceived a positive impact of the pandemic on the Alco Bev industry. This may be attributed to changes in consumer behavior, such as increased at-home consumption or specific product demands during the pandemic. Overall, the impact of Covid-19 on the industry's GSC varied depending on factors such as company size, location, and product offerings.
3. The survey findings revealed that the Covid-19 pandemic had a significant influence on the strategic importance of SCM. It highlighted the growing necessity for businesses to prioritize effective, adaptable, and resilient supply systems.

RQ-07 What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?

1. Interestingly, a minority of participants (13.65%) expressed that the Covid-19 pandemic had a positive impact on India's Alco Bev industry. This could be attributed to shifts in consumer behavior, including increased at-home drinking

and a preference for premium products. Overall, the industry in India faced challenges due to the pandemic, but it fared relatively better compared to other sectors. Many businesses were able to adapt and continue operations despite significant obstacles.

2. The Alco Bev industry, encompassing the production and trade of Alcohol, does contribute to India's economic growth. Generally, it was seen as contributing to the country's economy, although opinions varied on its level of contribution compared to other industries. The specific extent of its contribution depends on various factors, including market conditions, government policies, and consumer preferences.

RQ-08 What strategies did Alco Bev companies employ to manage risk, build resilience, and ensure a steady stream of supplies?

1. The survey findings show that businesses acknowledged the importance of prioritizing SC resilience to overcome the challenges posed by the COVID-19 pandemic and potential future disruptions. In the Alco Bev industry, taking a proactive approach to SCM was considered effective in preventing disruptions. Regularly assessing SC activities enabled companies to adapt to changing circumstances and minimize the impact of unexpected disruptions.
2. Overall, the survey indicated that a majority of professionals in the Alco Bev industry were optimistic about the potential of Blockchain Technology (BT) to enhance SC operations. Implementing BT in SCM could lead to significant improvements in efficiency, transparency, and collaboration with partners.

4.5 Chapter Summary

In this chapter, the results of this study were presented. The survey questions, mapped to the eight research questions, provided important insights into the factors that contributed to a well-functioning and resilient GSC, highlighting areas for improvement.

Respondents strongly agreed on the importance of a resilient GSC for sustaining human livelihoods and recognized the associated risks. The survey shed light on specific challenges faced by global businesses, such as compliance and reputational risks, and identified effective risk management strategies. These findings offer valuable insights for managing SCs and implementing risk mitigation strategies. Moreover, the survey showed a consensus on the growth potential of the Alco Bev industry's GSCs and provided valuable insights into areas for improvement. The chapter was concluded with a table related to the summary of the findings, where all the findings from the eight research questions were briefly summarized.

CHAPTER V: DISCUSSION

5.1 Discussion of results

In this chapter, the discussion of the results will be presented in a detailed manner. It will interpret as well as further explain the findings of the study. The research questions will be addressed sequentially, and the findings of each objective will be evaluated separately, along with general and holistic discussions. The aim of the chapter is to further identify patterns, trends, including demographics, and determining the implications of the results for the research question. As a reminder to the reader, the research questions will be defined at the beginning of each relevant section.

5.2 Discussion of research question One

The first research question was the following: **What risks does the GSC pose to global business operations?**

The GSC is an essential business function in all industries, and it pose various risks to business operations, including SC disruption, supplier issues, operational inefficiencies, economic and financial risks, regulatory and compliance risks, cybersecurity threats, and geopolitical risks. Mitigating these risks requires effective risk management strategies, contingency planning, supplier diversification, technology investment, and strong stakeholder relationships.

Since this study was entirely focused on the fragility of the GSC of the Alco Bev business in India, the researcher paid special attention to the risks that the GSC poses to global business operations in the Alco Bev industry, as the GSC is complex and multifaceted, presenting various risks to global business operations.

Here are some of the most significant risks discussed:

1. **Regulatory risks:** The production, distribution, storage, and sale of Alco Bev products were subject to a wide range of national and international regulatory requirements. Compliance with these regulations could be challenging due to their complexity and variation from country to country. Noncompliance with regulations could result in penalties, fines, and legal action, impacting the operations and reputation of a business.
2. **Disruption in the SC:** Natural disasters, political unrest, or other factors could have a significant impact on the ability of Alco Bev businesses to operate in the global market. For instance, if a key component for the production of a specific brand of Alco Bev originated from a region affected by a natural disaster, the SC could be disrupted, leading to production delays and decreased sales.
3. **Health and safety risks:** The production and sale of Alco Bev carries significant health and safety risks, such as contamination, deterioration, and other quality challenges. These risks could result in product recalls, damage to reputation, and legal obligations, all of which had an impact on business operations and profitability.
4. **Risks associated with brand reputation:** Alco Bev companies heavily relied on their brand reputation to attract and retain customers. Negative publicity, including reports of unethical behavior or poor working conditions in the SC, have the potential to damage a company's reputation and result in decreased sales.
5. **Cybersecurity risks:** With the increasing reliance on digital technology, the Alco Bev industry has become more exposed to cyber-attacks. Cybersecurity breaches could lead to the loss of sensitive business data, financial losses, and reputational damage.

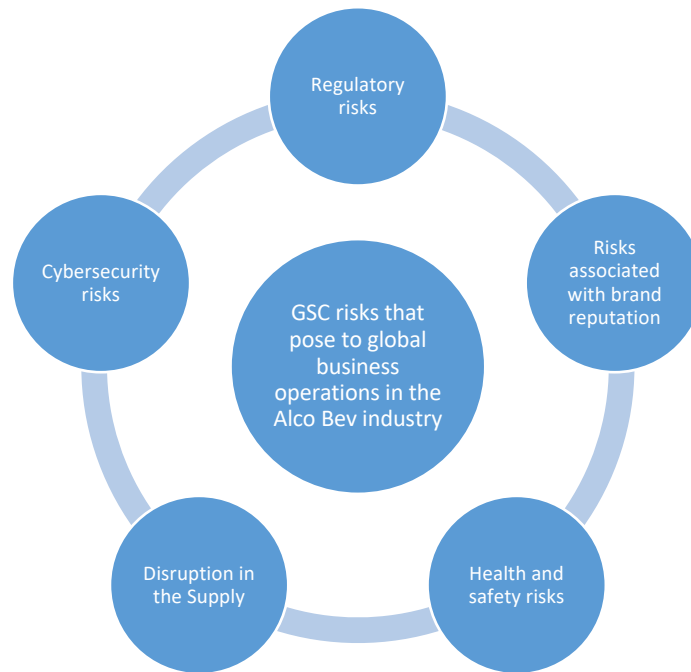


Figure 51: Chart summarizing the GSC risks in Alco Bev global operation.

Source: Shetty (2023)

As previously mentioned in the results section the survey results indicated a strong consensus among the respondents regarding the vital role of a robust and functional GSC in supporting human livelihoods. The overwhelming majority, 98.5%, acknowledged this importance, underscoring the recognition of the risks and benefits associated with GSC disruptions. The survey also revealed widespread concern among the respondents regarding the risks posed by GSCs in the global business context, with 42% perceiving them as highly risky and 52% considering them moderately risky. Furthermore, the survey findings highlighted the potential exposure of organizations to compliance and reputational risks associated with GSC and purchasing practices, as agreed upon by 93.9% of the respondents. These results emphasized the need for businesses to address and mitigate these risks to ensure compliance and protect their reputation in the GSC.

Conclusion on research question one: The GSC in the Alco Bev business presents various risks to global operations, including regulatory compliance, SC disruption, health

and safety concerns, brand reputation, and cybersecurity threats. Managing these risks requires businesses to prioritize regulatory compliance, build resilient SCs, address health and safety challenges, protect brand reputation, and implement robust cybersecurity measures. By proactively mitigating these risks, businesses can safeguard their operations and maintain their competitiveness in the global marketplace.

5.3 Discussion of research question Two

The following was the second research question: **Will the backup plan save any organization's GSC during global disruptions?**

Having a backup plan in place can undoubtedly assist an organization in mitigating the impact of disruptions in its GSC. Ideally, the backup plan should include anticipating probable interruptions and devising measures to address them. For instance, if a company heavily relies on a single supplier located in a natural disaster-prone area, it could establish relationships with alternative suppliers in different regions to ensure a continuous SC even if one provider is disrupted. Alternatively, the company could create contingency plans to swiftly ramp up production in other facilities to compensate for any lost output.

If an Alco Bev business possesses a well-designed backup plan, it can help mitigate the impact of global disruptions. The backup plan should encompass various potential scenarios, including natural disasters, geopolitical tensions, economic crises, and pandemics, and outline specific steps to be taken in each situation. Each company must assess its unique circumstances and devise a contingency plan tailored to its specific requirements and available resources. Consequently, organizations should regularly review and revise their backup plans to ensure their ongoing effectiveness and relevance in the face of ever-changing threats and obstacles.

