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Smart Technology Trends, Smart Supply Chain Management Implementation, and Smart Supply Chain Innovation Performance in Developing and Developed Economies

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Abstract

Many companies and scholars predict that supply chain configuration will undergo a significant adjustment during this period of change in a digitally driven future. The supply chain and management industry view these risks as including the rising frequency of disruptions to the global trading system caused by both endogenous and exogenous risks, including extreme weather events, pandemics, cybersecurity threats, and financial crises, as well as the widespread use of technology created during the Fourth Industrial Revolution. Businesses that survive the upcoming changes in customer behavior will have invested in digitization and diversity. The researcher determines the association between smart supply chain management implementation and smart supply chain innovation performance, mediated by smart technology trends in developing and developed countries, using a descriptive quantitative approach. Results show that the performance of smart supply chain innovation and smart supply chain management are not correlated. Furthermore, smart supply chain management's ability to mediate smart technological advances is notably lacking. As a result, the researcher produced an implementation strategy to improve the optimization of smart technological trends in the smart supply chain, in both developed and developing nations.

Keywords: smart supply chain implementation; smart supply chain innovation performance; smart technology trends; Industry 4.0; supply chain management in developed and developing countries.

1. Introduction

Businesses and academics alike in today's technologically advanced world believe that supply chain configuration will soon experience a radical change [45].

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Both endogenous risks, such as catastrophic weather events, pandemics, cybersecurity attacks, and financial crises, and exogenous risks, such as the mass adoption of technologies developed during the Fourth Industrial Revolution, are seen as threats by the supply chain and management sector [18]. Businesses that adapt to the approaching changes in customer behavior will have digitized and invested in ways to set themselves apart from the competition.

Smart technology developments like AI, IoT, weighing and shipping technologies, sophisticated and predictive analytics, and 3D printing have completely altered the logistics industry. These innovations in technology have helped companies streamline their processes, cut costs, and boost customer satisfaction. Utilizing these innovations allows businesses to become more productive, save money, and provide better service to their clients. In order to succeed, supply chain management firms need to anticipate future technological developments.

It's crucial to understand the correlation between smart supply chain performance and the introduction of new innovations in this sector. Implementing smart supply chain innovations involves incorporating novel tools, methods, and approaches into an existing supply chain in order to enhance its performance. In order to gauge how well a supply chain works in terms of price, turnaround time, and customer satisfaction, businesses can use smart supply chain performance metrics. Improvements in supply chain performance can be achieved by adopting and implementing novel technological, operational, and strategic approaches. It has the potential to hasten delivery times, lower costs, and boost satisfaction among customers. Measuring performance also facilitates the discovery of development opportunities and guarantees that the supply chain is living up to customers' expectations.

In sum, this study emphasizes the significance of understanding how to make the most of current technological advances for firms in today's global economy, whether they are located in developing emerging markets or previously established economies. The supply chain industry stands to gain the most from smarter operations and encounter the fewest compliance difficulties if it makes strategic use of these tools. Consequently, in light of the accelerating rate at which technology is evolving, it will become increasingly necessary to comprehend how to optimally use such innovations to attain desired outcomes.

2. Method and Materials

2.1 Research Design

In this study, the researcher adopts a descriptive quantitative approach to compare the state of smart technology trends, supply chain management implementation, and innovation performance between emerging and developed countries.

2.2 Participants

The study focuses on businesses in developing economies (China and India) and developed economies (Germany and Japan), to compare the differences in the implementation and performance of smart supply chain

management in both economies. The comparison can provide valuable insights into the effectiveness of smart supply chain management in different economic contexts and can help inform future business strategies in both countries.

2.3 Instrumentation

The instrumentation of this study is adapted from the study of Capt. Veera Pandiyan K.S. entitled "Supply Chain Management Practices, Supply Chain Integration, and Supply Chain Performance. A Study of Electronics Firms in Malaysia". The researcher modified some parts of the question to make it fit the research objectives.

2.4 Statistical Treatment

Mean is used to identify the smart supply chain implementation level, smart supply chain innovation performance, and smart technology trends usage. Pearson's correlation is used to identify the relationship between smart supply chain implementations on supply chain innovation performance in developing developed economies. Multiple Regression tests smart technological trends as a mediator between smart supply chain implementations and supply chain innovation performance in developing and developed economies.

