

عنوان المقترح:

تأثير العولمة على إدارة العمليات وسلسلة التوريد في الخطوط الجوية السعودية (السعودية)

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Abstract

This study examines the impact of globalization on operations and supply chain management, focusing on how organizations adapt to global challenges and opportunities. The research explores key factors such as technological advancements, supply chain integration, regulatory compliance, and sustainability practices. The study aims to identify how globalization influences operational efficiency and supply chain resilience while highlighting the challenges faced by organizations. The research sample consisted of 100 teachers working in the field of education, selected to assess their perspectives on globalization's impact. The data was collected electronically to ensure accessibility and accuracy. The analysis provides insights into how globalization affects supply chain strategies, workforce management, and technological adoption in different sectors. The findings indicate that globalization has facilitated operational improvements and enhanced supply chain integration through digital advancements. However, organizations face challenges such as supply chain disruptions, increased regulatory demands, and workforce management complexities. Additionally, while sustainability is gaining attention, its full integration into supply chain strategies remains a work in progress. This study contributes to the broader understanding of globalization's impact on management practices. Future research should explore comparative industry-wide assessments and long-term globalization trends to develop more effective strategies for sustainable operations and supply chain resilience.

Chapter 1: Introduction

1.1. Introduction

The worldwide phenomenon of globalization manifests through enhanced connections among global economies and cultures together with social systems that substantially transformed operational and supply chain management practices. Organizations have started adopting global networks through technological growth and open trade regulations and market competition during the past few decades. Organizations struggle to maintain their supply chain efficiency because of evolving market dynamics which generate both obstacles and possible advantages (Adeitan et al.,2021).

The business environment of today faces globalization as its main transformative force because this phenomenon shapes organizational operations together with supply chain management practices throughout all operational aspects. Operations and supply chain management strategies experienced a transformation due to the quick and complex international exchange of goods, services and technologies alongside capital and ideas. The extensive worldwide connection has reduced traditional distance and national boundary constraints, so businesses now use expanded markets combined with global sourcing of materials to access new growth opportunities (Vidrova, 2020).

Operations and supply chain management have experienced a strong impact from global developments. Companies access wider supplier networks together with additional resources and markets which help them minimize costs and upgrade their product quality while improving client service. The worldwide scope of supply chains creates vulnerabilities because it exposes them to various challenges including geopolitical instabilities as well as cultural boundaries and

defensive regulations and distribution challenges. Supply chain management needs adaptive strategies and strategic approaches because sustainability requirements together with global disruption response needs have elevated their importance. Operations together with supply chain management greatly feel the impacts of globalizing trends. Companies could build extensive distributed supply chains because of modern communication platforms and upgraded coordination routes and well-developed transportation systems. Organizations use global supply networks to lower expenses through external partnership strategies and obtain better quality items by using worldwide specialized knowledge sources which strengthens their market standing through broader consumer reach. Through the practice of global sourcing businesses can access economical raw materials and workers but having international production sites permits firms to offer faster market service to specific regions (Kazancoglu et al.,2024).

The worldwide business expansion pushes companies toward practical management of several challenges demanding thoughtful executive decisions. The main difficulty in running global supply chains arises from their built complications. Business expansion across borders challenges organizations with complex hurdles involving different regulatory standards and political instability and currency variations as well as business cultural differences. The pandemic response to COVID-19 demonstrated that worldwide disturbances transmit through supply networks trigger delivery gaps and product shortages as well as economic damage. The current global environment with its political tensions and trade warfare shows businesses that supply chains require better mitigation plans because they remain exposed (Singh & Kumar,2020).

Business success in the global market demands complete understanding of operational process changes and supply chain structure modifications triggered by globalization. The

evaluation examines both the beneficial elements and obstacle factors of globalization on operations and supply chain management solutions for global organizations.

1.2. Problem Statement

The fast-changing global aviation industry forces Saudi Airlines (Saudia) and major airlines to face both complicated difficulties and ambitious opportunities. Global operations coupled with expansive supplier integration through globalization generated many advantages for Saudia, but these advantages created massive operational requirements which threaten its operational outcomes as well as its market positioning. The extensive challenges at Saudia stem from its global supply chain management of various regions possessing different regulatory demands and economic conditions and geopolitical risks. To meet international part and service procurement needs Saudia needs to maintain safety standards and operational and quality requirements across every link in its supply chain. The persistent global disruptions between pandemics and geopolitical conflicts and trade restrictions make it difficult for Saudia to maintain its supply chain operations and meet customer needs. The growing competition in the aviation industry because of globalization prompted Saudia to transform its supply chain operations for better agility and competitiveness. The demand for operational efficiency presents difficulties for Saudi Airlines along with other worldwide organizations because they face growing sustainability concerns and developing environmental standards in current industrial standards. Saudia needs to implement environmentally sustainable practices throughout its supply chain systems in order to achieve both cost-effective management and maximum service quality management.

Saudia faces additional complexity due to its need to merge modern digital solutions with its established information systems that require integration. The airline faces challenges to

implement new technologies which facilitate real-time data management and predictive analytics across the supply chain with full transparency as it requires alignment to global standards..

1.3. Research Significance

1.3.1. Theoretical Significance

This research about globalization's effects on Saudia Airlines operations and supply chain management adds theoretical value to overall industry knowledge about the aviation sector transformation due to global developments. The study offers essential understanding about how airlines must address special framework challenges alongside new market opportunities when working across areas having their own regulatory systems alongside cultural norms and economic conditions. The research adds depth to existing knowledge through its analysis of global connectivity effects on operational method development alongside risk handling mechanisms and supply chain organizational design within one of the leading Middle Eastern airlines.

The research enhances supply chain management and international business operations theories through its application to Saudi Airlines which operates globally as a national carrier. Here the author investigates how globalization interacts with sustainability plans plus current technological progressions to advance supply chain designs that demonstrate improved flexibility and resilience throughout their integration. The study identifies Saudia-specific effects which helps develop protocols that airlines can apply when they need to respond to comparable global disruptions.

1.3.2. Practical Significance

The decisions of Saudia airline executives together with other air transportation companies depend on this critical investigation because it helps maximize operational

performance and build stronger supply chain systems across the rapidly connecting world. The analysis of globalization effects enables Saudia's management to identify particular strategic improvement opportunities by expanding supplier networks and strengthening risk management and implementing advanced digital monitoring tools.

The identification of critical findings through these studies enables Saudia to produce alignment between its supply chain procedures and international sustainable standards while fulfilling environmental law requirements and maintaining market competitiveness. Operational leaders will use research output as a guide to maintain cost-effectiveness while upholding their ethical and sustainable supply chain practices for maintaining market competitiveness through consumer and stakeholder prioritization of corporate responsibility.

The research provides practical guidelines to professionals in industries and policy circles about managing global supply networks through emerging markets which present specific geopolitical and logistical challenges. The study presents actionable supply chain resilience strategies which other airlines along with sectors can adapt to their situation given analogous globalization-driven pressures. This research strengthens scholarly comprehension of globalization effects on operations and supply chain management in aviation industry.

1.4 Research Objectives

1. To examine the impact of globalization on the operations and supply chain management of Saudi Airlines (Saudia).
2. To identify and analyze the key challenges Saudi Airlines (Saudia) faces in its operations and supply chain management as a result of globalization.
3. To propose strategies for Saudi Airlines (Saudia) to enhance the resilience and adaptability of its operations and supply chain management in the context of globalization.

1.5. Research Questions

1. The Impact of Globalization on Operations and Supply Chain Management at Saudi Airlines?
2. What are the key challenges that Saudi Airlines (Saudia) faces in its operations and supply chain management due to the impacts of globalization?
3. What strategies can Saudi Airlines (Saudia) implement to enhance the resilience and adaptability of its operations and supply chain management to better navigate the complexities of a globalized market??

1.6. Research Hypotheses

is clear to us from the earlier figure, that the current research attempts to The Impact of Globalization on Operations and Supply Chain Management at Saudi Airlines (Saudia)

- Independent Variable : Globalization
- Dependent Variables: Operations Management and Supply Chain Management

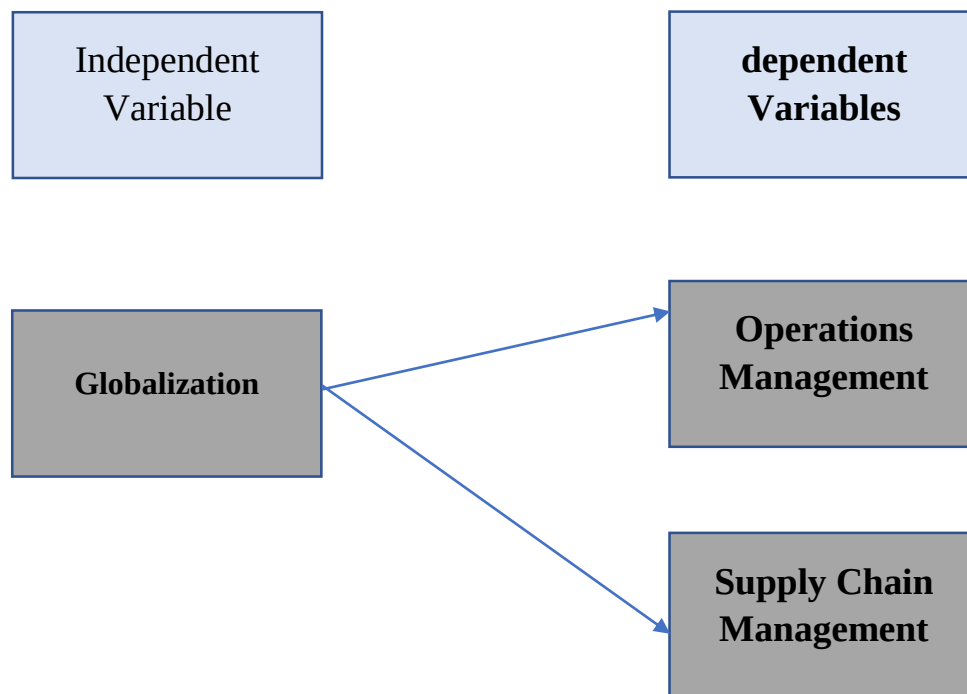


Figure 1 Research Variables

1.7. Study limitations

1. The research duration spans 2024 to record present-day practices and supply chain operations management challenges at Saudi Airlines (Saudia) during this specified period. This study will generate findings for a specific time period in 2024 which might not show complete changes in operational practices or external conditions that surpass this period which includes futuristic market trends and technological breakthroughs and economic fluctuations.
2. The analysis only investigates operational procedures and supply chain activities at Saudi Airlines (Saudia) through space-based constraints. The analysis will examine Saudia's operations and supply chain structures and performance by focusing on how global forces affect their systems. Saudia's network and operational boundaries will limit this study to Saudi Airlines operations only because it omits comparisons with global or regional aviation competitors in other domains of the industry.
3. The research investigates Saudia's supply chain management practices under globalization conditions and examines operational outcomes and strategic solutions for specific problems faced by Saudia. The research examines several operational and supply chain variables that affect Saudia's industry but avoids general business management approaches independent of supply chain and operational dimensions linked to global influences.
4. A selected group of Saudia employees composed of supply chain managers and operational leaders as well as coordination coordinators together with other essential personnel who work within supply chain functions will participate in the study. The targeted subjects with fundamental experience will share their understanding about how globalization affects their practical workplace activities. The findings might be restricted by the fact that the research uses

only selected participants' perspectives which could affect the universal application of the research conclusions.