As previously mentioned in the results section, the survey results indicated varying perspectives among the participants regarding the preparedness of businesses for

disruptions in the GSC. These findings highlight the importance for organizations to consider different viewpoints and perspectives on GSC preparedness. It is crucial for businesses to enhance their contingency planning efforts to effectively manage future challenges in the GSC. While a significant majority (75.8%) believed that business leaders might take the GSC for granted during uninterrupted operations, 18.2% disagreed, emphasizing the need for caution in global business due to excitement and associated risks. The non-disclosure of stance by 6.1% of participants limited conclusive insights.

Regarding the preparedness for future disruptions, there was no clear consensus among the surveyed population. While 42.4% of respondents believed that having a contingency plan would signify preparedness, 30.3% disagreed, and 27.3% chose not to disclose their stance. Furthermore, the majority of respondents (62.1%) expressed confidence that organizations could effectively handle unforeseen challenges in the GSC, such as the Covid-19 pandemic, with a backup plan. However, a notable percentage (34.8%) disagreed, indicating the need for improved preparedness.

Table 5: Backup plan for the GSC during global disruptions

Source: Shetty (2023)

Backup plan	Action Plan
1 Identification of probable interruptions	: Identify potential risks and disruptions that could impact the GSC, such as natural disasters, geopolitical tensions, economic crises, and pandemics.
2 Diversifying suppliers	: Establish relationships with alternative suppliers located in different regions to reduce reliance on a single supplier. This ensures a continuous SC even if one provider is disrupted.

- 3 Develop contingency plans : Creating specific contingency plans for each potential disruption scenario identified is crucial. For instance, if a key supplier is unable to deliver, it is essential to have plans in place to quickly engage alternative suppliers or ramp up production in other facilities.
- 4 Regular review and adaptation : Conduct periodic reviews of the backup plan to ensure its ongoing effectiveness. Revise the plan as needed to address emerging threats and obstacles.
- 5 Customize the plan to suit the unique circumstances : Each organization, including Alco Bev businesses, should assess its specific requirements and available resources to customise the backup plan accordingly. Consider factors such as product sensitivity, geographical locations, and market dynamics.

Conclusion on research question Two: A well-designed backup plan is crucial for mitigating the impact of disruptions in the GSC. Anticipating interruptions, diversifying suppliers, and developing contingency plans enable organizations, including Alco Bev businesses, to navigate global disruptions effectively. Regular review and adaptation of backup plans ensure their continued effectiveness in the face of evolving challenges.

5.4 Discussion of research question Three

The following was the third research question: **Will the business leaders switch to locally sourced, high-priced production that is more secure and less vulnerable to trade wars and other global events?**

It can be a challenging decision for business leaders in the Alco Bev industry to transition towards locally sourced and high-priced production as a means of mitigating their exposure to trade wars and global events. Factors such as costs, market demand, SC resilience, government policies, and long-term strategic considerations need to be carefully considered. Each company must thoroughly evaluate these factors in relation to their specific circumstances and objectives before deciding.

Figure 52 illustrates the shift towards locally sourced and expensive production in the Alco Bev industry.

1. Market Demand

Market preferences and consumer demand for sustainability, transparency, and support of local businesses drive the shift towards locally sourced and expensive production in the Alco Bev industry.

2. Production Costs

Considerations of production costs, including labor, raw materials, and transportation, influence the decision to invest in local production.

3. Global Events

The impact of global events, such as SC disruptions or trade uncertainties, can contribute to the inclination towards locally sourced production as a means of mitigating risks.

Figure 52: Shift towards locally sourced and expensive production

Source: Shetty (2023)

Predicting the actions of Alco Bev industry executives is difficult due to their dependence on various variables, including market demand, production costs, and global events. In recent years, consumer preferences for sustainability, transparency, and support of local businesses in India have led to a shift towards locally sourced and expensive production. Many companies have begun investing in local production, procuring ingredients from nearby farms, and adopting renewable energy to reduce their carbon footprint. As consumers become more environmentally conscious and recognize the advantages of supporting local businesses, this trend is expected to continue.

As previously discussed in the results section the survey findings revealed various perspectives among the respondents regarding business leaders transitioning to locally sourced, expensive production for enhanced security and resilience. The majority of participants (66.7%) believed in this transition, emphasizing the importance of mitigating risks from global events. However, 18.2% disagreed, expressing concerns about reduced profitability, while 15.2% remained neutral on the issue. Furthermore, the survey indicated that a significant majority of respondents (90.9%) agreed that developing countries could lower SC costs by establishing and expanding regional value chains through regional treaties and agreements. The researcher believes that this approach can reduce transaction costs, enhance economies of scale, and address current SC challenges. Developing and expanding regional value chains enables these nations to benefit from economies of scale, enhancing their competitiveness in the global market.

Regarding the preference between global and localized SCs, the survey revealed that 56.10% of participants believed that global businesses cannot survive without a GSC, making localized SCs less preferable. On the other hand, 40.90% believed that local SCs would provide much-needed financial relief to businesses. 3% of participants refused to disclose their opinion. These findings highlight the diverse opinions regarding the transition to locally sourced production, the establishment of regional value chains, and the preference for global or localized SCs. These insights can inform decision-making and

further discussions on the optimal strategies for enhancing security, resilience, cost-efficiency, and competitiveness in the SC context.

Conclusion on research question Three: Companies are increasingly moving towards local sourcing and production as a means of reducing the impact of global disruptions on their operations. While the trend toward locally sourced, high-priced production is likely to continue, the ultimate decision to make the switch will depend on a number of factors and will differ from company to company.

5.5 Discussion of research question Four

The following was the fourth research question: **Do you think the GSC can become more customer-focused considering the shifts in demand caused by the pandemic?**

In response to the shifts in demand caused by the pandemic, the GSC can certainly become more customer focused. By adapting their strategies, utilizing technology and data analytics, and collaborating with partners, businesses can optimize their SCs to meet evolving customer preferences for convenience, safety, and personalized experiences. By adopting a customer-centric approach, businesses will be able to guarantee the timely availability of appropriate products, thereby ultimately enhancing customer satisfaction and competitiveness in the market. Table 6 highlights the key elements.

Table 6: Shift towards a customer focused GSC in the Alco Bev industry

Source: Shetty (2023)

Key Elements	
1	Adapting Strategies : Business leaders have to adjust their strategies to align with changing customer demands.

- | | | | |
|---|-------------------------------|---|--|
| 2 | Technology and Data Analytics | : | Leveraging technology and data analytics enables businesses to respond swiftly to customer preferences and optimize their SCs. |
| 3 | Collaboration with Partners | : | Collaboration with suppliers and logistics partners strengthens the resilience of the GSC. |
| 4 | Prioritizing E-commerce | : | The Alco Bev industry is prioritizing e-commerce to enhance customer convenience and accessibility. |
| 5 | Agile Practices | : | Adopting agile practices allows businesses to quickly adapt to changing market conditions and customer needs. |
| 6 | Personalized Products | : | Offering personalized products helps businesses meet individual customer preferences and enhance customer satisfaction. |
| 7 | Improved Communication | : | The effective communication within the GSC guarantees the timely availability of appropriate products. |
| 8 | Customer-Centric Approach | : | The customer becomes the central focus of the GSC to enhance customer satisfaction and competitiveness in the market. |

The pandemic has reshaped consumer buying habits, necessitating a customer focused GSC. Adapting to shifting demand requires dynamic and adaptable SC.

Leveraging technology and data analytics enables businesses to respond swiftly to customer preferences. Collaboration with suppliers and logistics partners strengthens SC resilience. The Alco-Bev industry can enhance its GSC by prioritizing e-commerce, implementing agile practices, offering personalized products, improving communication, and fostering collaboration with partners.

As previously discussed in the results section, based on the survey findings, a significant majority of participants (81.8%) believed that business leaders can reduce costs in the GSC by implementing various actions. These actions include optimizing transportation options, increasing SC velocity, and minimizing order variability to avoid costly inventory build-up. However, there were differing perspectives among the respondents. Approximately 9.1% suggested that maximizing transportation effectiveness alone can achieve cost reduction, 3% emphasized the importance of increasing SC velocity, and 6.1% expressed scepticism about the feasibility of lowering GSC costs.

The survey results also highlighted a lack of consensus among participants regarding the feasibility of developing a customer-focused SC strategy in the Alco Bev industry. Approximately 51.5% of respondents believed that it is not possible to develop such a strategy, while 43.9% believed that it is possible. Additionally, 4.6% of participants did not express their opinion on this matter. This disagreement suggests varying perspectives on the challenges and suitability of implementing a customer-centric approach in the SC strategy of the Alco Bev industry.