2. Figures

Table 1

Statements	**China**	**India**	**Germany**	**Japan**
Firms in our supply chain establish more frequent contact with each other	1.76	1.84	1.76	1.82
Firms in our supply chain create a consistent communication and information system	1.76	1.66	1.76	1.68
Our firm extends its supply chain beyond its customers/suppliers	2.04	1.96	2.02	1.92
Our firm participates in the marketing efforts of its customers	1.48	1.48	1.54	1.50
Our firm participates in the sourcing decisions of its suppliers	1.50	1.54	1.60	1.64
OVERALL MEAN	**1.71**	**1.70**	**1.68**	**1.71**
VERBAL INTERPRETATION	**Agree**	**Agree**	**Agree**	**Agree**

Note: 1=Extremely Agree 2=Agree 3=Neither Agree nor Disagree 4=Disagree 5=Extremely Disagree

In China, the supply chain management companies **agree** that firms in our supply chain establish more frequent contact with each other (1.76), firms in their supply chain create a consistent communication and information system (1.76), their company extends its supply chain beyond its customers/suppliers (2.04), and the company firm participates in the sourcing decisions of its suppliers (1.50). Further, the supply chain management

companies extremely agree that their company participates in the marketing efforts of its customers (1.48). Overall, the supply chain management companies in China **agree** that the smart supply chain implementation companies significantly improved and helped the company work efficiently (1.71).

In India, the supply chain management companies **agree** that firms in our supply chain establish more frequent contact with each other (1.84), firms in the supply chain create a consistent communication and information system (1.66), their company extends its supply chain beyond its customers/suppliers (1.96). The company participates in the sourcing decisions of its suppliers (1.54). Further, the supply chain management companies extremely agree that their company participates in the marketing efforts of its customers (1.48). Overall, the supply chain management companies in India **agree** that the smart supply chain implementation companies have significantly improved and helped the company work efficiently (1.70).

In Germany, the supply chain management companies **agree** that firms in our supply chain establish more frequent contact with each other (1.76), firms in our supply chain create a consistent communication and information system (1.76), their company extends its supply chain beyond its customers/suppliers (2.02), their company participates in the marketing efforts of its customers (1.48). The company participates in the sourcing decisions of its suppliers (1.54). Overall, Germany's supply chain management companies **agree** that the smart supply chain implementation companies have significantly improved and helped the company work efficiently (1.60).

In Japan, the supply chain management companies **agree** that firms in our supply chain establish more frequent contact with each other (1.82), firms in the supply chain create a consistent communication and information system (1.68), their company extends its supply chain beyond its customers/suppliers (1.92). Their company participates in the marketing efforts of its customers (1.50), and the company participates in the sourcing decisions of its suppliers (1.64). Overall, the supply chain management companies **agree** that the smart supply chain implementation companies significantly improved and helped the company work efficiently (1.71).

In developing economies, China and India are also investing in developing artificial intelligence (AI) and machine learning (ML) technologies to improve the efficiency of their supply chains. AI and ML can automate processes, such as inventory management and order fulfillment, and provide predictive analytics to help companies make better decisions. Implementing smart supply chains in China and India is helping to improve the efficiency and cost-effectiveness of their supply chains. It is helping to drive economic growth and create new business opportunities in both countries.

In developed economies such as Germany and Japan, the implementation of smart supply chains is well underway. Smart supply chains are becoming increasingly important in these countries as they strive to remain competitive in the global market. The smart supply implementation in Germany and Japan's developed economies is quite advanced. The companies in these countries are already using various technologies to improve their supply chain management, such as RFID tags, sensors, and analytics. Additionally, the governments of both countries are actively investing in research and development to create new technologies that can further improve supply chain efficiency. As a result, these countries are well-positioned to remain

competitive in the global market.

Table 2

Statements	**China,**	**India,**	**Germany**	**Japan**
Smart technology trends such as artificial intelligence, blockchain, and the Internet of Things revolutionize supply chain management by providing real-time visibility, improved accuracy, and increased efficiency.	1.24	1.28	1.26	1.46
Smart technology trends enable supply chain managers to make faster decisions, reduce costs, and improve customer service.	1.34	1.20	1.44	1.50
Smart technology trends are helping supply chain managers to identify and address potential risks and disruptions before they occur, allowing for more proactive management.	1.04	1.20	1.26	1.02
Smart technology trends enable supply chain managers to optimize their operations by leveraging predictive analytics and machine learning to anticipate customer needs and demand.	1.48	1.70	1.52	1.34
Smart technology trends allow supply chain managers to automate processes, reduce manual labor, and increase productivity.	1.36	1.54	1.56	1.26
OVERALL MEAN	**1.29**	**1.38**	**1.41**	**1.32**
VERBAL INTERPRETATION	**Extremely Agree**	**Extremely Agree**	**Extremely Agree**	**Extremely Agree**

Note: 1=Extremely Agree 2=Agree 3=Neither Agree nor Disagree 4=Disagree 5=Extremely Disagree