Chapter 2: Literature review

2.1. Introduction

The aviation industry underwent significant changes because of globalization which now shapes how airlines operate their flights while changing delivery networks and forcing competition adjustments. kùran's global growth of networks through international markets requires managers to face regulatory compliance alongside technological developments and ever-changing consumer expectations. Saudi Airlines (Saudia) functions as a premier airline in this worldwide industry therefore needs advanced operations management and well-connected supply chains to uphold competitive edge and superior customer service quality. This section evaluates how globalization affects the airline sector through an analysis of Saudi Airlines (Saudia). The paper investigates essential globalization principles and airline operations management as well as supply chain management while analyzing existing research findings and industry reports and theoretical foundations that describe how airlines adapt to global forces. The chapter presents strategic airline supply chain responses against geopolitical risks along with regulatory pressures as well as supply chain disruptions. It examines operational efficiency and resilience enhancement techniques. The present chapter establishes a theoretical basis regarding Saudia's supply chain efficiency relationship with operations management through analysis of existing literature and globalization research. The study exposes areas where research is needed to help airlines enhance their strategic measures in today's quickly changing worldwide markets.

2.2. Literature review

The research conducted by Hu and Haddud (2020) examined the joint effects that globalization and technological developments have on supply chain management for international e-commerce businesses. The research targeted an investigation of how global connectivity together with new digital aids modify supply chain approaches and improve operational performance as they manage e-commerce-specific transportation issues. Researchers evaluated three operational aspects of supply chains while studying their effects during contemporary globalized business operations that heavily rely on technology. A group of researchers studied supply chain practices by conducting qualitative analysis on an international e-commerce enterprise for developing an understanding of globalization and technological effects. A methodology consisting of primary interview data collection from company personnel and secondary data examination included reports from the organization and industry materials helped researchers obtain detailed supply chain insights from the organization. The case study delivered thorough information about operational obstacles along with technological instruments along with strategic solutions to globalization. Through digital tools including inventory management software and automated systems and real-time tracking the e-commerce business achieved operation streamlining and order automation. New technology eliminated time delays while eliminating instances when stock ran out. The company employed technology for providing live order tracking and exact delivery service with customized solutions which enhanced customer approval results. The company expanded its supplier base worldwide through globalization which cut down its disruption risks. Changes in customer desire together with seasonal market conditions have become easier to manage through technological support. The combination of automation with digitalization systems reduced costs from both labor resources

and supply chain efficiency to decrease operational expense levels. Predictive analytical methods allowed the company to predict supply chain disruptions in advance through which it could address shipment issues and shifting demand patterns resulting in better supply chain resilience. This research investigation added to relevant academic documentation because it showed actual evidence about how globalization and technology boost supply chain operational excellence and adaptability in e-commerce operations. This study established that digital tools should be integrated into global supply chain management because businesses with extensive e-commerce operations require them. This study showed realistic e-commerce businesses applications through its analysis of global suppliers and modern technology which leads to higher customer satisfaction levels and operational effectiveness.

The research undertaken by Glushkova et al. (2019) analyzed globalization effects on developing countries' economic development particularly through the lens of worldwide supply chain management. Research explored specific issues that globalization creates for developing countries while they participate in international supply chain networks. The research objective investigated effective supply chain practices for developing countries to boost their economic resilience and global competitiveness while utilizing qualitative analysis on supply chain practices and economic effects in various developing economies. Researchers used secondary data materials composed of economic information as well as international organization reports and case studies reporting developments of active nations in global supply chains. The authors used data to discover prevalent patterns and business strategies which developing nations use for adapting to globalization challenges. The study demonstrated three essential effects of globalization on supply chain management systems within developing countries: Developing nations gained better access to global markets through which they became more engaged in

worldwide supply networks and boosted their export levels. The lack of appropriate infrastructure as well as limited technological capabilities in numerous developing countries prevents them from successfully running supply chains while meeting global standards. Developing nations engage in cost-based market competition by using affordable workforce and resources. Such cost advantages generally bring positive outcomes through foreign investment but create stress for domestic businesses to maintain affordable operations that may harm wages and employment rights. Research findings contributed to academic knowledge about global supply chain effects on developing countries' economies. These countries confront different levels of challenges and advantages according to the authors who demonstrated how infrastructure growth together with technology integration and qualified workforce development strengthens supply chain functionality. Moreover, the study focused on identifying risks faced by nations which heavily depend on foreign capital and their position as low-cost operators. The research outcomes present useful guidance to leadership and policy-making teams in developing nations because they indicate infrastructure investments along with workforce advancement can build organizational resistance while integrating countries better into international markets.

Kokodey et al (2020) conducted research to examine the effects of globalization along with global supply chains on national socio-economic operations. This study focused on exploring how economic global developments affect regional economic situations and industrial sectors together with employment environments and social economic progress rates within supply chain management frameworks. A qualitative research method was used to evaluate how global supply chains influenced national economies socio-economically. A study conducted data analysis on secondary sources consisting of reports as well as economic indicators and case studies across various countries to explore national economic connections to worldwide supply

systems. Through this research design the investigators could recognize major patterns regarding globalization's effects on socioeconomic activities. Globalization through supply chains triggered two main socio-economic consequences for national processes: Countries that joined global networks experienced rising trade quantities while their economic production levels also expanded because of expanded market reach. Services and goods participation within global supply chains produced distinctive modifications to local labor requirements combined with modified salary distribution across several nations. The process of joining global supply chains led numerous countries to achieve enhanced industrial development and technological progress because companies needed to harmonize their operations with international manufacturing benchmarks. Globalization created new economic prospects, but it intensified the differences between various business regions as some industrial fields accumulated greater gains than others. Countries linked to global supply chains developed heightened sensitivity to outside economic changes that threatened their national economic balance. The research added to scientific knowledge of how supply chain integration drives national economic changes under globalization. This analysis exhibited both economic advantages and social-economic risks that involve rising market dependence and regional inequality. Such findings guide policymakers to use globalization for sustainable development and make plans for managing its associated risks.

Extending their research (Orlanyuk-Malitskaya et al. 2024) focused on the impact of globalization on supply chain management within different business sectors. The research analyzed how supply chain practice transformation and the main challenges evolved after globalization to economic, technological and environmental factors in our globalized world. The research approach included both a literature review and case studies which studied present-day supply chain management developments in globalized environments. The review involved

academic papers and industry reports and case studies to examine supply chain management evolutions in highly integrated industries. Technology, such as AI, IoT, and blockchain, has become essential for managing complex global supply chains, enabling real-time tracking, data sharing, and enhanced visibility. Globalization has pushed supply chains to adopt sustainable practices, driven by environmental regulations, consumer expectations, and corporate social responsibility (CSR). The need for agile and flexible supply chains has grown, as companies must adapt to changing market conditions, demand patterns, and disruptions in real time. This study contributed to the literature on supply chain management by illustrating how globalization has transformed supply chains, increased their complexity and prompting the need for advanced technological solutions and sustainability efforts. The findings underscore the importance of agility, collaboration, and technology in modern supply chains, providing valuable insights for supply chain managers and industry leaders looking to navigate the challenges of globalization effectively.

2.3. Theoretical foundations of the study

2.3.1. Introduction to Globalization

The processes behind globalization merge different economic systems with cultural expressions along with social networks through trade activity and technological networks and communication patterns. World economies become normal through integration processes which generate free-market circulation of products alongside financial flows of money and data and services. The process of globalization drives progress across multiple industries which includes cultural partnerships and political relations and environmental stewardship, but its core function links to economic growth together with advanced technological systems. Modern globalization forms through technological advancements that concentrate on transportation and communication

which brings down time and spatial restrictions. Business operations of today gain benefits from this development because they can build global reach and find international market opportunities in combination with universal material resources. The aviation industry together with multiple other sectors depends on globalization to secure new business prospects and optimized supply networks according to Oláh et al.,2018.

2.3.2. Scope of Globalization

Globalization touches all social dimensions because it influences economic interactions together with cultural exchanges and various other societal processes. Modern technological developments combined with trade liberalization initiatives together with elevated human movement fuel the substantial growth of globalization throughout recent years. The main domains where globalization makes its impact are listed below (Zinn & Golsby,2020).

1. Economic Globalization

Through economic globalization countries join a worldwide economy which enables free market exchange of products together with services workforces and monetary assets. The free flow of capital and production has generated multinational companies while foreign investments have grown with outsourcing of manufacturing processes. Through economic globalization nations achieve enhanced market competition as well as strengthened trade relationships and improved economic development levels. Global economic integration creates essential problems that lead to economic dependence while creating local industry competition together with weaknesses triggered by global financial market variations.

2. Cultural Globalization

Through cultural globalization different regions disseminate their values and beliefs as well as their lifestyles and ideas throughout the world. Media together with tourism migration and the

internet facilitate cultural exchange throughout the world. Both diversity promotion and intercultural understanding emerge from cultural globalization, yet it sometimes results in the blending of cultures which leads to the disappearance of local traditions and identities by dominant global cultures.

3. Technological Globalization

The progress and worldwide expansion of technology generates technological globalization that enables borderless information sharing between organizations. Globalization has quickened information transmission between businesses which allows them to conduct operations simultaneously across any geographical space. Technology advances have substantially transformed industries through global operation streamlining which includes aviation sector automation and real-time tracking and online booking services (Gupta & Gupta,2019).

4. Political Globalization

International organizations including the United Nations and World Trade Organization and International Monetary Fund maintain escalating authority to create policies which impact several nations under political globalization. The process creates opportunities for international discussions between nations which enables them to establish international regulations and standards together. The connection between world territories promotes worldwide solutions against problems like climate change alongside human rights issues alongside global security while restricting domestic autonomy in government decision-making.

5. Environmental Globalization

The process of environmental globalization presents awareness about universal environmental resources while underscoring that environmental problems from climate change through pollution and biodiversity destruction affect everybody. The environmental sustainability

of our world requires international collaboration according to this dimension. The airline industry must face restrictive environmental standards because they need to practice sustainable operations along with lowering carbon emissions while following global environmental rules.

6. Globalization in Business Operations and Supply Chains

Globalization enables businesses to access various world locations for raw materials and workforce and production facilities thus they benefit from reduced costs and operational efficiencies. Through supply chain globalization companies perform manufacturing optimization through collaboration between international resources. The benefits of global integration bring additional challenges that businesses need to address including international shipping demands and trade standards understanding as well as global disruption risk reduction.