These findings emphasize the need for further exploration and discussion regarding cost reduction strategies in the GSC, including the optimization of transportation, SC velocity, and inventory management. Additionally, the feasibility and challenges of implementing a customer-focused SC strategy in the Alco Bev industry warrant further examination. Understanding these varying perspectives can inform decision-making and

shape future strategies aimed at enhancing cost efficiency and customer satisfaction in the GSC and the Alco Bev industry specifically.

Conclusion on research question Four: The pandemic has transformed consumer buying habits, making a customer focused GSC crucial. To meet changing demands, the SC must be adaptable and leverage technology for real-time insights. Collaboration with suppliers strengthens SC resilience. Alco-Bev industry can prioritize e-commerce, adopt agile practices, offer personalized products, improve communication, and collaborate with partners to enhance customer-centric GSCs.

5.6 Discussion of research question Five

The fifth research question was the following: **It is recommended that companies create digital supply networks that may foresee SC disruptions in operations.?**

Organizations are encouraged to develop digital supply networks that can anticipate and mitigate SC disruptions. Disruptions can arise from numerous factors such as political instability, supplier bankruptcies and unexpected changes in demand, impacting operations and profitability. Implementing a digital supply network allows companies to utilize real-time data and analytics to gain visibility into their SC, anticipate disruptions, and take preventative measures.

Some examples of how digital supply networks can be helpful include predictive analytics, leveraging historical data and machine learning algorithms to anticipate disruptions; real-time monitoring through sensors and IoT devices to respond swiftly to disruptions; and collaboration by sharing data and insights with suppliers and partners to establish a more resilient SC. By embracing digital technologies and adopting proactive strategies, organizations can enhance their SC resilience and maintain smooth operations even in the face of potential disruptions.

As previously mentioned in the results section, the survey findings revealed that a substantial majority of respondents (81.8%) acknowledged the advantages of integrating AI, ML, and the IoT in the Alco Bev industry to predict SC disruptions. However, it should be noted that a minority of participants (13.6%) disagreed with this notion, while a small percentage (4.5%) refrained from sharing their opinion. Furthermore, the survey showed that a majority of respondents (81.8%) supported the implementation of digital supply networks with AI, ML, and IoT to anticipate and prevent SC disruptions in the Alco Bev industry. However, 13.6% disagreed, suggesting some doubts or concerns about the effectiveness and feasibility of these solutions. The 4.5% who did not share their opinion highlight the need for further research and discussion to address any remaining uncertainties.

In terms of defining the components of a digital SC, the survey participants provided various perspectives. Approximately 63.6% believed that it involved transforming a product or service from a physical form to a digital form. About 21.2% saw it as adopting an innovative approach to reduce rework or waste. Approximately 10.6% considered it as one of the SC procedures. Only 1.5% viewed it as a change from a physical to a digital offering, while 3% did not identify it with any of the given options. These findings highlight the overall support for integrating AI, ML, and IoT in the Alco Bev industry to predict and prevent SC disruptions. However, the disagreement and uncertainty expressed by some participants underscore the need for further exploration, research, and discussion to address concerns and fully understand the benefits and challenges associated with digital SC solutions.

Conclusion on research question Five: The development of a digital supply network is crucial for Alco Bev industries to ensure a resilient and responsive SC. By leveraging real-time data, predictive analytics, and collaboration with suppliers and partners, organizations can anticipate and mitigate disruptions caused by numerous factors. Implementing a digital supply network enables businesses to proactively adapt to changing

conditions, reducing the risk of financial losses and damage to their reputation. It is essential for these organizations to prioritize the establishment of digital supply networks to enhance the agility, responsiveness, and resilience of their SCs in the face of potential disruptions. By embracing digital technologies and adopting proactive strategies, Alco Bev industries can maintain smooth operations and sustain their competitive edge in a dynamic and challenging business environment.

5.7 Discussion of research question Six

The following was the sixth research question: **Will the Covid19 pandemic have an impact on GSC governance?**

As previously mentioned in the result section, the survey findings revealed that a significant majority of respondents (92.4%) agreed that the economic turbulence caused by the Covid-19 pandemic exposed vulnerabilities in SC networks and raised concerns about globalization. However, a small percentage (4.5%) disagreed with this view, while 3% chose not to disclose their opinion. Regarding the impact of the Covid-19 pandemic on the Alco Bev industry's GSCs, the survey results indicated varying perceptions. Approximately 62.1% of respondents perceived a moderate impact, 28.8% reported significant negative effects, and 9.1% observed mostly positive outcomes. These differing opinions among professionals suggest a combination of successful adaptation and challenges faced by some businesses in the industry.

Furthermore, the survey findings indicated that a significant majority of respondents (87.9%) agreed that the Covid-19 pandemic has heightened the strategic significance of SCM. This includes areas such as improving efficiency, optimizing logistics, enhancing quality, and delivering value. However, a portion of participants (7.6%) neither agreed nor disagreed, and a smaller percentage (4.5%) completely disagreed with this statement. These findings suggest a widespread recognition among respondents regarding the importance of SCM in navigating the challenges brought about by the Covid-19 pandemic.

However, the presence of differing opinions underscores the need for further exploration and discussion to understand the nuances and potential strategies for addressing the evolving dynamics in the Alco Bev industry's SCs.

The Covid-19 pandemic has had a profound impact on the governance of GSCs, highlighting vulnerabilities and prompting the need for greater transparency, resilience, and diversification. Governments worldwide are considering new regulations and policies to address the challenges posed by the pandemic, such as increasing domestic production, overseeing foreign suppliers, and establishing contingency plans. In the Alco Bev industry, the pandemic has disrupted SCs, leading to material shortages, transportation delays, and manufacturing shutdowns. Companies are reevaluating their SC strategies to mitigate risk, reduce costs, and promote sustainability. Technologies like blockchain are gaining attention for enhancing transparency and traceability in SCs. Alco Bev businesses are adapting their sourcing strategies by diversifying suppliers, increasing local sourcing, and forming strategic partnerships to ensure a continuous supply of goods.

Conclusion on research question Six: Overall, the Covid-19 pandemic has brought significant changes to SC governance, necessitating a rethinking of strategies and a focus on resilience, transparency, and collaboration to overcome disruptions and ensure the smooth functioning of GSCs. The Covid-19 pandemic has highlighted vulnerabilities in GSCs and underscored the importance of resilience, transparency, and collaboration. Governments are exploring new rules, and companies are rethinking their strategies to mitigate risk and ensure continuity. In the Alco Bev industry, disruptions have prompted an evaluation of sourcing and collaboration strategies. While the pandemic has posed challenges, it has also provided an opportunity for businesses to strengthen their SC governance and embrace more sustainable practices. Moving forward, GSC governance will require enhanced coordination and adaptation to navigate future disruptions effectively.

5.8 Discussion of research question Seven

The following was the seventh research question: **What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?**

As previously discussed in the result section, the survey findings indicate that the Alco Bev industry in India experienced a moderate impact from the Covid-19 pandemic. The majority of respondents reported adaptability and continuity, with 57.6% indicating a moderate impact, 27.3% noting significant negative effects, and 13.65% perceiving primarily positive influences. Furthermore, the survey revealed that 87.9% of industry experts acknowledged the significant contribution of the Alco Bev sector to India's economic growth. They recognized its role in job creation and revenue generation. However, 4.5% expressed disagreement, suggesting differing opinions on the industry's impact. Additionally, 7.6% remained neutral, indicating a lack of consensus among respondents.

The Covid-19 pandemic had a significant impact on the supply networks of Indian Alco Bev companies. The nationwide lockdown imposed by the government led to the closure of liquor stores, bars, and restaurants, disrupting the SC, and causing an accumulation of stock. Movement restrictions also affected transportation and distribution. Additionally, the availability of packaging materials was affected, leading to production delays and increased costs. However, as the government allowed the phased sale of Alco Bev and businesses adapted to market conditions, the situation improved. Some companies shifted to online sales and production of essential products to meet demand. Overall, the pandemic forced Alco Bev companies to navigate challenges and adopt new strategies for sustained operations.

Conclusion on research question Seven: The pandemic had a considerable influence on Indian Alco Bev industries' supply networks, and many are still struggling

with the crisis's issues. While implementing a customer-centric SC presents challenges, such as balancing cost and responsiveness, satisfying customer demands can result in increased customer loyalty, revenue growth, and a market advantage. Therefore, businesses that prioritise customer centric SCM are likely to succeed in the post-pandemic world, where customer preferences and requirements are more important than ever.

5.9 Discussion of research question Eight

Following was the eighth and final research question: **What strategies did these companies employ to manage risk, build resilience, and ensure a steady stream of supplies?**

As previously mentioned in the result section, the survey findings revealed that 93.9% of participants recognized the importance of enhancing SC resilience to mitigate the impact of the Covid-19 pandemic on GSCs. While one participant disagreed and three remained neutral, the majority of respondents understood the need for resilient SCs. However, the lack of consensus among a few participants indicated some uncertainty or ambiguity regarding this issue.