In China, the smart supply chain management companies **extremely agree** that smart technology trends such as artificial intelligence, blockchain, and the Internet of Things are revolutionizing supply chain management by providing real-time visibility, improved accuracy, and increased efficiency (1.24). Further, smart technology trends enable supply chain managers to make better decisions faster, reduce costs, and improve customer service (1.34). In addition, smart technology trends are helping supply chain managers to identify and address potential risks and disruptions before they occur, allowing for more proactive management (1.04). Moreover, smart technology trends enable supply chain managers to optimize their operations by leveraging predictive analytics and machine learning to anticipate customer needs and demand (1.48). Lastly, smart technology trends allow supply chain managers to automate processes, reduce manual labor, and increase productivity (1.36). Overall, the supply chain management companies in China **agree** that smart technology trends hugely change how the supply chain operates (1.29). The companies have increased visibility and can follow activities better because supply chain technologies and automation employ real or near real-time data. It improves collaboration and

communication with major vendors while lowering costs through improved vendor contract management.

In India, smart supply chain management companies **extremely agree** that smart technology trends such as artificial intelligence, blockchain, and the Internet of Things are revolutionizing supply chain management by providing real-time visibility, improved accuracy, and increased efficiency (1.28). Further, smart technology trends enable supply chain managers to make better decisions faster, reduce costs, and improve customer service (1.20). In addition, smart technology trends are helping supply chain managers to identify and address potential risks and disruptions before they occur, allowing for more proactive management (1.20). Moreover, smart technology trends enable supply chain managers to optimize their operations by leveraging predictive analytics and machine learning to anticipate customer needs and demand (1.70). Lastly, smart technology trends allow supply chain managers to automate processes, reduce manual labor, and increase productivity (1.54). Overall, the supply chain management companies in India **agree** that smart technology trends hugely change how the supply chain operates (1.38). Due to the utilization of real or nearly real-time data in supply chain technologies and automation, businesses have enhanced visibility and can better monitor activity.

In Germany, smart supply chain management companies **extremely agree** that smart technology trends such as artificial intelligence, blockchain, and the Internet of Things are revolutionizing supply chain management by providing real-time visibility, improved accuracy, and increased efficiency (1.26). Further, smart technology trends enable supply chain managers to make better decisions faster, reduce costs, and improve customer service (1.44). In addition, smart technology trends are helping supply chain managers to identify and address potential risks and disruptions before they occur, allowing for more proactive management (1.26). Moreover, smart technology trends enable supply chain managers to optimize their operations by leveraging predictive analytics and machine learning to anticipate customer needs and demand (1.52). Lastly, smart technology trends allow supply chain managers to automate processes, reduce manual labor, and increase productivity (1.56). Overall, the supply chain management companies in India **agree** that smart technology trends hugely change how the supply chain operates (1.41). The improved vendor contract management raises collaboration and communication with key vendors while reducing expenses.

In Japan, smart supply chain management companies extremely agree that smart technology trends such as artificial intelligence, blockchain, and the Internet of Things are revolutionizing supply chain management by providing real-time visibility, improved accuracy, and increased efficiency (1.46). Further, smart technology trends enable supply chain managers to make better decisions faster, reduce costs, and improve customer service (1.50). In addition, smart technology trends are helping supply chain managers to identify and address potential risks and disruptions before they occur, allowing for more proactive management (1.02). Moreover, smart technology trends enable supply chain managers to optimize their operations by leveraging predictive analytics and machine learning to anticipate customer needs and demand (1.34). Lastly, smart technology trends allow supply chain managers to automate processes, reduce manual labor, and increase productivity (1.26). Overall, the supply chain management companies in India **agree** that smart technology trends hugely change how the supply chain operates (1.32). Due to the utilization of real or nearly real-time data in supply chain technologies and automation, businesses have enhanced visibility and can better monitor activity.

Smart technology trends are being increasingly utilized in the supply chains of both developing and developed economies. In developing economies such as China and India, smart technology trends are being used to improve the efficiency of the supply chain by providing real-time visibility into inventory levels, tracking shipments, and automating processes. It helps to reduce costs and improve customer service. Further, smart technology trends are being used to improve the accuracy of forecasting and demand planning, which helps reduce inventory costs and improve customer satisfaction. In developed economies such as Germany and India, smart technology trends are being used to improve the efficiency of the supply chain by providing real-time visibility into inventory levels, tracking shipments, and automating processes. Additionally, smart technology trends are being used to improve the accuracy of forecasting and demand planning, which helps to reduce inventory costs and improve customer satisfaction. Additionally, smart technology trends are being used to improve the security of the supply chain by providing better authentication and data encryption. It helps to reduce the risk of data breaches and protect sensitive information.