7. Globalization in Education and Knowledge Exchange

Through globalization educational resources together with academic knowledge move freely across international borders thus creating opportunities for collaborative research projects. The open exchange of education-based materials enables students and professionals to earn international qualifications which develops a worldwide cohort of talented workers. The trading knowledge leads to industrial improvements through aviation which depends on both advanced technology and specialized training.

8. Health and Medical Globalization

Through public health globalization the medical sector can improve by sharing medical research and practices between different locations across the world. The aspect of globalization enables nations to collaborate regarding disease prevention strategies while gaining access to medical advancements and responding promptly to worldwide epidemics. The opening of

international travel paths increases the danger of worldwide infectious disease diffusion which highlights the importance of worldwide health standards and international partner solutions.

2.3.3. Historical Context of Globalization

The progress and worldwide expansion of technology generates technological globalization that enables borderless information sharing between organizations. Globalization has quickened information transmission between businesses which allows them to conduct operations simultaneously across any geographical space. Technology advances have substantially transformed industries through global operation streamlining which includes aviation sector automation and real-time tracking and online booking services (Gupta & Gupta,2019).

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Public health globalization enables the medical sector to enhance its performance by sharing medical research and practices that span over multiple global locations. The effects of globalization enable different countries to work together against diseases and obtain new medical breakthroughs at the same time they can react instantly to global health crises. Now that travel paths across nations have opened worldwide infectious diseases present a greater risk thus

emphasizing the value of universal health standards and international alliances for solving health issues.

6. Technological Advancements and the Digital Era (Late 20th to Early 21st Century)

The end of the twentieth century brought unprecedented technological developments that elevated globalization to its highest point. The global economy achieved full interconnection through the widespread adoption of computers and internet technology and telecommunications networks. Better air travel technology reduced international movement costs which enabled industries to bring tourism and aviation on a global stage and permitted international business growth. During this time multinational corporations developed while production and service outsourcing headed toward low-cost areas thus transforming global workforce dynamics and supply chains (Kushwaha, 2011).

7. Globalization in the Post-Cold War Era

The end of the Cold War led to quick progress in political and economic liberation, especially in areas that had been under communist control. The world witnessed China and Russia joining international markets by opening their economic territories for integration with global economic systems. The implementation of neoliberal policies led to worldwide economic regulations that favored free-market principles through deregulation and privatization practices. The transformation brought about new developing markets which established multiple possibilities for worldwide business transactions and investments.

8. Globalization in the Aviation Industry

Aviation became a main player in the creation of present-day globalization through its foundation of international trade and worldwide connectivity structures. During the time

following World War II commercial aviation underwent substantial development that led to the deployment of jet airliners which dramatically shortened intercontinental flights. The Open Skies policy and several other international agreements enabled the aviation industry to free itself from restrictions thus permitting airlines to grow internationally. These developments allowed Saudi Airlines (Saudia) to reach world customers while partnering internationally to improve their services according to international standards.

9. The 21st Century: Challenges and Transformations in Globalization

During the 21st century the process of globalization met multiple new challenges which included economic crises alongside geopolitical tensions and the COVID-19 pandemic. The events unveiled weaknesses in worldwide supply network operations which forced communities to readdress both global integration's security and its ability to continue. Digital transformation remodels globalization by supporting remote work and digital services and e-commerce operation. The aviation industry along with others concentrate their efforts on achieving flexibility combined with sustainability and improved risk management systems as a response to emerging global trends.

2.3.3 Global Supply Chain Theories and Models

The knowledge of global supply chain operations aligns with theoretical and model-based explanations about design systems and management approaches alongside optimization strategies. The frameworks provide organizations the means to send products internationally through borders and implement operational excellence techniques and risk reduction while maintaining customer satisfaction. The basic foundations for global supply chain management have been established by Agrawal & Narain (2018).

1. Supply Chain Management Theory

Supply Chain Management (SCM) Theory allows businesses to develop streamlined supplier-retailer-retailer cooperation systems which deliver products to consumers in a timely manner. The idea focuses on vital factors which combine organization-to-organization partnerships alongside shared resource sharing and strategic partnership formations between business entities. Supply-chain harmony operates together with inventory control systems to deliver supply chain value through the entire framework. Saudi Airlines (Saudia) depends on SCM theory to direct international supply chain operations between suppliers across multiple nations because it enables global operational fulfillment.

2. Resource-Based View (RBV)

Companies achieve competitive business advantages by applying the Resource-Based View (RBV) theory with their unique resources and capabilities. Business assets such as technological expertise and infrastructure and supplier relations establish businesses as strong competitors in international supply chain markets. RBV allows businesses to identify valuable resources with independent existence that combine special manufacturing processes with essential attributes (VRIN). Saudia should utilize the VRIN theory to create its global logistics framework while using investment capital to acquire technology systems that follow its operational specifications as stated by Njualement and Ogundare (2021).

3. Network Theory in Supply Chains

Under Network Theory supply chain management views supply chains as interlinked entities without material use of linear sequential patterns between components. Supply chains run by multinational partners and various partners achieve strong results from using this perspective when operating with wide international supply networks. Through the Network Theory framework supply chain associates monitor both connection intensity between partners and the level of trust

and mutual relationship maintenance measures. Brands that build supply networks based on this model create resistant to global disruptions through flexible supply chain relationships that complement aviation sectors with vulnerable supply chains.

4. Lean and Agile Supply Chain Models

- The opposing Lean and Agile supply chain models unite at the global level to create "leagile" strategies in supply chains.
- A Lean Supply Chain practice enables organizations to minimize waste costs while improving resource usage to reduce expenses. Process optimization in companies depends on their use of just-in-time (JIT) inventory and continuous improvement (kaizen). The Lean model operates optimally under contracted market environments which present predictable customer demand patterns. Saudia should adopt lean strategies to cut down their operating budget in parts where product demand patterns remain constant. Through its flexible nature Agile Supply Chain enables quick market response to customer needs along with demand changes. In this operating system the primary characteristics include response time capabilities as well as flexible functionality and variable handling performance. Organizations receive special value from agile supply chain management systems because they enable unpredicted market demand and marketplace disruption management. The agile application operating at Saudia allows the company to swiftly restructure its operations during customer need shifts and changing international regulations.

4. Global Value Chain (GVC) Theory

Product value creation between various GVC Theory supply chain locations helps identify individual contribution stages. The model allows organizations to decide optimal operational sites through joint assessment of production facilities with their research facilities and their market

outreach strategy. GVC theory offers companies the opportunity to boost each supply chain connection until they reach their highest level of value creation. Location optimization by Saudia will allow the company to establish maintenance centers next to areas that provide financial benefits while delivering superior quality components (Jaboob et al.,2024.).

5. Transaction Cost Economics (TCE)

Transaction Cost Economics (TCE) gives companies the ability to comprehend how they make their decisions regarding supply chain sourcing and outsourcing. Firms select between component manufacturing or purchasing by considering Transaction Cost Economics because these expenses include search, bargaining and enforcement and transportation costs. Companies should produce parts internally when transaction costs are high but will benefit from outsourcing when these costs are low. Saudia must employ TCE analysis to decide between local and international procurement bases for their business operations based on control needs and expense levels.

6. Risk Management and Resilience Models

Global supply chain operations became exposed to diverse risks following their expansion because they faced geopolitical disturbances economic changes and natural calamities. Risk Management and Resilience Models require organizations first to detect risks followed by risk evaluation to enable proper implementation of protective measures which help maintain operations. Businesses should create flexible supply chains according to resilience models to recover efficiently when disruptions arise. Businesses operating in Saudia Airlines require these assessment tools to manage their environment that involves strict operational management strategies. Risk assessment technology and backup systems enable Saudia to develop a strong worldwide supply chain network.

7. Triple-A Supply Chain Model

- In his Triple-A model Hau Lee identifies three key characteristics that form an optimal system for worldwide supply chain management.
- The ability to respond rapidly helps companies meet short-term market supply variations against market needs which enables effective global market response.
- Supply chains need to use adaptability measures to adjust their operations for permanent market environment developments. A company's commercial success depends upon continuous modernization of operational approaches and technological frameworks for both suppliers and internal operations.
- Each supply chain participant must have unified strategic goals together with incentives in order to effectively work together from end to end.
- The Triple-A framework of Saudia enables productive overseas supply chain management through its strategic mechanism of balancing adaptable strategies and proper alignment (Hu & Haddud, 2020).

8. Total Cost of Ownership (TCO) Model system standards enable organizations to evaluate all procurement expenses for owned products starting from procurement to end of ownership.

Saudia employs the Total Cost of Ownership approach to analyze purchase expenses while incorporating operational upkeep costs and last-stage disposal expenses that span from product acquisition to end service term. The TCO serves as an essential framework in global supply chains because various unspecified costs that include customs expenses and transportation fees alongside regulatory compliance requirements directly impact overall profitability. Supplier evaluations for Saudia become easier through Total Cost of Ownership because this model allows full examination of total costs to maintain profitable international supply chain functioning.

9. End-to-End Supply Chain Visibility Model

Through End-to-End Visibility the same system provides instant tracking along with complete supply chain visibility from beginning to end. Currently digital technologies help companies monitor their complete supply chain so they can resolve inventory challenges and disruption control issues. By enabling better decision making and improved demand forecasting the model brings excellent benefits that lead to superior customer satisfaction. The end-to-end visibility system allows Saudia to boost their part procurement methods and maintenance scheduling practices as well as supply chain management coordination throughout their global aviation routes.

2.3.4. Strategic Sourcing and Outsourcing Frameworks

Contemporary world business operations heavily depend on strategic sourcing and outsourcing practices since globalization has entered the market. These frameworks allow supply chain optimization by pinpointing economically dependable and efficient supply and service providers. Strategic sourcing and outsourcing functions benefit from key frameworks alongside decision models that help select suppliers and transfer business functions to external providers for the purpose of long-term business objectives (Glushkova et al.,2019).

1. Kraljic's Purchasing Portfolio Matrix

The Kraljic's Matrix functions as a strategic tool that classifies supplier partnerships under distinct management sectors based on purchase importance and market buying challenges metrics. The Kraljic's Purchasing Portfolio Matrix divides items into four separate categories. Non-Critical Items consist of products with basic supply management needs alongside insignificant value therefore standard cost-based selection remains optimal. The buyer's operations need strategic items which also present low supply challenges because suppliers heavily rely on purchasing

power from their customer base. Buyers must implement deliberate management approaches to bottleneck items since they face complex supply situations with low importance which produce risks and supply disruptions. Strategic Items must rely on vital supplier connections for their complicated supply systems and high importance needs. The strategic instrument enables Saudi Airlines (Saudia) to find crucial component partnerships at affordable rates for its standardized components.