Additionally, the survey indicated that 90.9% of Alco Bev professionals believed that regular analysis and reviews of SC activities can help prevent disruptions. However, 4.5% had differing opinions or lacked knowledge on the matter. Furthermore, in the survey, 77.3% of Alco Bev professionals acknowledged the potential benefits of BT in improving SCs. These benefits included faster delivery, cost-effectiveness, traceability, coordination, and financing. On the other hand, 21.2% remained neutral, and only one participant disagreed with the potential benefits of BT.

Alco Bev companies employ various strategies to reduce risks, enhance resilience, and maintain a consistent supply. These strategies include demand forecasting, diversification of product lines, effective inventory management, supplier collaboration,

risk management measures, SCM collaborations, sustainability initiatives, innovation, and corporate social responsibility (CSR) programs. Demand forecasting helps manage production schedules and prevent overproduction, while diversification reduces dependence on a specific product. Inventory management software enables efficient inventory tracking and optimization. Supplier collaboration fosters long-term partnerships and addresses business demands.

Risk management involves alternative procurement strategies and backup production facilities. SCM collaborations with suppliers and distributors ensure a steady supply. Sustainability initiatives focus on responsible sourcing and reducing environmental impact. Innovation drives the development of new products and technologies. CSR programs promote resilience and responsible practices. By implementing these strategies, Alco Bev companies can navigate market fluctuations, mitigate disruptions, and maintain a sustainable SC.

Conclusion on research question Eight: Alco Bev companies employ various strategies such as demand forecasting, diversification, inventory management, supplier collaboration, risk management, SCM collaborations, sustainability initiatives, innovation, and corporate social responsibility to reduce risks, build resilience, and ensure a consistent supply. These strategies enable them to navigate market fluctuations, optimize production, establish strong partnerships, manage disruptions, promote sustainability, drive innovation, and uphold responsible practices. By adopting these strategies, Alco Bev companies can enhance their operational efficiency and maintain a reliable SC.

5.10 Chapter Summary

In this chapter, the researcher explored the various risks associated with the GSC in the Alco Bev industry and the strategies employed by companies to mitigate these risks and ensure a consistent supply. Regulatory risks, disruption in the SC, health and safety risks, risks associated with brand reputation, and cybersecurity risks were discussed as key challenges faced by Alco Bev businesses. To address these risks, companies must implement effective risk management strategies, contingency planning, supplier diversification, technology investment, and strong stakeholder relationships.

The researcher emphasized the importance of having a backup plan in place to mitigate the impact of disruptions in the GSC and highlighted the need for anticipating potential interruptions and devising measures to address them. The business leaders of Alco Bev industry are encouraged to invest in local production, establish relationships with alternative suppliers, and create contingency plans to maintain a continuous SC. The chapter also emphasized the need for regular review and revision of backup plans to ensure their ongoing effectiveness.

Additionally, in this chapter, the researcher discussed the shift towards a customer-focused SC in response to changing consumer buying habits, especially during the Covid-19 pandemic. Researcher highlighted the role of technology, data analytics, collaboration with partners, and agile practices in optimizing the SC to meet evolving customer preferences for convenience, safety, and personalized experiences. Furthermore, the chapter emphasized the importance of digital supply networks in mitigating SC disruptions. It highlighted the benefits of predictive analytics, real-time monitoring, and collaboration with suppliers and partners in enhancing SC resilience.

Lastly, the chapter acknowledged the impact of the Covid-19 pandemic on SC governance and highlighted the need for greater transparency, resilience, and diversification in the Alco Bev industry. It discussed the challenges faced during the pandemic, such as material shortages and transportation delays, and the strategies adopted by companies to mitigate risk and ensure a continuous supply of goods. Overall, in this chapter, the researcher provided insights into the risks faced by the Alco Bev industry in the GSC, and the strategies employed to mitigate these risks and maintain a sustainable and resilient SC.

CHAPTER VI:
SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Summary

The purpose of this study was to provide a global perspective on the literature of agile GSC management in the Alco Bev business. The research and its findings have practical relevance, assisting decision-makers in identifying potential barriers to recovery in the aftermath of the Covid-19 pandemic. The conceptual approach and analysis were developed to improve GSC performance and capitalise on possibilities created by events such as the Covid-19 outbreak in India's food and beverage industry. In the post-Covid-19 era, additional research is required to investigate the differences in the effects of global events on various network structures. This future research should investigate SC risks and evaluate the applicability of potential risk mitigation strategies to Alco Bev businesses.

SCs in the Alco Bev industry can increase their resilience and adaptability by comprehending the diverse effects of global events and evaluating appropriate risk management strategies. This study contributes to the existing literature on agile GSC management by highlighting the importance of collaboration, visibility, and agile practises in the SCs of the Alco Bev industry. The research findings provide invaluable guidance for recovery and resilience, enabling businesses to navigate future disruptions. By analysing the strategies adopted by Alco Bev businesses during and after the pandemic, this study lays the groundwork for future research and provides practitioners in SCM with actionable knowledge.

In the introduction chapter, the researcher discussed the SC and GSC, their roles, challenges, and the impact of the Covid-19 pandemic. The SC involved a network of stakeholders collaborating to deliver products and services efficiently and responsibly, considering environmental and social factors. The GSC connected global producers and

consumers but faced risks such as trade barriers and natural disasters. The pandemic caused severe disruptions, leading businesses to prioritize resilience, sustainability, and digital solutions. The study focused on the Alco Bev industry in India, highlighting the importance of collaboration, visibility, and agile practices in GSCs. The research provided insights for recovery and resilience and explored strategies for risk management. The thesis consisted of six chapters, addressing various aspects of the research topic, with a specific focus on analysing the strategies of Alco Bev businesses during the pandemic and their post-pandemic adaptations.

Based on the reviewed literature and background, the chapter highlighted how the pandemic-induced economic crisis revealed vulnerabilities in GSCs and raised concerns about globalization. Business leaders worldwide had an opportunity to re-evaluate their supply networks, identify weaknesses, and enhance resilience. Instead of giving up on globalization, leaders sought ways to improve their businesses and gain an advantage by embracing a new vision appropriate for the current era. The chapter also outlined the research approach, which involved developing methodological frameworks, models, and comprehensive instructions for replication. It addressed research questions through data selection, analysis, and measurement, acknowledging the limitations of the research design.

The methodology chapter provided a comprehensive overview of the methodology employed in survey-based research. It emphasized the significance of a well-defined methodology, ethical considerations, and data collection procedures. The study examined the influence of Covid-19 on the Alco Bev industry, operationalized theoretical constructs, and utilized various research philosophies such as positivism, interpretivism, pragmatism, and realism. It employed primary and secondary data collection methods, sample selection, and utilized Google Forms for data collection. The chapter also addressed the limitations of survey interviews and ethical considerations.

In the results chapter, the results from the questionnaires were addressed. The survey responses provided important insights into factors contributing to a well-functioning and resilient GSC. It highlighted areas for improvement and showed that respondents strongly agreed on the importance of a resilient GSC for sustaining human livelihoods while recognizing associated risks. The survey shed light on specific challenges faced by global businesses, such as compliance and reputational risks, and identified effective risk management strategies. The findings offered valuable insights for managing SCs and implementing risk mitigation strategies. The survey also indicated consensus on the growth potential of the Alco Bev industry's GSCs and provided insights into areas for improvement.

In the discussion chapter, the roles, challenges, and the impact of the Covid-19 pandemic on the SC and GSC. It emphasized the importance of resilience, sustainability, and digital solutions in SCs. The study focused on the Alco Bev industry in India and highlighted the significance of collaboration, visibility, and agile practices in GSCs. The research provided insights for recovery and resilience and explored strategies for risk management. The chapter reiterated the thesis's aim to analyse Alco Bev businesses' strategies during the pandemic and their post-pandemic adaptations. It highlighted the comprehensive nature of the thesis, consisting of six chapters that addressed various aspects of the research topic.

This study focused on configuring Alco Bev SCs to mitigate risks arising from major disruptions. National lockdowns of severe magnitude had hindered or temporarily halted the flow of raw materials and finished products, resulting in manufacturing disruptions. In modern and future economies, traditional supply networks may have proven inadequate. The Alco Bev industry in India had faced increasing pressure to operate with social responsibility, addressing concerns related to worker health and safety, reducing environmental impact in production and distribution, and promoting responsible consumption. In recent years, there had been a growing emphasis on agile SC management

in academia and business, as evident from the proliferation of related media such as articles, conferences, special publications, and websites. In contrast, the concept of sustainable development had only recently started gaining traction in less developed countries.