Table 3

Statements	**China**	**India**	**Germany**	**Japan**
The smart technology trends help the smart supply chain to respond to and accommodate demand variations, such as seasonality.	1.58	1.02	1.38	1.50
Smart technology trends help the smart supply chain to respond to and accommodate periods of poor manufacturing performance, b such as machine breakdown.	1.14	1.00	1.00	1.00
The smart technology trends help the smart supply chain to respond to and accommodate periods of poor supplier performance	1.00	1.00	1.00	1.00
The smart technology trends help the smart supply chain to respond to and accommodate periods of poor delivery performance	1.00	1.00	1.00	1.00
The smart technology trends help the smart supply chain to respond to and accommodate new products, new markets or new competitors	1.00	1.00	1.00	1.00
Total cost of resources used are reduced.	1.00	1.00	1.00	1.00
The total cost of distribution, including transportation and	1.00	1.00	1.00	1.00

handling cost, is reduced.				
The total cost of manufacturing, including labor, maintenance, and re-work costs, is reduced.	1.00	1.00	1.00	1.00
The cost associated with held inventory is reduced	1.00	1.00	1.00	1.00
Return on investments is quickly seen.	1.00	1.00	1.00	1.00
Sales significantly increased due to efficient work.	1.00	1.00	1.00	1.00
The order fill rate is quick.	1.00	1.00	1.00	1.00
On-time deliveries are consistent.	1.00	1.00	1.00	1.00
Quick customer response time	1.00	1.00	1.00	1.00
Minimal shipping errors	1.00	1.00	1.00	1.00
High-speed manufacturing lead time	1.00	1.00	1.00	1.00
Easily and efficiently catered to customer complaints	1.00	1.00	1.00	1.00
OVERALL MEAN	**1.04**	**1.00**	**1.02**	**1.03**
VERBAL INTERPRETATION	**Extremely Agree**	**Extremely Agree**	**Extremely Agree**	**Extremely Agree**

Note: 1=Extremely Agree 2=Agree 3=Neither Agree nor Disagree 4=Disagree 5=Extremely Disagree

In China, the smart supply chain management companies extremely agree that the smart supply chain implementation greatly improves efficiency and enables businesses to increase product flow by accurately estimating demand and sales, as well as by improving inventory management to stop the bullwhip effect and prevent underproduction. The supply chain management companies in China agree that smart technology trends help the smart supply chain respond to and accommodate demand variations, such as seasonality (1.58). Further, they extremely agree that smart technology trends help the smart supply chain to respond to and accommodate periods of poor manufacturing performance such as machine breakdown (1.14), help the smart supply chain to respond to and accommodate periods of poor supplier performance (1.00), help the smart supply chain to respond to and accommodate periods of poor delivery performance (1.00), and help the smart supply chain to respond to and accommodate new products, new markets or new competitors (1.00). Through smart technology trends, the total cost of resources used is reduced (1.00), and the total cost of distribution, including transportation and handling, is reduced (1.00). In addition, smart technology trends helped reduce the total cost of manufacturing, including labor, maintenance, and rework costs (1.00) and inventory (1.00). The companies

also saw a quick return on investment (1.00), a significantly increased in sales due to efficient work (1.00), quick order fill rate (1.00), minimal shopping errors (1.00), high-speed manufacturing lead time (1.00), and efficient catering of customer complaints (1.00).

In India, smart supply chain companies **extremely agree** that smart technology trends help the smart supply chain respond to and accommodate demand variations, such as seasonality (1.00). Further, they extremely agree that smart technology trends help the smart supply chain to respond to and accommodate periods of poor manufacturing performance such as machine breakdown (1.00), help the smart supply chain to respond to and accommodate periods of poor supplier performance (1.00), help the smart supply chain to respond to and accommodate periods of poor delivery performance (1.00), and help the smart supply chain to respond to and accommodate new products, new markets or new competitors (1.00). Through smart technology trends, the total cost of resources used is reduced (1.00), and the total cost of distribution, including transportation and handling, is reduced (1.00). In addition, smart technology trends helped reduce the total cost of manufacturing, including labor, maintenance, and rework costs (1.00) and inventory (1.00). The companies also saw a quick return on investment (1.00), a significantly increased in sales due to efficient work (1.00), quick order fill rate (1.00), minimal shopping errors (1.00), high-speed manufacturing lead time (1.00), and efficient catering of customer complaints (1.00). Overall, Indian companies **extremely agree** that smart technology trends are game changers. A technology that helps them accommodate the needs of the company and the consumer and quickly see a continuous cash flow.