2. Total Cost of Ownership (TCO) Framework serves companies as their organizational assessment tool.

Assesses all costs associated with acquiring, using, and maintaining a product or service over its lifecycle, beyond just the purchase price. TCO includes factors like transportation, customs fees, maintenance, and disposal costs. For global sourcing, TCO helps identify hidden costs and supports more accurate financial decision-making. Saudia can use TCO to evaluate international suppliers and choose sourcing options that minimize long-term costs, aligning with financial and operational efficiency goals.

3. The Make-or-Buy Analysis

The decision about product creation within the organization or supplier acquisition falls under the Make-or-Buy Analysis framework model. The evaluation takes into account the following elements:

Firms can determine the correct decision by examining production expenses and costs for external acquisition.

Internal resource evaluation establishes the ability to fulfill expected demands.

Quality Control: Evaluating the importance of maintaining direct control over quality.

The identification of potential risks during outsourcing becomes significant because it includes supply disruptions and intellectual property loss.

The Make-or-Buy Analysis serves Saudia as a tool to determine between internal creation of maintenance services along with software development and in-flight catering services or external procurement. The analysis lets Saudia establish which operational functions should operate within internal networks rather than being delegated to skilled external service providers.

4. The Strategic Sourcing Process Model

This model presents an organized method to source products by conducting supplier identification followed by evaluation and supplier relationship creation. The strategic sourcing process consists of these major sequential elements:

Assessment of Needs: Understanding organizational requirements and specifications.

The process of market research helps identify acceptable supplier prospects from the market.

Each supplier undergoes evaluation in terms of cost, quality and reliability for selection purposes.

Organizations must negotiate and contract terms which support their future business requirements.

Organizations should ensure the seamless integration of the purchased goods and services through smooth implementation after sourcing them.

The supplier performance requires regular assessment leading to required change adjustments.

Saudia benefits from this model since it steps through a detailed system to pick and supervise suppliers who fulfill their strategic requirements particularly during aircraft maintenance component acquisitions and in-flight service sourcing.

5. Core Competency Theory

Through their model Prahalad and Hamel advise companies to concentrate on their core competencies while asking external partners to handle supplementary business operations. A company determines its uniqueness from competitors by building core competencies consisting of

unique technological and procedural expertise that creates value for customers. Core competency management at Saudia should prioritize superior service excellence and operational excellence in order to enable external providers manage everything from aircraft maintenance to ancillary services.

6. The Outsourcing Relationship Model (ORM)

The success of business activity demands essential partnerships with outsourcing providers as an essential strategic measure for positive results. This business model requires both clients and providers to work together on establishing trust-based partnerships through open dialogue for developing enduring business partnerships. The Outsourcing Relationship Model has three ways outsourcing partners can connect with each other: Both outsourcing partners create closer relationships because they jointly investigate risk management procedures for mutual gain.

Strategic partnerships encourage two entities to maintain long-term sustained collaboration for mutual objective alignment and innovative project development through joint work.

Aeronautical engine suppliers and other essential component or specialized service providers should team up with Saudia due to their ability to create advantages in competitive markets while building operational resilience.

7. The Multi-Sourcing Model

Through such management businesses gain access to various suppliers whose separate functional contributions differ from single supplier partnerships. The model spreads operational risks across companies because it reveals the strengths that different suppliers bring. Saudia requires multi-sourcing because it generates operational resiliency when suppliers are minimized yet the global airline can perform across international markets with different economic and regulatory and operational hurdles.

8. The Outsourcing Decision Matrix

The Outsourcing Decision Matrix enables organizations to select operations for external management after performing strategic evaluation and operational complexity analysis. The four sections providing task arrangement exist in the matrix structure.

An organization should establish strategic alliances for business relationships defined as high strategic importance combined with high operational complexity. In the classification scheme organizations should retain ownership of strategic yet simple operations. When functional operations require specialized professionals the outsourcing contracts should be managed by them because these operations have high complexity but minimal strategic importance..

1. The Saudia organization should rely on this framework to make strategic choices about handling customer contact points and IT system and payroll administration tasks by external vendors.
2. Vendor Management Framework
3. The Vendor Management Framework (VMF) operates as an approach for managing supplier relationships through standardized professional methods. This framework includes:
4. Saudia builds effective supplier selection procedures that help the company find vendors whose expertise fits their business goals.
5. The system implements contract management through performance observation and establishment protocols for proper compliance.
6. The workplace framework creates security risk management processes to protect against possible dangers introduced by supplier business activities.

7. Saudia evaluates vendor performance through specific established KPIs that require regular periodic assessment.
8. VMF system at Saudia enables the verification of supplier compliance for quality standards and performance and cost management requirements.

2.3.5 Impact of Globalization on Operations Management in Airlines

1. Modern globalization has revolutionized airline operations through new benefits that create obstacles for pilots who manage airline operations. Regulatory standards diversity management together with supply chain network optimization should be implemented for the proper development of airline international services. Globalization creates substantial operational impact on airlines but cost efficiency represents a notable effect along with new standardization and localization approaches as essential elements besides technological and workforce management systems.
2. Through global expansion airlines accelerate business activities while minimizing expenses by developing international connections with other organizations. Airlines obtain operational excellence combined with cost reduction through their ability to procure fuel and maintenance supplies needed for operations from global suppliers. Repair and maintenance services operate across various locations which enable them to use lower labor rates and materials costs for added cost reduction opportunities.
3. Companies in the airline industry put into place standardized operations combined with service methods which allowed them to run their international activities efficiently. All routes spanning the complete network operate under standards for operations and safety measures in addition to corporate service protocols. The standardized procedures create operational

consistency which produces a uniform brand experience that passengers can access equally at every location

4. The operation of global industries depends on localized services since airlines must adjust their offerings to match market needs while keeping standardized operating frameworks. Service localization combines flight meal adjustments and selects service language preferences to conduct marketing campaigns in ways that address cultural needs of local markets. An airline needs to determine operational standards that reach the requirements of its selected target markets to become profitable.
5. Modern airline operations need essential operational capabilities that come from advanced technology adoption because the speed of technology adoption continues to rise because of globalization. Specific real-time tracking technologies and analytical models enable airlines to enhance operational network management throughout worldwide systems and achieve operational targets. Digital platforms provide companies with precise market trend forecasting capabilities that enhance operational scheduling for delivering better service quality through data-driven decisions.
6. The complexity of airline Supply Chain Management expanded due to globalization because airlines now partner internationally with suppliers who make them vulnerable to external influences. Suppliers who currently work with airlines provide them with both aircraft parts and fuel provisions. Global airline supply chain management operations experience distribution network failures resulting from political instabilities which cause economic breakdowns. Operations managers reduce organizational risks through their development of specialized supply chain strategies together with.

7. International aviation operations force airlines to execute various national regulatory systems and aviation standards that exist in independent countries. Operating airlines businesses needs to meet environmental controls while executing safety standards and complying with multiple labor regulations across various international areas. Airline operations become complex and costly for airlines when they need to comply with regulations because they must modify their policies as international standards keep changing.
8. Presently airlines must build flexible management systems because globalization has brought diverse aviation personnel into the workplace that necessitates inclusive implementation practices. The increasing employment of staff members with different cultural backgrounds within airline sectors creates both communication barriers and new service chances. Operation excellence together with superior service quality emerges from proper team management of diverse employees who deliver support to global customers.
9. Globalization has created worldwide accessibility which demands customers to receive hassle-free options for international travel. All stages from booking initiation through baggage collection must be continuously serviced by the international airline operation. The airlines benefit from their partnership network and improved customer service systems that create streamlined flight coordination and optimized personal services delivery with improved baggage handling services.
10. Flight companies from around the world reach expanded market presence by teaming up with various business organizations. Partnerships between airlines enable them to allocate their resources within alliances and share both flight management operations and operating costs with collaborating organizations. Members of SkyTeam one world and Star Alliance allow

airlines to expand their geographic routes while streamlining their operational systems thus reducing unnecessary procedures.

11. Every airline should create extensive risk management strategies to overcome worldwide challenges because emergency response protocols surpass traditional domestic risk prevention methods. To ensure continuous organizational resilience the operations management systems operating globally need systematic risk assessment coupled with pre-developed crisis management techniques and recovery plans.

2.3.6 Globalization and Supply Chain Management

Supply chains require better management systems due to the fact that globalization expanded their reach by connecting them to international supplier networks within aviation businesses. Airline companies experience numerous advantages together with various challenges as they deal with both sourcing networks and logistics systems and risk control initiatives and sustainability programs during the globalization process. The research evaluates natural consequences of airline supply chain management changes that emerged during different phases of globalization. (Adeitan et al.,2021).

1. Global Sourcing and Supplier Networks

The global market gives airlines the opportunity to find a broad selection of suppliers throughout the world which enables them to acquire things from regions offering either price advantages or unique capabilities. Airlines enhance operational effectiveness by making global sourcing purchases for fuel, spare parts and in-flight supplies at minimized costs.

1. Global supply chains function better because of their resilience capabilities together with their risk management approaches.

Modern airlines maintain connected supply chains across the world yet risks emerge from political instabilities and economic shifts and natural disasters which threaten their supply operations. Aurora needs to handle the common issues which affect global supply chains including trade disputes and pandemics. Global supply chain management success throughout a connected world depends on assessing risks in advance followed by selecting multiple suppliers and formulating backup strategies.

2. Logistics and Cross-Border Compliance

Companies that work internationally need to follow different customs procedures as well as national tariff policies along with standards throughout all their operating countries. Global supply chain management requires clear border shipment momentum which reduces customs delays and prevents unexpected tariff-related expenses (Kokodey et al.,2020).

3. Inventory Management and Cost Efficiency

The global connections permit airlines to reach peak inventory management through balanced supply distribution across many areas which then brings down operating costs and enhances resource use. Airline companies deploy inventory hubs either as centralized systems or as local operations to strike a proper balance between operational cost and service availability. Real-time tracking inventory management technologies provide airlines exceptional capability to monitor worldwide stock levels while predicting customer demand.

4. Technological Advancements and Digital Supply Chains

Digital supply chain practices enabled by globalization provide airlines with full supply chain visibility so they can enhance their operational decisions. Through implementation of real-time tracking together with artificial intelligence and big data analytics airlines can track their shipments while predicting market needs to drive efficient decision-making.

5. Supplier Collaboration and Strategic Partnerships

Globalization helps airlines create strong partnerships between suppliers and logistics providers across the world so their supply chain network becomes more resistant and flexible. Both companies undertake collaborative ventures such as joint facility investments and technological knowledge exchanges and sustainable practice partnerships that yield mutual advantages.

6. Environmental Sustainability and Global Standards

A rising amount of pressure exists for airlines to establish sustainable operational methods for environmental footprint reduction purposes. International sustainability standards provide airlines the opportunity to implement well-known goals regarding emission reduction and waste management. Companies operating in airlines fulfill worldwide ecological demands through sustainable supply chain activities which combine eco-friendly supplier selection and fuel efficiency maximization.