6.2 Implications

This research focused on the SC and GSC dynamics in the Alco Bev industry in India, with a specific emphasis on resilience, sustainability, and digital solutions in the wake of the Covid-19 pandemic. The research on the fragility of the GSC in the Alco Bev business in India underscored the need for businesses to prioritize resilience, sustainability, and digital solutions. It offered practical implications for decision-makers to strengthen their SCs, adapt to changing global circumstances, and ensure the continued availability and efficiency of Alco Bev in the market. This knowledge was essential for decision-makers and businesses to develop risk management strategies that would strengthen the resilience of their SCs. The study also examined the specific challenges encountered by the Alco Bev industry in India and identified effective risk management strategies.

These findings could assist businesses in devising industry-specific approaches to address risks and vulnerabilities. The study aimed to provide practical, theoretical, and policy implications for organizations operating in this industry. The findings of this research had several **practical implications**: Firstly, they highlighted the need for collaboration among SC stakeholders, emphasizing the importance of building strong relationships and fostering trust. Secondly, visibility throughout the SC was crucial for effective risk management and decision-making. Organizations were encouraged to invest in technologies and systems that enabled real-time data sharing and transparency. Thirdly, adopting agile practices allowed businesses to respond quickly to disruptions and uncertainties, enhancing their resilience. The practical, theoretical, and policy implications for organizations operating in the industry were specified in Table 7.

Table 7: Key implications and target audience

Source: Shetty (2023).

Key Implications	Target Audience
1 Collaboration among SC stakeholders	1 Organizations operating in the Alco Bev industry.
2 Visibility for effective risk management	2 SC managers and practitioners.
3 Adoption of agile practices	3 Policy makers and government authorities.
4 Reassessment and enhancement of supply networks	
5 Emphasis on resilience, sustainability, and digitalization	
6 Investments in technologies, infrastructure, and training	
7 Government support and regulations for collaboration and sustainability	

Theoretical implications of this research lay in the identification of vulnerabilities and weaknesses in GSCs, which were exposed by the pandemic. The study emphasized the opportunity for organizations to reassess their supply networks and implement strategies that enhanced their resilience in the face of future crises. The research also contributed to the existing literature by highlighting the significance of resilience, sustainability, and digitalization in SCM. From a **policy perspective**, organizations and policymakers were

urged to prioritize investments in technologies, infrastructure, and training that supported SC resilience. Government support and regulations played a vital role in encouraging collaboration, fostering sustainability, and ensuring the adoption of digital solutions in GSCs. Policymakers were also advised to consider the implications of globalization and reassess the balance between local production and global sourcing.

Overall, this research provided valuable insights into managing SCs in the Alco Bev industry during and after the Covid-19 pandemic. The practical, theoretical, and policy implications identified in this study can guide organizations in improving their SC practices, enhancing their resilience, and navigating future disruptions effectively. This study aimed to provide practical, theoretical, and policy implications for organizations in the industry, as articulated in Table 8.

Table 8: Practical, theoretical, and policy implications of the study

Source: Shetty (2023).

1. Practical Implications:

- Collaboration and relationship-building among stakeholders.
- Visibility for effective risk management.
- Adoption of agile practices.

2. Theoretical Implications:

- Identification of vulnerabilities and weaknesses in GSCs.
- Strategies to enhance resilience in the face of future crises.
- Significance of resilience, sustainability, and digitalization in SCM.

3. Policy Implications:

- Investments in technologies, infrastructure, and training for SC resilience.
- Government support and regulations for collaboration, sustainability, and digital solutions.
- Re-evaluation of the balance between local production and global sourcing.

6.3 Recommendations for future research

Recommendations for future research are crucial for advancing knowledge, avoiding duplication, addressing limitations, and identifying practical implications. They provide a framework for researcher to build upon existing knowledge and make significant contributions to the field. When researcher make recommendations for further study, it demonstrates their deep understanding of the subject matter and their ability to identify gaps in the literature. This enhances their credibility and highlights the significance of their work within the academic community. Furthermore, it promotes a deeper comprehension of the subject, the development of new theories, and the identification of future research questions.

Here are few recommendations for future research on the fragility of the GSC in the Indian Alco Bev industry:

1. **Evaluate the regulatory framework:** The Alco Bev industry in India operates within a highly regulated environment, and the regulatory framework significantly influences its SC. Future research should evaluate the current regulatory framework and propose measures to strengthen it, thus enhancing the resilience of the SC.
2. **Analyze the role of technology:** Technology has always played a crucial role in the Alco Bev industry, particularly in improving SC efficiency. Future research should analyze the role of technology in the GSC and suggest strategies for leveraging technology to enhance SC resilience in this industry.
3. **Examine the effects of climate change:** Climate change can have a substantial impact on the GSC, particularly in the agricultural sector, which is a vital component of the Alco Bev industry. Future research should analyze the effects of climate change on the SC and propose strategies to enhance its resilience in the face of such challenges.

4. **Analyze the role of sustainability:** The importance of sustainability in SCs is growing. Future research should analyze the role of sustainability in the Alco Bev industry's SC and recommend approaches to enhance resilience and sustainability.
5. **Study the impact of geopolitical risks:** Geopolitical risks, such as trade wars and political instability, can disrupt the SC. Future research should analyze the impact of these risks on the Alco Bev industry's SC and propose strategies to mitigate them, thereby strengthening SC resilience.
6. **Expand the research to other regions/countries:** The researcher aims to investigate the applicability and consistency of the findings and conclusions drawn from the Indian context to other regions or countries. This expansion would provide a broader perspective on the fragility of the GSC, shedding light on region-specific challenges and potential solutions within the Alco Bev industry.

In inclusion, recommendations for future research in the Indian Alco Bev industry are crucial for strengthening the SC's resilience. Evaluating the regulatory framework, analysing the role of technology, examining the effects of climate change, assessing sustainability, studying geopolitical risks, and expanding research to other regions are key areas for further investigation. These recommendations will contribute to enhancing the industry's SC and promoting its long-term sustainability.

6.4 Conclusion

In this study, the researcher concluded that the research findings on the GSC and its impact on business operations and resilience have far-reaching implications for the community. Analysis by the researcher revealed a range of significant differences, including improvements in business operations, enhanced resilience, community impact, and advancements in knowledge. Implementing the recommendations from this research could lead to improved SC practices, better preparedness for future disruptions, and overall positive outcomes for businesses and society as a whole.

By answering the eight research questions in the study, the researcher highlighted the significant impact that this research could make, and the following findings can be concluded:

1. **Enhanced understanding of risks and improved risk management:** The researcher provided valuable insights into the risks associated with the GSC and highlighted areas for improvement. This knowledge by the researcher could help businesses manage their SCs more effectively and implement risk management strategies. The Researcher has proved that by addressing compliance and reputational risks, businesses can build resilience and protect their operations.
2. **Enabled informed decision-making for business leaders:** The findings by the researcher provided business leaders with valuable guidance for making informed decisions. For instance, the study highlighted the importance of transitioning to locally sourced production as a means to mitigate risks associated with trade wars, geopolitics, global events, and other factors. Moreover, the researcher also emphasized the potential benefits of regional treaties and agreements in reducing transaction costs and enhancing SC efficiency.
3. **Strengthened customer-focused strategies:** In this study, the researcher delved into strategies aimed at optimizing GSCs and enhancing customer satisfaction. The researcher has proved that by identifying areas for improvement such as transportation efficiency, speed, and reduced order variation, businesses could enhance their operations and meet shifting customer demands caused by the pandemic. The researcher has shown that this has helped businesses remain competitive in the global economy.
4. **Promoted adoption of digital supply networks:** The researcher highlighted the growing awareness of the benefits of digital supply networks, incorporating advanced technologies like AI, ML, IoT, etc. By adopting these technologies, businesses could achieve more efficient and resilient SCM, with advantages such as end-to-end visibility, collaboration, agility, and optimization. Ongoing education

and awareness initiatives could promote the utilization of digital SC elements for effective SCM.

5. **Enhanced SC governance and resilience:** The researcher emphasized the necessity of addressing vulnerabilities and challenges brought to light by the Covid-19 pandemic within GSC networks. And also advocated for the adoption of resilient and agile SC practices, which encompass enhanced visibility, collaboration, and contingency planning. By prioritizing efficient, adaptable, and resilient supply systems, businesses can better withstand disruptions and ensure continuity.
6. **Provided insights specific to industries and regions:** The researcher has offered industry-specific insights, such as the impact of the pandemic on the Alco Bev industry in India. This knowledge could help businesses in that sector navigate challenges and identify opportunities for growth. It also contributed to the understanding of the industry's contribution to the economy and factors influencing its performance.

In this research, the researcher has made a significant contribution to the community by providing valuable knowledge, recommendations, and strategies. These insights are beneficial for businesses, industry professionals, and policymakers in managing SCs, mitigating risks, enhancing resilience, and adapting to changing circumstances. Overall, the researcher's work has been instrumental in providing valuable guidance and insights to various stakeholders in the field.

The researcher suggests conducting additional research to evaluate the regulatory framework, analyse the role of technology, examine the effects of climate change, study the role of sustainability, analyse the impact of geopolitical risks, and expand the research to other regions/countries. In conclusion, these recommendations are expected to enhance our understanding of the industry's SC resilience and offer strategies to overcome diverse challenges.

APPENDIX A

SURVEY COVER LETTER



In research, the format of a survey letter plays a crucial role in facilitating effective communication, engaging participants, and ensuring the integrity of the research process. The format used by the researcher for collecting data from the survey participants is articulated below.

“I am Santosh Shetty, a doctorate researcher from the Swiss School of Business and Management, Geneva. By this means, I have the honour of inviting you in participating with your free opinions in my data research needed to complete my thesis. All responses are completely anonymous; the information gathered from this survey will be used solely for my research paper and will not be shared with a third party.

I would greatly appreciate it if you could take a few minutes to answer the following questions.

I agree that any information obtained from this research may be used in any way thought best for this study.

In case you need further clarification, would request you to kindly drop me a mail at santosh2@ssbm.ch “

APPENDIX B
INFORMED CONSENT

Each participant filled out an informed consent form before the start of the survey, as described below.

I certify that I have been told of the confidentiality of information collected for this research and the anonymity of my participation; that I have been given satisfactory answers to my inquiries concerning research procedures and other matters; and that I have been advised that I am free to withdraw my consent and to discontinue participation in the research or activity at any time without prejudice.

I agree to participate in one or more electronic surveys for this research. I understand that such surveys and related materials will be kept completely anonymous and that the results of this study may be published in any form that may serve its best.

Please read the above consent and answer it as per your choice.

Do you give your consent to participate in this survey and wish to continue?

- Yes
- No

APPENDIX C

SURVEY INTERVIEW GUIDE

Overview of survey research

Survey research is the process of conducting research through the distribution of questionnaires to survey respondents. It possesses two important quantitative and qualitative characteristics. According to Jhangiani et al. (2019), survey researcher strongly prefers large random samples as they produce the most accurate population estimates. Survey research is frequently the only method in psychology that utilizes random sampling. Its roots can be traced back to English and American social surveys conducted around the turn of the 20th century by researcher and reformers aiming to document the extent of social problems, such as poverty (Converse, 1987).

The Survey research involves collecting data from a sample of individuals through interviews, questionnaires, or other methods. The primary objective of survey research is to gather information about the attitudes, beliefs, behaviours, or opinions of a specific population. Survey interviews are a type of survey research in which trained interviewers ask questions to respondents and record their answers. Survey interviews can be conducted in person, over the phone, or online. Survey interview research offers several advantages, including the ability to collect substantial amounts of data quickly and efficiently. It also allows the interviewer to clarify questions and probe for additional information, enabling the exploration of more complex questions. However, there are some drawbacks to survey interview research, such as potential interviewer bias, difficulty in ensuring that all participants understand the questions, and low response rates if participants are uninterested in taking part in the survey.

According to Ponto (2015), survey research is a useful and legitimate approach to research that provides clear benefits in describing and exploring variables and constructs

of interest. Like all research, survey research has the potential for various sources of error, but there are several strategies available to minimize the potential for error. Practitioners with advanced knowledge of potential sources of error and strategies to enhance survey research can better determine the applicability of conclusions from a survey research study to practical applications.

In this study, the process of survey interview research involves several stages, as detailed below:

1. **Designing the survey:** The researcher has developed a survey instrument that includes a set of research questions relevant to the research question.
2. **Sampling:** The researcher has selected a random sample of individuals to participate in the survey. The sample is representative of the population of interest.
3. **Conducting the survey:** The researcher administered the survey to participants in person, over the phone, and via email. To ensure consistent instructions for all participants, the researcher followed a standardized script.
4. **Data analysis:** The researcher analyses the survey data to address the study question. This involved statistical analysis and other methods for interpreting the data.
5. **Demographic questions:** Along with valid and reliable research instruments, the questionnaires also included demographic questions in the survey.
6. **Ethical considerations:** The researcher adhered to ethical norms, which were addressed in an initial cover letter requesting permission and providing details about the study background and ethics. As this was a voluntary online survey, study participants were given the option to participate.
7. **Data privacy and anonymity:** Since no translators, transcribers, or other third parties were involved in this study, only the researcher has access to the data, ensuring complete anonymity.

Introduction:

1. Thanked the participant for their time and participation in the survey.
2. Explained the purpose of the survey and how their responses will be used.
3. Assured that their responses will be kept confidential.

APPENDIX D

SURVEY INTERVIEW QUESTIONS

Demographic questions:

There are **seven demographic questions** are being asked to each and every participant in the beginning of the survey as below:

1. Do you give your consent to participate in this survey and wish to continue?
2. What is your name?
3. What is the total number of years of work experience you have?
4. How many years you have been associated with the alcoholic beverage (Alco Bev) industry?
5. What is the current status of your association with the Alco Bev industry?
6. What is the name of the Alco Bev company with which you are currently or have previously been directly or indirectly associated?
7. Which Alco Bev business function best describes you?

Survey questions:

Followed by the demographic questions, there are **twenty-four survey questions** are being asked to each and every participant as below:

8. Do you agree that our livelihoods, i.e., food, employment, and energy - depend on resilient and functional GSC s?
9. How risky is the GSC for global business operations?
10. Are you aware that the GSC and purchasing practices may expose any organization to compliance and reputational risks?
11. Do you believe that every global organization should have a SC risk mitigation strategy?

12. Do you believe there is significant space for improvement in the GSC s of the Alco Bev industry in terms of end-to-end traceability, product delivery speed, coordination, and financing?
13. Do you believe the company is prepared for any future GSC disruptions, such as a pandemic if a backup plan is in place?
14. Do you agree with the statement that it is easy for business leaders to take the GSC for granted when their business operates without interruption?
15. Do you believe organizations are ready to manage unexpected challenges, such as a Covid-19 pandemic, in the GSC, if they have a backup plan?
16. As a precaution, should the business leader shift to locally sourced, expensive production that is more secure and less susceptible to trade wars and other global events?
17. Do you agree that developing nations have the opportunity to create and expand regional value chains through regional treaties and agreements to minimize transaction costs and leverage economies of scale to tackle the SC crisis?
18. Are localized SCs preferable for global business since GSC s are too complex and can put businesses at risk?
19. In what ways do you think it would be possible to reduce the costs associated with the GSC?
20. Is it possible for an Alco Bev business to develop a customer-focused SC strategy that meets the customer's needs rather than forcing them to accept the business's terms?
21. It is recommended that Alco Bev business should create digital supply networks such as Artificial Intelligence (AI), Machine Learning (ML), and the Internet of Things (IoT) that may foresee SC disruptions in operations.?
22. Do you think digital supply networks can provide end-to-end visibility, collaboration, agility, and optimization during a pandemic like Covid-19?
23. According to you what are the components of a digital SC?

24. Do you agree that the economic turbulence created by the Covid-19 pandemic has revealed several vulnerabilities in SC networks and raised concerns about globalization?
25. Has the pandemic Covid-19 significantly impacted the GSC s of the Alco Bev industry?
26. Do you agree that, while other industries have been severely disrupted by Covid-19 pandemic in India, the Alco Bev industry has not been significantly impacted?
27. Do you agree that the Covid-19 pandemic has increased the strategic importance of SC management (SCM), such as ensuring efficiency, optimizing logistics, improving quality, and delivering value to customers?
28. Are you in agreement that Alco Bev's production and trade significantly contribute to India's economic growth?
29. According to you, is it vital to boost SC resilience to mitigate the pandemic's impact on GSCs?
30. SC disruptions can be avoided if businesses are proactive and do regular analysis and fresh assessments of their present SC functions.
31. Do you believe Blockchain technology can significantly improve Alco Bev SCs by enabling faster and more cost-effective product delivery, strengthening product traceability, enhancing partner coordination, and facilitating access to financing?

**APPENDIX E:
MAPPING RESEARCH AND SURVEY QUESTIONS**

The researcher has mapped twenty-four survey questions with the eight research questions below.