3 Technological Advancements and Digital Transformation

The airline industry has benefited immensely from digital transformation through modern technological developments which have transformed their supply chain operations. These emerging technologies guide airlines in managing operations through optimally-streamlined methods which help them create superior decision structure while optimizing customer-facing processes. Technology plays a crucial role through digital transformation across major airline areas which impact supply chains and operational activities especially for global organizations (Orlanyuk-Malitskaya et al.,2024).

1. Recognizing ability to review and assess real-time data stands as a fundamental practice for creating efficient supply chain operations. Modern data analytics systems assist airlines

in observing delivery movements and forecasting needs and determining which routes produce the greatest outcomes to enhance their decision processes. Real-time data enables organizations to execute immediate adjustments within supply chains which improves their standing to market disruptions and evolving customer needs.

2. Market demand forecasting and operational flight scheduling along with supply chain performance exist as essential functions of AI technology coupled with ML methods.

Handing future market needs estimation to AI-based predictive analytics systems allows airlines to plan operational assets which produces effective logistics operations. Pattern recognition models in machine learning support companies to maintain their infrastructure ahead of time thus reducing system maintenance durations necessary for operational continuity.

3. Through IoT technology airlines gain real-time tracking of their entire supply chain system. The Internet of Things sensors measure asset variables and document asset locations in addition to tracking asset movement while examining aircraft components and luggage and cargo. The system provides visible operational oversight while protecting assets from damage and enhances all logistics processes and inventory management performance.

4. Airline managers streamline their core business and supply chain procedures through robotic automation systems which modernize standard office work processes. Robotic tools provide benefits to multiple organization sections by operating throughout automated check-in processes and baggage handling frameworks as well as warehouse and inventory systems. Automation processes boost worker efficiency through error-free operation which lets employees spend their time on work with substantial value.

5. Organizations use blockchain-based supply chain tracking systems to create an unchangeable system which follows each transaction step. Within the airline industry blockchain technology tracks components starting from procurement and continuing through each production step for supplier quality confirmation and counterfeits prevention. The system needs full transparency because such transparency ensures regulatory compliance and proves crucial for quality control operations.

2.3.7. Globalization's Influence on Airline Operations

According to Niels Bohr modern societies face a more dangerous pandemic than tuberculosis because they have developed a fear of new thoughts. The airline industry experienced transformation through global expansion that created more competition and upgraded operations. The need for borderless passenger and cargo transportation by international trade development and market growth has become mandatory for airline operations adjustments. The industrial change emerges from operational and business model innovations developed through digital developments coupled with strategic collaborations. The airline alliances SkyTeam Star Alliance and One world allow Saudia as well as other member carriers to access larger networks that create seamless customer journeys while cutting down operational costs.

Digital transformation and technological progress stands as the deepest operation change that globalization has introduced into airline management. Travel companies modernize their practices through artificial intelligence technology and automated systems that operate in real-time to create improved operation management systems and higher satisfaction levels for customers. Predictive maintenance systems powered by artificial intelligence enable airlines to forecast aircraft failures ahead of time thus they can stop such failures from occurring

which increases aircraft reliability. Easy passenger bookings and efficient check-ins now exist because of cloud-based systems which combine with self-service kiosks.

Growing competition in the airline industry due to global forces prompts carriers to cut their costs while enhancing their service quality. Competing airlines have expanded options for travelers with low-cost carriers so full-service flight providers must respond to this by making their prices equal to LCCs' rates. Operational companies in intensely globalized airline markets are compelled to continually innovate because they must stay ahead of competitors through better customer care and differentiated loyalty systems and travel-hospitality service partnerships. Success in international aviation competition will force Saudi to enhance premium service levels and develop digital methods of engaging customers..

Business operations in airlines face direct influence from the globalized environment through regulatory challenges that define their functional activities. Airlines must adhere to different international aviation rules that both IATA and ICAO and independent national aviation bodies establish. The maintenance of evolving legislations touches all aviation regulations including operational procedures and environmental requirements and safeguarding standards until airlines follow regulatory requirements. Potential airlines encounter multiple barriers to enter the market because of air traffic rights policies and open skies agreements and bilateral aviation treaties.

Customer behavior along with their preferences stand out as key industry consequences linked to airline sector internationalization. Current airline operations use mobile applications together with personal loyalty programs and in-flight network connectivity as fundamental operational components. Environmental-aware global travelers have motivated airlines

toward investing in technologies which create sustainable aircraft flights together with emission reduction programs that combine sustainable fuel use to minimize environmental footprints.

Modern commercial air transport now experiences everlasting changes because of globalization through its acceptance of technological advancements and heightened market competition and newly established customer-focused regulations. The airline industry demands that Saudi Airlines (Saudia) needs continuous evolution based on digital transformation methods with cost optimization solutions and international aviation policy applications alongside customer satisfaction strategies to establish and maintain competitive success. Competitive advantage within the airline industry primarily goes to organizations which effectively navigate worldwide complication networks

2.3.8 Supply Chain Management positions itself in the Aviation Industry

SCM operates in the aviation industry as a sophisticated system with dynamic characteristics that combines resource management with supplier operations to maintain smooth airline operations.

Because aviation operates at a worldwide scale companies need to oversee extensive supplier networks together with different regulatory demands and logistical hurdles to sustain their operations and customer contentment. The aviation supply chain entails all necessary components starting from aircraft manufacturing through parts purchasing to fuel acquisition until MRO operations and flight-related service provision. Genuine supply chain management requires importance for reducing prices and decreasing delays while guaranteeing safety regulations apply throughout the industry sector.

The aviation supply chain depends on several linked components that handle combined responsibilities for steady airline functionality.:

1. Airline companies collaborate with aircraft manufacturers Boeing along with Airbus and Embraer to acquire their aircraft fleets and maintain their operations. The acquisition of aircraft demands organizations to follow long duration strategic planning plus monetary estimations alongside official sanctions.
2. The aviation sector depends heavily on the proper management of extensive inventory reserves of aircraft components as well as spare parts. Airlines need to operate a system which delivers essential parts to clients and maintains perfect inventory levels to minimize storage costs. Predictive maintenance software and just-in-time inventory systems together enable better management of aircraft spare parts.
3. Airlines must maintain exceptional fuel procurement and distribution solutions because fuel costs form the biggest operational expenses in the industry. The aviation industry connects with worldwide fuel suppliers through contracts and finds operational paths that reduce fuel usage between destinations. The supply chain management of fuel depends on varying fuel costs and political issues.
4. MRO operations stand vital for aircraft safety and regulatory compliance because they maintain and repair all systems on aircraft assets. Airline operators either build their own MRO facilities while specializing maintenance and repair work at external service organizations. When MRO supply chains encounter disruptions it results in plane grounding situations along with operational losses.
5. Airlines depend on catering together with ground handling service companies to deliver better services to their passengers. Airports operate successfully because suppliers maintain effective cooperation which delivers food on time and manages baggage along with airport logistics operations.

6. The aviation supply chain benefits from the digital revolution through blockchain system and artificial intelligence (AI) alongside Internet of Things (IoT) that enhance operational clarity and boost efficient performance while enabling predictive analysis capabilities.

- Several obstacles diminish the successful practice of supply chain management within the aviation sector.
- Global Supply Chain Disruptions caused by COVID-19 together with geopolitical conflicts and trade restrictions have proven the weak points within international aviation supply chains. The transmission of disruptions leads to late aircraft production alongside spare parts availability problems and higher maintenance expenses.
- The aviation industry maintains compliance with safety and environmental requirements which are functionally enforced by the International Civil Aviation Organization and International Air Transport Association. The refusal to follow rules leads companies to pay fines along with getting restricted from business activity.
- High service quality must be balanced against cost reduction while fuel prices change. Rising fuel prices together with escalating labor expenses create substantial financial problems for the aviation supply chain industry.

Sustainability and environmental concerns have risen so much in the aviation industry that it now needs to implement green supply chain practices using sustainable fuels and carbon offset and eco-friendly organization solutions.

Several strategic supply chain management approaches have emerged for airlines to fight operational challenges and boost their operational effectiveness.

Sugar Air implements lean supply chain models together with agile supply chain approaches to reduce waste and enhance inventory management effectiveness. Airlines use agile supply chain structures to speed up their reactions to market variations along with supply disruptions.

Strong relationships with dependable suppliers through Supplier Relationship Management create essential conditions for a timely supply of necessary elements and assets. Airlines use extended agreements and organization partnerships to create dependable supply chain systems.

Airlines implement AI-powered forecasting and digital twin systems and blockchain technology for supply chain visibility tracking to enhance their operations. Through automation of inventory tracking systems and warehouse management technologies airline companies obtain improved operational performance.

The practice of creating backup plans together with supplier base expansion helps aviation companies manage potential supply chain disruption risks. The predictive analytics capabilities help airlines identify upcoming bottlenecks that could occur within their supply chain operations.

The aviation industry executes supply chain management to guarantee operational excellence together with cost-effective operations and regulatory standards compliance. Airlines need to implement creative supply chain methods because globalization along with innovative technology transforms the airline infrastructure to stay competitive. Airline supply chains achieve efficient resilience through digital transformation of supplier networks and sustainable practices for supporting industry sustainability during long-term expansion.

Global Supply Chain Integration in Saudi Airlines (Saudia)

2.3.9. Global Supply Chain Integration in Saudi Airlines (Saudia)

Modern airline operations succeed with global supply chain integration because this practice helps carriers optimize their operations while improving efficiency along with

reducing business hazards. Saudi Airlines (Saudia) needs a strategic supply chain system which integrates its broad network of suppliers and logistical operators alongside national and international regulatory protocols. Through effective supply chain integration airlines can keep aircraft maintained promptly while providing parts availability highways and best fuel strategies and raise their service standards to their customers.

Saudia's Approach to Global Supply Chain Integration

- Growth and environmental sustainability form critical concerns that push the aviation sector to implement green supply chain techniques including sustainable energy source alternatives and carbon neutral and environmentally friendly delivery systems.
- Several strategic supply chain management approaches have emerged for airlines to fight operational challenges and boost their operational effectiveness.
- Sugar Air implements lean supply chain models together with agile supply chain approaches to reduce waste and enhance inventory management effectiveness. The adoption of agile supply chain models enables airlines to manage market disruptions and market changes in a fast manner.
- Strong relationships with dependable suppliers through Supplier Relationship Management create essential conditions for a timely supply of necessary elements and assets. Airlines use extended agreements and organization partnerships to create dependable supply chain systems.
- The airline industry uses digital transformation tools with AI-based forecasting and blockchain technology and digital twins to achieve improved supply chain tracking. Automation systems are used for inventory monitoring together with warehouse administration work to enhance operational productivity.