RQ- 1		What risks does the GSC pose to global business operations?
8	SQ	Do you agree that our livelihoods i.e., food, employment, and energy - depend on resilient and functional GSCs? <ul style="list-style-type: none"> ○ Strong agree. ○ Disagree ○ Neutral
9	Q	How risky is the GSC for global business operations? <ul style="list-style-type: none"> ○ Highly risky ○ Moderately risky ○ Not yet all risky ○ Unaware of such risk
10	SQ	Are you aware that the GSC and purchasing practices may expose any organization to compliance and reputational risks? <ul style="list-style-type: none"> ○ Yes, these risks have a significant effect on business. ○ No, these risks have no impact on business. ○ Unaware of such risks in business
11	Q	Do you believe that every global organization should have a SC risk mitigation strategy? <ul style="list-style-type: none"> ○ Yes, I completely concur with this statement. ○ No, it is not compulsory. ○ Not sure
12	SQ	Do you believe there is significant space for improvement in the GSC s of the Alco Bev industry in terms of end-to-end traceability, product delivery speed, coordination, and financing?

		<ul style="list-style-type: none"> ○ Strong agree. ○ Disagree ○ Neutral
RQ 2		Will the backup plan save any organization's GSC during global disruptions?
13	SQ	<p>Do you believe the company is prepared for any future GSC disruptions, such as a pandemic if a backup plan is in place?</p> <ul style="list-style-type: none"> ○ Yes, I completely concur with this statement. ○ No, I disagree with this statement because supply disruptions are inevitable in business. ○ Not sure
14	SQ	<p>Do you agree with the statement that it is easy for business leaders to take the GSC for granted when their business operates without interruption?</p> <ul style="list-style-type: none"> ○ Yes, it is a great opportunity. ○ No, they have to be very careful as global business is both exciting and risky. ○ Refuse to disclose.
15	SQ	<p>Do you believe organizations are ready to manage unexpected challenges, such as a pandemic, in the GSC, if they have a backup plan?</p> <ul style="list-style-type: none"> ○ Yes ○ No ○ Refuse to disclose.
RQ 3		Will the business leaders will switch to locally sourced, high-priced production that is more secure and less vulnerable to trade wars and other global events?

16	SQ	<p>As a precaution, should the business leader shift to locally sourced, expensive production that is more secure and less susceptible to trade wars and other global events?</p> <ul style="list-style-type: none"> ○ Recommended because it is necessary for business continuity. ○ Not recommended since high cost reduces profitability. ○ Refuse to disclose.
17	SQ	<p>Do you feel that developing nations have the opportunity to create and expand regional value chains through regional treaties and agreements to minimize transaction costs and leverage economies of scale to tackle the SC crisis?</p> <ul style="list-style-type: none"> ○ I agree with this statement. ○ I disagree with this statement. ○ Neither agree nor disagree
18	SQ	<p>Are localized SCs preferable since GSC s are too complex and can put businesses at risk?</p> <ul style="list-style-type: none"> ○ Yes. The local SCs will provide much-needed financial relief to businesses. ○ No. Without a GSC, global businesses cannot survive. ○ Refuse to disclose.
RQ 4		<p>Do you think the GSC can become more customer-focused considering the shifts in demand caused by the pandemic?</p>
19	SQ	<p>In what ways do you think it would be possible to reduce the costs associated with the GSC?</p> <ul style="list-style-type: none"> ○ Make better use of available transportation resources. ○ Increase the velocity of the SC. ○ Minimize order variability to avoid costly inventory buildup. ○ All the above

		<ul style="list-style-type: none"> ○ None of the above
20	SQ	<p>Is it possible for an Alco Bev business to develop a customer-focused SC strategy that meets the customer's needs rather than forcing them to accept the business's terms?</p> <ul style="list-style-type: none"> ○ Possible, as customers support the revenue matrix. ○ Not possible because Alco Bev products are unique. ○ Refuse to disclose.
RQ 5		It is recommended that companies create digital supply networks that may foresee SC disruptions in operations?
21	SQ	<p>It is recommended that Alco Bev business should create digital supply networks that may foresee SC disruptions in operations.?</p> <ul style="list-style-type: none"> ○ Yes ○ No ○ Refuse to disclose.
22	SQ	<p>Do you think digital supply networks can provide end-to-end visibility, collaboration, agility, and optimization during a pandemic?</p> <ul style="list-style-type: none"> ○ Yes ○ No ○ Refuse to disclose.
23	SQ	<p>According to you what are the components of a digital SC?</p> <ul style="list-style-type: none"> ○ It is a transformation of the product or service from a physical product to a digital product. ○ It is one of the processes of the SC. ○ Adopting a new attitude in which quality and productivity need to have a meaningful link leads to less rework or waste. ○ All the above ○ None of the above
RQ 6		Will the Covid19 pandemic have an impact on GSC governance?

24	SQ	<p>Do you think that the economic turbulence created by the pandemic has revealed several vulnerabilities in SC networks and raised concerns about globalization?</p> <ul style="list-style-type: none"> ○ Yes, I agree. ○ No, I do not agree. ○ Refuse to disclose.
25	SQ	<p>Has the pandemic significantly impacted the GSC s of the Alco Bev industry?</p> <ul style="list-style-type: none"> ○ The pandemic had a significant negative impact, ○ The pandemic had a moderate impact. ○ The pandemic had a mostly positive impact on this business. ○ The pandemic had no impact on this business.
26	SQ	<p>Do you agree that the Covid-19 pandemic has increased the strategic importance of SC management, such as ensuring efficiency, optimizing logistics, improving quality, and delivering value to customers?</p> <ul style="list-style-type: none"> ○ Yes, I agree. ○ No, I do not agree. ○ Neither agree nor disagree
RQ 7		<p>What kind of impact did Covid-19 have on the supply networks of Indian Alco Bev companies?</p>
27	SQ	<p>Do you agree that, while other industries have been severely disrupted by Covid-19 pandemic, the Indian Alco Bev beverage industry has not been significantly impacted?</p> <ul style="list-style-type: none"> ○ It had a very high impact. ○ It had a moderate impact. ○ It had no impact.

28	SQ	<p>Are you in agreement that Alco Bev's production and trade contribute considerably to India's economy?</p> <ul style="list-style-type: none"> ○ I agree with this statement. ○ I disagree with this statement. ○ Neither agree nor disagree
RQ 8		<p>What strategies did Alco Bev companies employ to manage risk, build resilience, and ensure a steady stream of supplies?</p>
29	SQ	<p>According to you, is it vital to boost SC resilience to mitigate the pandemic's impact on GSC s?</p> <ul style="list-style-type: none"> ○ I agree with this statement. ○ I disagree with this statement. ○ Neither agree nor disagree
30	SQ	<p>SC disruptions can be avoided if businesses are proactive and do regular analyses and fresh assessments of their present SC.</p> <ul style="list-style-type: none"> ○ I agree. ○ I disagree. ○ Neither agree nor disagree
31	SQ	<p>Do you believe Blockchain can significantly improve Alco Bev SCs by enabling faster and more cost-effective product delivery, strengthening product traceability, enhancing partner coordination, and facilitating access to financing?</p> <ul style="list-style-type: none"> ○ I agree with this statement. ○ I disagree with this statement. ○ Neither agree nor disagree

APPENDIX F

DEMOGRAPHICS OF SURVEY PARTICIPANTS

In India, spirits such as whisky, rum, vodka, and brandy dominate the Alco Bev market. Key players in this segment include well-established brands like United Spirits Ltd. (now owned by Diageo), Pernod Ricard India, Radico Khaitan, Allied Blenders & Distillers and few others. Beer is another significant segment within the beverage industry. Major players in this category include United Breweries Ltd., which produces popular beer brands like Kingfisher, as well as other companies like Carlsberg, AB InBev, and SABMiller.

The Indian Alco Bev industry is indeed very niche, with a select number of players in the market. Moreover, brand loyalty plays a significant role in this industry, requiring manufacturers to focus on developing a strong brand image. The industry itself is quite diverse, with a mix of established and emerging players. While there are prominent and well-known brands in the market, there are also a range of niche and regional players that cater to specific markets or segments.

The study's results are derived from responses provided by 66 survey participants, and the researcher collected data from almost all the Alco Bev companies in India through a survey. The researcher has compiled a list of these 66 participants from 30 different Alco Bev companies and aligned service providers for the survey, as outlined below.