- Risk Management together with Resilience Planning requires airlines to create emergency response plans alongside establishing multiple supplier relationships in order to address supply chain challenges. Airlines use predictive analytics to both forecast future supply chain operating risks and create solutions against these potential threats in their supply chain infrastructure.
- The aviation industry executes supply chain management to guarantee operational excellence together with cost-effective operations and regulatory standards compliance. Airlines need to implement creative supply chain methods because globalization along with innovative technology transforms the airline infrastructure to stay competitive. Through digital advances and improved supplier systems and sustainable programs airlines construct sturdy efficient supply chains which combine sustainable business growth and industry sustainability.
- Global Supply Chain Integration in Saudi Airlines (Saudia)
- 2.3.9. Global Supply Chain Integration in Saudi Airlines (Saudia)
- Modern airline operations succeed with global supply chain integration because this practice helps carriers optimize their operations while improving efficiency along with reducing business hazards. Saudi Airlines (Saudia) needs a strategic supply chain system which integrates its broad network of suppliers and logistical operators alongside national and international regulatory protocols. Through effective supply chain integration airlines can keep aircraft maintained promptly while providing parts availability highways and best fuel strategies and raise their service standards to their customers..

5. Strategic Initiatives to Enhance Supply Chain Integration

To overcome challenges and improve efficiency, Saudia has implemented several key initiatives:

- Investment in AI and Predictive Analytics: Utilizing big data and AI-driven forecasting helps improve demand planning and optimize inventory levels.
- Sustainability and Green Supply Chain Practices: The airline is incorporating sustainable aviation fuel (SAF) and carbon offset programs to align with global sustainability goals.
- Diversification of Suppliers: To reduce dependency on a single supplier, Saudia is expanding its procurement base and strengthening partnerships with multiple global vendors.

2.3.10. Challenges of Globalized Supply Chains in Airlines

The aviation sector faces mounting pressure regarding sustainability because it must implement environmentally friendly supply chain practices such as green fuel alternatives with carbon offsetting programs together with eco-friendly logistics solutions.

Several strategic supply chain management approaches have emerged for airlines to fight operational challenges and boost their operational effectiveness.

Sugar Air implements lean supply chain models together with agile supply chain approaches to reduce waste and enhance inventory management effectiveness. The implementation of agile supply chains by airlines provides them with fast capability to handle disruptions and market changes.

Strong relationships with dependable suppliers through Supplier Relationship Management create essential conditions for timely supply of necessary elements and assets. Airlines use extended agreements and organization partnerships to create dependable supply chain systems.

The use of AI-based forecasting and digital twin technology with blockchain functions helps airlines obtain better supply chain visibility and trackable systems. Assembly of inventory data through automation and warehouse management systems results in operational benefits.

Risk Management and Resilience Planning combines two approaches which involve both contingency planning systems with supplier diversity for minimizing supply chain shortages during emergencies. Airlines use predictive analytics to forecast supply chain constraints and develop proper strategies for their resolution.

The aviation industry executes supply chain management to guarantee operational excellence together with cost-effective operations and regulatory standards compliance. Airlines need to implement creative supply chain methods because globalization along with innovative technology transforms the airline infrastructure to stay competitive. Starting with digital transformation improvements and superior supplier network management and sustainable practice adoption makes it possible for airlines to create steady and effective supply chains for long-term development and industry sustainability

2.3.11. Global Supply Chain Integration in Saudi Airlines (Saudia)

Modern airline operations succeed with global supply chain integration because this practice helps carriers optimize their operations while improving efficiency along with reducing business hazards. Saudi Airlines (Saudia) needs a strategic supply chain system which integrates

its broad network of suppliers and logistical operators alongside national and international regulatory protocols. Through effective supply chain integration airlines can keep aircraft maintained promptly while providing parts availability highways and best fuel strategies and raise their service standards to their customers..

1. Regulatory Compliance and Environmental Standards

The supply chain operations of airlines need to follow a difficult mix of international and national as well as regional rules and regulations. Flight safety standards alongside environmental requirements and maintenance protocols formulate part of IATA and ICAO requirements which airlines need to implement. Airline operations are being compelled to take both carbon reduction measures and sustainable supply chain programs through investments into eco-friendly aviation fuels and energy-efficient aircraft technologies and carbon offset initiatives. The combination of regulatory changes and business profitability demands presents significant challenges to global airline companies which need to structure their operations simultaneously.

2. Dependence on a Global Supplier Network

The aviation sector depends on worldwide suppliers as well as manufacturers for aircraft components alongside spare parts and maintenance services. The world-wide supply chain model gives financial advantages yet creates multiple challenges because of supply chain disruptions together with quality problems and restricted supplier base. Boeing and Airbus control the aviation market which forces airlines to submit to their manufacturing timelines. Market profitability alongside fleet expansion planning suffers delays caused by supply chain interruptions or manufacturing problems with aircraft deliveries.

3. Cybersecurity Threats in Globalized Airline Supply Chains

Digital supply chain management systems along with cloud computing and automated coordination platforms require airlines to address cybersecurity as a critical issue. When cyberattacks interrupt airline databases alongside coordination platforms and aircraft maintenance applications it results in safety risks and operational breakdowns while causing companies to suffer large financial damages. Supply chain networks fall victim to hackers who use their skills to change schedules and steal sensitive information and to interrupt both flights purchasing systems and operational security systems. Airlines need to buy advanced security frameworks combined with encryption protocols and intelligence systems for detecting threats in order to defend their worldwide supply networks.

4. Shortages in Skilled Workforce for Supply Chain Management

A worldwide airline supply chain management system demands personnel who master coordination processes and procurement techniques and risk mitigation and regulatory compliance procedures. But the aviation industry now faces an emerging problem because professionals who specialize in supply chain management have become scarce, especially in aviation coordination and aircraft maintenance sectors and supply chain cybersecurity fields. Airlines need to develop educational programs along with research university collaborations and online staffing solutions to close supply chain technical shortcomings which will enhance their operational efficiency.

5. Rising Costs and Inflation in Global Aviation Supply Chains

Airlines need to manage their escalating expenses between price stability for tickets and operational effectiveness. The increasing expenses for labor represent a primary issue faced by airlines, especially as they require experienced engineers, pilots along with organization specialists. Companies within the airline sector need to develop creative approaches that minimize supply chain expenses while preserving service level excellence.

6. Strategies to Overcome Global Supply Chain Challenges

- Airlines must implement these strategies to address the problems which arise from worldwide supply chain operations within the industry:
- Multiple suppliers must be developed across different geographic areas, so supply chains remain resilient and dependent on one supplier is reduced.
- Air tinder will boost supply chain network security through the combination of data encryption protocols and multi-factor authentication as well as real-time threatening systems.
- The airline industry should pledge Sustainable and Green Supply Chain Practices by acquiring sustainable aviation fuel (SAF) as well as setting up carbon offset programs and buying fuel-efficient aircraft to follow worldwide environmental goals.
- Airlines must develop emergency plans with risk assessment systems and backup supply networks as part of their crisis preparedness since they face unexpected situations such as viruses or commercial trade barriers Strategic Responses to Globalization by Saudi Airlines

Chapter 3: Research Methodology

During this chapter, the methodology of the study that was followed during the research will be presented by presenting the methodology used as well as a description of the sample that was applied to it, in addition to a comprehensive and accurate description of the tool that was used and the method used in its preparation and presentation of its validity and reliability, in addition to clarifying the statistical methods and treatments used. It was mainly relied upon in analyzing the hypotheses of the study in order to reach reliable scientific results.

4.1. Methodology

The current study seeks to study and analyze the objectives of the current study. Therefore, the analytical descriptive approach has been relied upon, which in turn depends on the realistic study of the phenomenon as it is in reality and focus on describing it accurately and expressing it through quantitative and qualitative descriptions, and the reason behind relying on the descriptive approach. The analytical approach does not only depend on collecting data related to the phenomenon under analysis, but also reliance on that approach works on a thorough investigation of its dimensions and its various relationships with the variables surrounding it. **and therefore the researcher used two main sources of information, namely:**

- a) The first source: through the use of information collection methods by reviewing references, scientific research and books that dealt with research variables.
- b) The second source: that is, data collection through the practical application of the questionnaire as a tool for research and its application to the study sample to reach reliable scientific results.

4.2. The Research samples

The research sample consisted of a number of teachers working in the field of education.

Where the application was made on a sample of (100), and the application was done electronically.

The following table shows sample specifications:

Table 1 showing the characteristics of the research sample

Characteristics	Sub Characteristics	N	%
Age	Under 30 years old.	25	25
	30 –40 years old.	40	40
	40- 50 years old	17	17
	50 or more	18	18
Gender	Male	66	66
	Female	34	34
Educational	Bachelor’s degree	58	58
	Master's degree	22	22
	Doctorate degree	20	20
Seniority at work	1 – 5 years.	50	50
	From 6 to 10 years	21	21
	From 11 to 15 years	23	23
	16 or more years.	6	6
Total		100	100%

4.3. Study Tools

The research tool consisted of a questionnaire that was submitted electronically, and the questionnaire may have two main axes:

- **The first:** It is the basic data for each of the respondents, such as gender, age, and educational level.

- **The second:** It is the basic items of the questionnaire, which consisted of (24) items divided into four axes as follow:
 - Globalization, which consist of (7) items.
 - Operations Management, which consist of (7) items.
 - Supply Chain Management, which consists of (7) items.

The questionnaire will be used in order to collect data through the five-point Likert scale, which can be expressed through the following table:

Table 2 The five- point Likert scale

Term	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Answer degree	5	4	3	2	1

4.4. The validity

The validity of this questionnaire was measured by two methods:.

Table 3 The internal consistency of the questionnaire through the correlation coefficient

Globalization		Operations Management		Supply Chain Management	
N	correlation coefficient	N	correlation coefficient	N	correlation coefficient
1	0,89	1	0,71	1	0.65
2	0,75	2	0,80	2	0.81
3	0,81	3	0,78	3	0.71
4	0,86	4	0,75	4	0.90
5	0,74	5	0.705	5	0.85

6	0,64	6	0,710	6	0.67
7	0.91	7	0.81	7	0.70

At the significance level 0.01

The internal consistency of the questionnaire was assessed through the correlation coefficient between each item and the total score for three key dimensions: Globalization, Operations Management, and Supply Chain Management. As shown in Table (3), the correlation coefficients for the Globalization dimension ranged from 0.64 to 0.89, with an overall correlation of 0.91, indicating a strong relationship between the individual items and the total score. Similarly, for Operations Management, the correlation values ranged from 0.705 to 0.80, with an overall coefficient of 0.81, demonstrating a high level of internal consistency. Meanwhile, the Supply Chain Management dimension exhibited correlation coefficients ranging from 0.65 to 0.90, with a total score correlation of 0.70, signifying a moderate to strong relationship between the items and the overall construct. All correlation coefficients were statistically significant at the 0.01 significance level, confirming the reliability and validity of the questionnaire. The fact that these coefficients exceed the commonly accepted threshold for strong correlations suggests that the questionnaire effectively measures the intended constructs with high internal consistency. The high values indicate that each item contributes meaningfully to its respective dimension, ensuring that the instrument is a reliable tool for assessing the constructs of Globalization, Operations Management, and Supply Chain Management. Therefore, the results confirm that the questionnaire maintains a robust validity rate, making it a suitable instrument for further analysis and practical applications in the field.