Sr. No.	Name of Alco Bev company & Activity	Business Category of participants	No. of Participants	% Participation
1	Allied Blenders and Distillers- Manufactures and sells Alco Bev	Logistics Service provider	1	2%

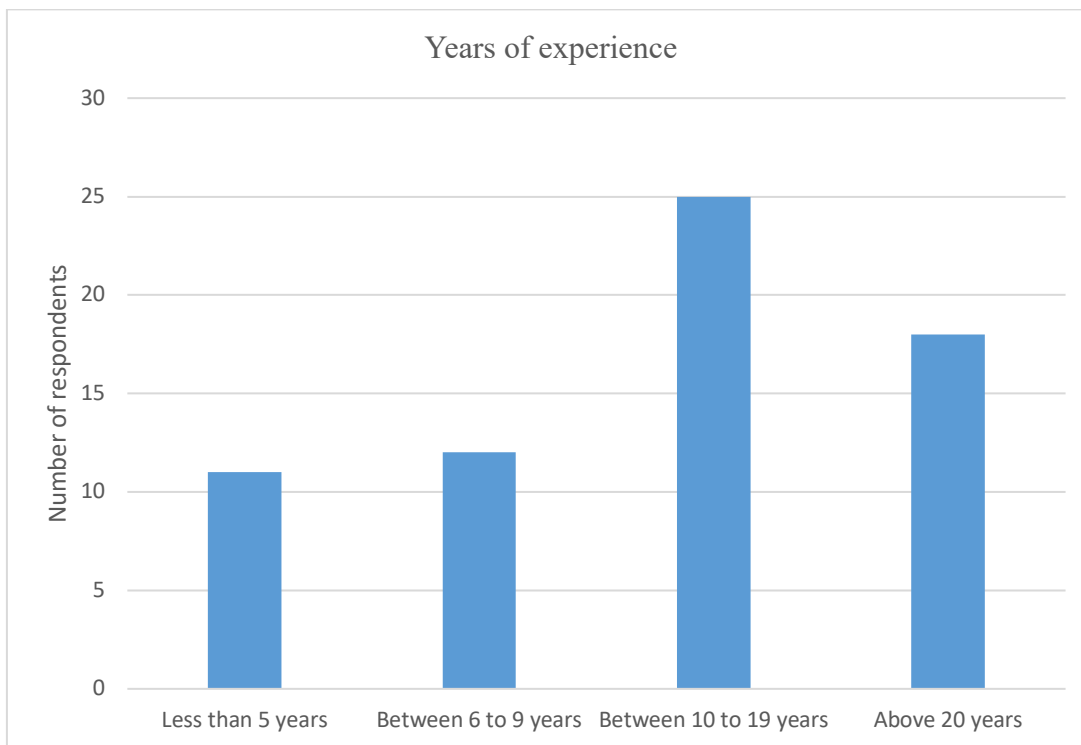
2	Amrut Distilleries- produces distilled beverages.	Distillery & Logistics Partner	2	3%
3	Anheuser-Busch InBev (AB InBev)- world's largest beer brewer	Brewer, Distributor and CHA	3	5%
4	Bacardi India - Manufactures and sells Alco Bev	SC Professionals	1	2%
5	Beam Suntory India- Manufactures and sells Alco Bev	CHA	1	2%
6	Brindco Sales Ltd.- Importers and distributors of Alco Bev	SC professional	1	2%
7	Chin Lung Resto Bar- Alco Bev Retail outlet	Owner	1	2%
8	Crown Beers India- manufacturing beer and liquors.	Logistics service provider	1	2%
9	Diageo- global leader in premium drinks	SC Professionals, Legal, CHA, Freight Forwarder	9	14%
10	Globus Spirits- Importers and distributors of Alco Bev	SC professional	1	2%

11	Grover Zampa Vineyards- Importers and distributors of Wine	CHA, Transporter	2	3%
12	Gusto imports Pvt. Ltd.- Importers and distributors of Wine	SC professional	1	2%
13	Heineken- Manufactures and sells Beer	SC professionals	2	3%
14	InBrew Beverages - Manufactures and sells Alco Bev	SC professionals & Logistics service provider	2	3%
15	Indospirit- Importers and distributors of Alco Bev	SC professionals & Logistics service provider	1	2%
16	John Distilleries - Produces distilled beverages	Logistics service provider	2	3%
17	Khemani Distillery- Manufacture of grain-based ENS	SC professional	1	2%
18	Khoday Indi- Distilling and blending of Alco Bev	SC professional	1	2%
19	Moet Hennessy India – Importers and distributors of Alco Bev	SC professional	1	2%

20	Mumbai Travel Retail	Duty free logistics	1	2%
21	Paladin- Importers and distributors of Wine	SC professional	1	2%
22	Pernod Ricard India- Manufactures and sells Alco Bev	SC Professionals, Customs Bond, CHA, Freight Forwarder	7	11%
23	Radico Khaitan- One of the largest manufacturers of IMFL in India.	SC professional	1	2%
24	Sonarys Co-Brands- Importers and distributors of Wine	Finance, SC professional	2	3%
25	Sula Vineyards- Importers and distributors of Wine	SC professional	1	2%
26	Tetrad Global Beverages- Wine Importer	SC professional	1	2%
27	United breweries- Manufactures and markets beer	SC Professional, CHA, Freight Forwarder	3	5%
28	United Spirits- Manufactures and sells Alco Bev	SC Professional, Legal, Finance Professionals, CHA, Freight Forwarder, Customs Bond, Transporter	13	20%
29	Vinopolis Wines- Importers and	SC Professional	1	2%

	distributors of Alco Bev			
30	William Grant & Sons: Bottling wines and liquors	Custom House Agent	1	2%
		Total	66	100%

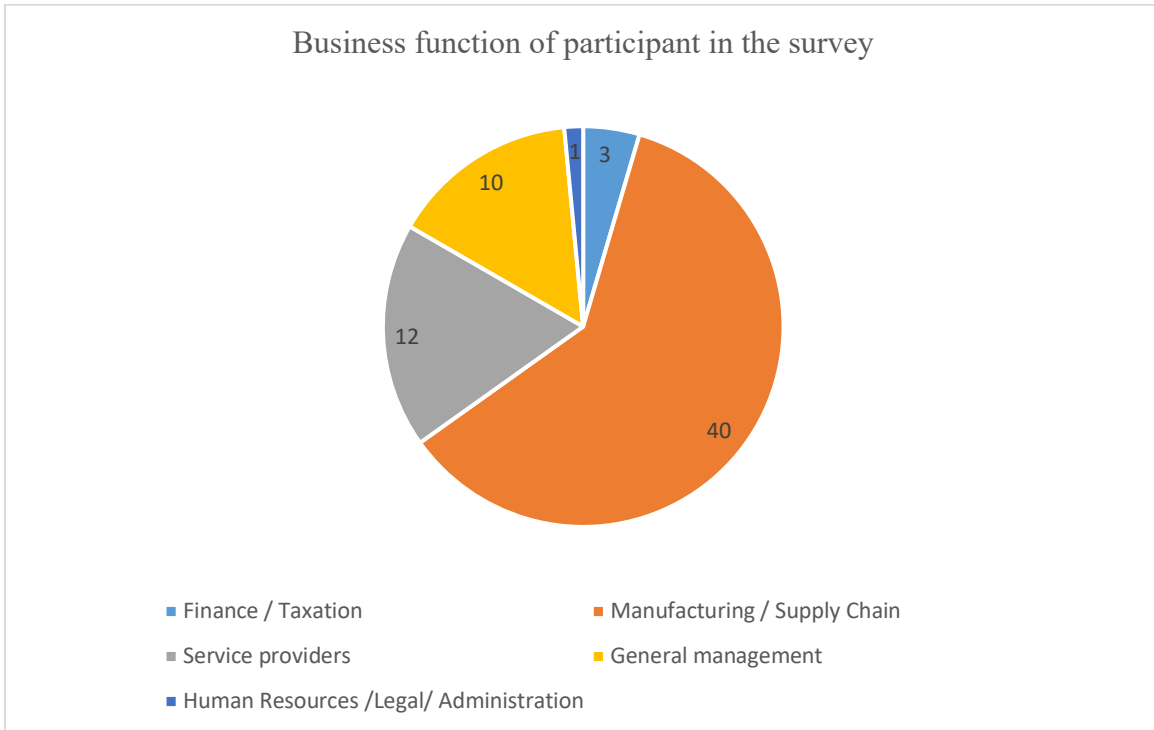
The range of experience levels captured in the survey provides valuable insights into the Alco Bev industry, promoting understanding, mentorship, and the sharing of knowledge. The researcher has collected data on the participants' years of experience, which are as follows:



The study encompassed a diverse range of industry entities, including manufacturers, wholesalers, retailers, logistics service providers, customs house agents, duty-free operators, and Customs bonded warehouse operators. The research utilized surveys to explore the perspectives and experiences of participants, categorized into three

distinct groups: current Alco Bev employees, former Alco Bev employees now working in other FMCG companies, and service providers to the Alco Bev industry.

The researcher has recorded the business function as follows:



Seniority and professional experience were pivotal factors in this research as they provided a profound comprehension of the field, expertise, credibility, and practical insights. Participants with extensive professional experience brought forth specialised knowledge, an extensive network of connections, and a plethora of real-life examples that greatly enriched the research findings. Their valuable contributions enhanced the accuracy, reliability, and applicability of the research, ultimately benefiting the field and the broader community.

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