4.5. The reliability

The reliability of the questionnaire was evaluated using Cronbach's alpha coefficient, a widely used statistical measure to assess the internal consistency and stability of a scale. The

obtained Cronbach's alpha values for the different sections of the questionnaire were 0.78, 0.74, and 0.75. These values indicate a high level of reliability, suggesting that the questionnaire provides consistent and dependable results across different applications. Cronbach's alpha values between 0.70 and 0.80 are generally considered acceptable to good, reflecting that the questionnaire items are well-correlated and measure the intended constructs reliably. The value of 0.78, in particular, is close to the optimal range of internal consistency, further confirming the robustness of the instrument. The slightly lower values of 0.74 and 0.75 still indicate a satisfactory level of reliability, ensuring that the questionnaire can be effectively used for research and practical applications without significant measurement errors.

4.6. Study procedures

In the beginning, the questionnaire was designed by looking at the previous studies on the subject of the research, and through the theoretical frameworks that were collected. After designing the questionnaire, it was presented to a number of arbitrators, and the necessary amendments were made through deletion and addition. Then both the validity and reliability criteria of the tool were calculated. After that, the questionnaire was prepared electronically and distributed through the use of social networking sites such as Facebook and WhatsApp, and after application, data were collected in order to reach reliable scientific results.

4.7. The statistical methods used

The data collected from the sample were entered using the program (SPSS-V.22). The statistical methods that were used to process the data varied, including:

- Cronbach's Alpha coefficient to ensure consistent performance.
- Use frequencies and percentages to determine the significance of the sample's responses to the questionnaire items.

- Correlation coefficient for the calculation of honesty.
- Regression analysis.

Chapter Four: Analysis and Results

4.1 Introduction:

This chapter discusses the statistical analysis of the collected data. It consists of a set of analytical processes that are followed to obtain clear and meaningful scientific information and results that meet the objectives of the study and answer its research questions.

4.2 Statistical Analysis and Results Interpretation

4.2.1. Independent variable: Globalization

Table 4 The result of Globalization

No	phrases	Mean	SD	Order
1	Globalization has increased competition in the airline industry, requiring operational improvements.	3.85	0.799	1
2	The airline industry has benefited from globalization through expanded international routes.	3.63	1.069	3
3	The adoption of global technological advancements (AI, automation, digital platforms) has improved airline operations.	3.85	0.881	2
4	Globalization has made compliance with international regulations (IATA, ICAO) more challenging.	3.44	1.131	6
5	Supply chain disruptions due to global crises (e.g., COVID-19, geopolitical issues) have impacted airline operations significantly.	3.62	0.976	4

6	The integration of international suppliers and logistics partners has enhanced operational efficiency	3.56	1.061	5
7	Globalization has increased the complexity of managing workforce diversity and cultural differences in airline operations.	3.43	1.144	7

The statistical analysis of the Globalization variable in the airline industry reveals several key insights regarding its impact on operations. The highest-rated statements, with a mean score of 3.85, indicate that globalization has intensified competition in the airline industry, necessitating operational improvements, and that the adoption of global technological advancements such as AI, automation, and digital platforms has contributed to enhancing airline operations. These results suggest that the competitive pressures brought by globalization push airlines to innovate and optimize their operational strategies to maintain efficiency and competitiveness. The statement that globalization has expanded international routes received a slightly lower mean score of 3.63, ranking third, which highlights that although airlines have benefited from globalization in terms of network expansion, this advantage may come with operational and logistical challenges. Similarly, the statement about supply chain disruptions due to global crises, such as COVID-19 and geopolitical issues, impacting airline operations scored 3.62, indicating that while globalization offers benefits, it also exposes airlines to greater vulnerabilities from external disruptions. In terms of operational efficiency, the integration of international suppliers and logistics partners was rated with a mean score of 3.56, showing that while globalization has helped streamline supply chain operations, it may not be the most critical factor influencing airline performance. On the other hand, compliance with international aviation regulations (IATA, ICAO) was seen as a significant challenge, with a lower mean of 3.44, ranking sixth. This suggests that while globalization facilitates expansion, it also increases regulatory complexities that airlines

must navigate. Lastly, the lowest-rated statement, with a mean of 3.43, addressed the complexity of managing workforce diversity and cultural differences in airline operations. This indicates that although globalization has diversified the workforce, managing cultural differences and ensuring cohesive team performance remains a challenge for airlines. Overall, the findings suggest that while globalization has introduced significant advantages in the airline industry, such as technological advancements and operational efficiency, it has also increased competition, regulatory challenges, and susceptibility to global disruptions. These mixed impacts highlight the need for airlines to adopt strategic management approaches to maximize the benefits while mitigating the challenges posed by globalization.

4.2.2. Dependent variable : Operations Management

Table 5 The result of Operations Management

No	phrases	Mean	SD	Order
1	Globalization has led to improvements in operational efficiency at Saudi Airlines.	3.85	0.799	1
2	Technological advancements adopted due to globalization have optimized flight scheduling and passenger management.	3.63	1.069	3
3	Increasing global demand has put pressure on operational efficiency and service quality.	3.85	0.881	2
4	The airline has effectively managed changes in operational strategies due to global market trends.	3.35	1.088	5
5	Globalization has required enhanced training and skill development for operational staff.	3.44	1.131	4

6	Saudi Airlines has successfully implemented digital transformation in operational management.	3.35	0.971	6
7	The airline's operational resilience has improved in response to global challenges such as fuel price fluctuations and changing regulations.	3.33	0.647	7

The analysis of the Operations Management variable in the context of Saudi Airlines highlights key operational impacts driven by globalization. The highest-rated statements, both with a mean score of 3.85, suggest that globalization has significantly contributed to operational efficiency improvements and that increasing global demand has placed pressure on both efficiency and service quality. These results indicate that globalization has been a double-edged sword—while it has enhanced efficiency, it has also introduced new challenges by increasing service expectations and operational demands. The third-ranked statement, with a mean score of 3.63, emphasizes the role of technological advancements in optimizing flight scheduling and passenger management. This finding underscores the importance of leveraging digital tools and automation to enhance efficiency, a necessity in the modern airline industry. On the other hand, the ability of Saudi Airlines to manage operational strategy changes due to global market trends was rated lower, with a mean of 3.35, indicating room for improvement in adapting to shifting global conditions. A similar mean score (3.35) was assigned to the statement regarding digital transformation in operational management, suggesting that while progress has been made, further enhancements in digital integration may be needed. The necessity for enhanced training and skill development for operational staff, driven by globalization, received a mean score of 3.44, highlighting that ongoing workforce development is crucial for maintaining efficiency in a rapidly evolving industry. The lowest-rated statement, with a mean score of 3.33, pertains to operational resilience in response to

global challenges such as fuel price fluctuations and regulatory changes. This suggests that while globalization has improved some aspects of operations, Saudi Airlines may still face challenges in building resilience against unpredictable external factors. Overall, the findings suggest that Saudi Airlines has benefited from globalization, particularly in operational efficiency and technology adoption. However, challenges remain in adapting operational strategies, managing resilience, and further enhancing digital transformation. Addressing these areas could help strengthen the airline's ability to navigate the complexities of the global aviation market effectively.

4.2.3. Dependent Variable Supply Chain Management

Table 6 The result of Supply Chain Management

No	Phrase	Mean	standard deviation	order
1	Globalization has led to the expansion of Saudi Airlines' global supply chain network	3.63	1.024	4
2	The airline has effectively integrated global suppliers and logistics partners into its supply chain.	3.65	0.976	3
3	International trade agreements and regulations impact the efficiency of supply chain operations.	3.51	1.091	7
4	The airline's ability to manage spare parts and inventory has improved due to globalization.	3.60	1.087	5

5	Disruptions in the global supply chain (e.g., pandemics, trade restrictions) have affected airline operations significantly.	3.81	1.024	1
6	Saudia has adopted digital tools (AI, blockchain, predictive analytics) to enhance supply chain management.	3.65	1.176	2
7	Sustainable supply chain management practices, influenced by globalization, have been prioritized by Saudi Airlines.	3.55	1.178	6

The analysis of Supply Chain Management in the context of Saudi Airlines highlights how globalization has influenced the airline's supply chain operations. The highest-rated statement, with a mean score of 3.81, indicates that disruptions in the global supply chain, such as pandemics and trade restrictions, have had a significant impact on airline operations. This underscores the vulnerability of the aviation industry to global crises, emphasizing the need for resilient supply chain strategies to mitigate such risks. The second-highest rated statement, with a mean of 3.65, relates to the adoption of digital tools such as AI, blockchain, and predictive analytics to enhance supply chain management. This suggests that Saudi Airlines is leveraging technology to improve operational efficiency and manage supply chain complexities. Similarly, the statement regarding the effective integration of global suppliers and logistics partners received a mean of 3.65, highlighting the airline's ability to create a well-connected and efficient supply chain through international collaborations. The expansion of Saudi Airlines' global supply chain network, with a mean score of 3.63, ranked fourth, reflecting the impact of globalization in broadening the airline's access to international suppliers and markets. Meanwhile, improvements in managing

spare parts and inventory due to globalization received a mean of 3.60, suggesting that while advancements have been made, further optimization may be necessary to enhance supply chain efficiency. On the other hand, the airline's focus on sustainable supply chain management practices, influenced by globalization, received a mean score of 3.55, ranking sixth. This suggests that while sustainability is a priority, it may not yet be fully integrated into the airline's supply chain strategy compared to other operational concerns. The lowest-rated statement, with a mean score of 3.51, pertains to the impact of international trade agreements and regulations on supply chain efficiency. This suggests that while these factors play a role, their direct impact on daily supply chain operations may not be as significant as other globalization-related challenges. The findings indicate that globalization has played a crucial role in expanding and optimizing Saudi Airlines' supply chain. The airline has made significant progress in digital transformation, supplier integration, and inventory management. However, challenges such as supply chain disruptions, sustainability efforts, and regulatory constraints still require strategic attention. Strengthening supply chain resilience and enhancing sustainable practices will be key for Saudi Airlines to navigate the evolving global aviation landscape.

Chapter Five: Discussion and Conclusion

5.1. Discussion

The impact of globalization and technological advancements on supply chain management (SCM) has been widely explored in previous studies, aligning with the findings of this research on Saudi Airlines. The analysis in this study revealed that global supply chain disruptions, technological adoption, supplier integration, and sustainability efforts play crucial roles in shaping airline operations, consistent with prior literature.

Globalization has significantly expanded international supply chain networks, as noted by Hu & Haddud (2020), who highlighted that the integration of technology in supply chain operations has allowed businesses to enhance efficiency and global reach. The results of this study align with these findings, as Saudi Airlines has benefited from an expanded global supplier network (Mean = 3.63) and the effective integration of global suppliers and logistics partners (Mean = 3.65). Similarly, Glushkova, Lomakina, & Sakulyeva (2019) emphasized that globalization fosters international collaboration and opens opportunities for companies in developing economies, which is reflected in Saudi Airlines' approach to supplier integration.

The results also indicate that Saudi Airlines has adopted digital tools such as AI, blockchain, and predictive analytics to enhance SCM (Mean = 3.65). This is consistent with Vidrova (2020), who argued that digitalization is transforming supply chain management by improving forecasting, optimizing inventory, and streamlining logistics. Kokodey et al. (2020) further stressed that the integration of digital technologies enhances decision-making processes, allowing businesses to respond efficiently to market fluctuations. This aligns with the airline's efforts to implement digital transformation in operational management, which, while progressing, still requires further

enhancement. The study findings also highlight that disruptions in the global supply chain, such as pandemics and trade restrictions, significantly impact airline operations (Mean = 3.81). This is supported by Orlanyuk-Malitskaya et al. (2024), who found that geopolitical tensions, economic crises, and health emergencies exacerbate supply chain vulnerabilities. Additionally, Adeitan, Aigbavboa, & Olubiyo (2021) noted that SMEs and larger corporations alike face increased supply chain complexities due to globalization, which aligns with this study's finding that international trade agreements and regulations influence supply chain efficiency (Mean = 3.51).

The research also revealed that Saudi Airlines has been incorporating sustainability practices in SCM (Mean = 3.55), influenced by globalization. This is in line with Glushkova et al. (2019), who emphasized that environmental sustainability is becoming a priority in global supply chain strategies due to regulatory pressures and consumer demand. However, the relatively lower ranking of sustainability in this study suggests that while it is recognized, it may not yet be a core focus in operational strategies.

5.2. Conclusion

This study explored the impact of globalization on supply chain and operations management in the airline industry, with a focus on Saudi Airlines. The findings indicate that globalization has significantly influenced supply chain expansion, technological adoption, regulatory compliance, and sustainability practices, presenting both opportunities and challenges for the industry. While globalization has improved operational efficiency and supplier integration, it has also introduced complexities, including supply chain disruptions, compliance issues, and workforce management challenges. One of the key takeaways is the critical role of digital transformation in enhancing supply chain efficiency. The adoption of AI, blockchain, and predictive analytics has proven beneficial in streamlining supply chain operations and improving resilience against global

disruptions. However, the study also highlights the need for further advancements in digital transformation and workforce development to maximize the benefits of globalization. Additionally, sustainability is emerging as a priority in supply chain management, but more efforts are required to integrate eco-friendly practices and long-term environmental strategies into airline operations. From a managerial perspective, strategic planning and risk management are essential for addressing globalization's challenges. Airline executives must focus on building resilient supply chain networks, enhancing regulatory compliance strategies, and investing in technology-driven solutions. Furthermore, workforce training and cultural adaptability must be strengthened to manage the growing complexities of globalization in airline operations. While this study provides valuable insights, certain limitations exist, including the focus on a single airline and the reliance on quantitative analysis. Future research should explore comparative industry-wide studies, qualitative insights, and long-term assessments of globalization's impact on airline supply chains. Additionally, further exploration of sustainability practices, geopolitical influences, and the evolving role of digital transformation will help create a more comprehensive understanding of supply chain management in the globalized aviation sector.

5.3. Managerial Relevance

The findings of this study have significant implications for managers in the airline industry, particularly in the areas of supply chain and operations management. As globalization continues to shape the aviation sector, managers must develop strategies that enhance operational efficiency, mitigate supply chain risks, and integrate digital transformation to remain competitive. One of the key takeaways from this research is the need to build resilient supply chain strategies to address disruptions caused by global crises such as pandemics, trade restrictions, and geopolitical

instability. By diversifying suppliers, adopting flexible logistics solutions, and strengthening inventory management, airlines can reduce vulnerabilities and ensure continuity in operations.

Another crucial aspect for managers is leveraging technology to optimize supply chain efficiency. The adoption of artificial intelligence, blockchain, and predictive analytics has shown a positive impact on operational performance, allowing for better demand forecasting, real-time tracking, and automation of logistics processes. Investing in digital transformation can significantly enhance supply chain agility and responsiveness, leading to improved decision-making and cost-effectiveness.

5.4. Scientific Implications

This study contributes to the broader understanding of how globalization influences supply chain and operations management in the airline industry. It provides empirical evidence on how expanding global supply chains, technological advancements, and regulatory frameworks interact to shape operational strategies. One of the key contributions of this research is its insight into the role of digital transformation in modern supply chains. The findings confirm that emerging technologies such as AI, blockchain, and predictive analytics are revolutionizing the way airlines manage their supply chains, leading to enhanced efficiency and resilience. Future research can further explore how these technologies can be leveraged across different industries and regions. The study also highlights the challenges posed by global supply chain disruptions and their impact on airline operations. As businesses continue to navigate a volatile global economy, there is a growing need for research into long-term resilience strategies that can help mitigate risks from unexpected disruptions such as pandemics, economic crises, and trade conflicts. Understanding

how businesses can enhance their supply chain adaptability and crisis response mechanisms is essential for ensuring sustainability in the face of uncertainty.

5.5. Limitations and Scope for Future Research:

While this study provides valuable insights into the impact of globalization on supply chain and operations management in the airline industry, it has certain limitations that should be acknowledged. One of the key limitations is the focus on a single airline, which may limit the generalizability of the findings to the broader aviation sector. The operational strategies and challenges faced by Saudi Airlines may differ from those of other airlines operating in different regions with varying regulatory environments, economic conditions, and supply chain structures. Future research should consider a comparative analysis across multiple airlines to gain a more comprehensive understanding of globalization's impact on supply chain management in the aviation industry. Another limitation is the scope of variables examined in this study. While the research focused on globalization, technological advancements, supply chain disruptions, and sustainability, other factors such as consumer demand shifts, geopolitical influences, and financial constraints were not extensively explored. Future studies could adopt a more holistic approach by incorporating additional variables that influence supply chain management, particularly in the context of global economic fluctuations and policy changes. The study also relied on quantitative data analysis, which provides statistical insights into trends and relationships but may not fully capture the qualitative dimensions of supply chain challenges and strategic decision-making. Future research could benefit from a mixed-method approach, combining quantitative surveys with in-depth qualitative interviews with supply chain managers, airline executives, and industry experts. This would provide a deeper understanding of the decision-making processes and strategic responses to globalization-related challenges.

Additionally, the research primarily focuses on the short-term and current implications of globalization on supply chain management. However, as global trade policies, technology, and sustainability initiatives evolve, the long-term impacts of these factors may change. Future research should consider longitudinal studies to track how globalization affects supply chain management over an extended period, allowing for a better assessment of trends and strategic shifts in the airline industry. Another important area for future research is the role of digital transformation in enhancing supply chain resilience. While this study highlights the significance of AI, blockchain, and predictive analytics in supply chain optimization, further exploration is needed to assess the effectiveness of these technologies in mitigating supply chain disruptions and improving overall efficiency. Research could focus on case studies of successful digital transformations in the airline industry and identify best practices for technology adoption. Finally, the study identifies sustainability as an emerging priority in supply chain management, but it remains an area that requires further investigation. Future research could explore the impact of sustainable supply chain practices on airline profitability, regulatory compliance, and customer perceptions. Additionally, studies on the integration of green logistics, alternative fuels, and carbon reduction strategies could provide valuable insights into how airlines can align their operations with global sustainability goals.

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Appendix

SURVEY INSTRUMENT

Dear Employee,

This questionnaire aims to examine the impact of globalization on operations and supply chain management at Saudi Airlines (Saudia), focusing on how global trends, technological advancements, and regulatory changes influence airline performance. As globalization continues to reshape the aviation industry, airlines must adapt by enhancing operational efficiency, workforce management, and supply chain resilience. This study explores three key areas: globalization as the independent variable, its effects on operations management, and its influence on supply chain management at Saudi. By assessing factors such as market expansion, digital transformation, supplier integration, and risk mitigation, the questionnaire seeks to identify the challenges and opportunities globalization presents to the airline. The insights gained will contribute to understanding how Saudia can optimize its strategies for improved efficiency and competitiveness in a rapidly evolving global landscape. Your participation is highly valued, and all responses will be kept confidential for research purposes. Thank you for your time and input!

Thank you.

1. Demographic data

Please answer the following questions

+ Gender:

Male

Female

+ Age group:

- ✓ Under 30 years old.
- ✓ 30 –40 years old.
- ✓ 40- 50 years old.
- ✓ 50 or more.

+ Educational level:

- ✓ Bachelor's degree
- ✓ Master's degree
- ✓ Doctorate degree

+ Years of experience:

- ✓ 1 – 5 years.
- ✓ 6- 10 years.
- ✓ 11- 15 years.
- ✓ 16 or more years.

2. Questionnaire terms

Please, mark with (✓) on your selection.

Globalization (Independent Variable)						
No	Term	Strongly agree	Agree	Neutral	disagree	Strongly disagree
1	Globalization has increased competition in the airline industry, requiring operational improvements.					
2	The airline industry has benefited from globalization through expanded international routes.					
3	The adoption of global technological advancements (AI, automation, digital platforms) has improved airline operations.					
4	Globalization has made compliance with international regulations (IATA, ICAO) more challenging.					
5	Supply chain disruptions due to global crises (e.g., COVID-19, geopolitical issues) have impacted airline operations significantly.					

6	The integration of international suppliers and logistics partners has enhanced operational efficiency					
7	Globalization has increased the complexity of managing workforce diversity and cultural differences in airline operations.					
Operations Management (Dependent Variable 1)						
1	Globalization has led to improvements in operational efficiency at Saudi Airlines.					
2	Technological advancements adopted due to globalization have optimized flight scheduling and passenger management.					
3	Increasing global demand has put pressure on operational efficiency and service quality.					
4	The airline has effectively managed changes in operational strategies due to global market trends.					

5	Globalization has required enhanced training and skill development for operational staff.					
6	Saudi Airlines has successfully implemented digital transformation in operational management.					
7	The airline's operational resilience has improved in response to global challenges such as fuel price fluctuations and changing regulations.					
Supply Chain Management (Dependent Variable 2)						
1	Globalization has led to the expansion of Saudi Airlines' global supply chain network					
2	The airline has effectively integrated global suppliers and logistics partners into its supply chain.					
3	International trade agreements and regulations impact the efficiency of supply chain operations.					

4	The airline's ability to manage spare parts and inventory has improved due to globalization.					
5	Disruptions in the global supply chain (e.g., pandemics, trade restrictions) have affected airline operations significantly.					
6	Saudia has adopted digital tools (AI, blockchain, predictive analytics) to enhance supply chain management.					
7	Sustainable supply chain management practices, influenced by globalization, have been prioritized by Saudi Airlines.					

Midocean University



College of Management

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Proposal Title:

**The Impact of Globalization on Operations and Supply
Chain Management at Saudi Airlines (Saudia)**

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