In Germany, smart supply chain companies **extremely agree** that smart technology trends help the smart supply chain respond to and accommodate demand variations, such as seasonality (1.38). Further, they extremely agree that smart technology trends help the smart supply chain to respond to and accommodate periods of poor manufacturing performance such as machine breakdown (1.00), help the smart supply chain to respond to and accommodate periods of poor supplier performance (1.00), help the smart supply chain to respond to and accommodate periods of poor delivery performance (1.00), and help the smart supply chain to respond to and accommodate new products, new markets or new competitors (1.00). Through smart technology trends, the total cost of resources used is reduced (1.00), and the total cost of distribution, including transportation and handling, is reduced (1.00). In addition, smart technology trends helped reduce the total cost of manufacturing, including labor, maintenance, and rework costs (1.00) and inventory (1.00). The companies also saw a quick return on investment (1.00), a significantly increased in sales due to efficient work (1.00), quick order fill rate (1.00), minimal shopping errors (1.00), high-speed manufacturing lead time (1.00), and efficient catering of customer complaints (1.00). Overall, German companies **extremely agree** that smart technology trends greatly help them to enhance transparency and offer great service expectations along with massive orders from consumers (1.00).

In Japan, smart supply chain companies agree that smart technology trends help the smart supply chain respond to and accommodate demand variations, such as seasonality (1.50). Further, they extremely agree that smart technology trends help the smart supply chain to respond to and accommodate periods of poor manufacturing performance such as machine breakdown (1.10), help the smart supply chain to respond to and accommodate periods of poor supplier performance (1.00), help the smart supply chain to respond to and accommodate periods of poor delivery performance (1.00), and help the smart supply chain to respond to and accommodate

new products, new markets or new competitors (1.00). Through smart technology trends, the total cost of resources used is reduced (1.00), and the total cost of distribution, including transportation and handling, is reduced (1.00). In addition, smart technology trends helped reduce the total cost of manufacturing, including labor, maintenance, and rework costs (1.00) and inventory (1.00). The companies also saw a quick return on investment (1.00), a significantly increased in sales due to efficient work (1.00), quick order fill rate (1.00), minimal shopping errors (1.00), high-speed manufacturing lead time (1.00), and efficient catering of customer complaints (1.00). Overall, Japanese companies **extremely agree** that smart technology trends, high growth and constant changes in online-enabled transparency, and simple access to a plethora of options drive supply chain competition.

Table 4

	Mean	**Std. Deviation**	**Pearson Correlation**	**Sig. (2-tailed)**	**Decision**	**Verbal Interpretation**
China_SSCMI	1.7080	.21838	.192	.183	Accept Null Hypothesis	Negligible correlation
China_SSCMP	1.0424	.03766				
India_SSCMI	1.6960	.19479	.077	.595	Accepts Null Hypothesis	Negligible Correlation
India_SSCMP	1.0012	.00832				
Germany_SSCMI	1.7960	.18268	-.087	.546	Accept the Null Hypothesis	High negative correlation
Germany_SSCMP	1.0224	.02884				
Japan_SSCMI	1.7120	.23959	.000	1.000	Accept Null Hypothesis	Negligible Correlation
Japan_SSCMP	1.0294	.02971				

The table above shows Pearson's correlation to determine if there is a significant relationship between the means of the Smart Supply Chain Implementation and Smart Supply Chain Innovation Performance in the developing and developed economies. If the significance (p-value) is less than the alpha level ($p<.05$), then the hypothesis is statistically significant. In the developing economies, the table shows that the sig p-value is more than the alpha level (.183, .595<.05). In the developed economies, the table shows that the sig p-value is more than the alpha level (.546, 1.00<.05). Thus, the researcher accepts the null hypothesis (H0) and concludes that the implementation of a smart supply chain in China does not necessarily improve its performance.

Table 5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.258[a]	.067	.027	.03714

a. Predictors: (Constant), C_STT, C_SSCMI

In China, smart technology trends have a weak mediation in the smart supply chain implementation and performance, with an R Score of .258. In addition, smart technology trends have a 6.7% effect on the smart supply chain performance based on the R Square of .067. Hence, smart technology trends have a weak significant effect between smart supply chain implementation and performance.

Table 6

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.078[a]	.006	-.036	.00847

a. Predictors: (Constant), I_STT, I_SSCMI

In India, smart technology trends have a weak mediation in the smart supply chain implementation and performance, with the R Score of .078. In addition, smart technology trends have a 0.6% effect on the smart supply chain performance based on the R Square of .006. Hence, smart technology trends have a weak significant effect between smart supply chain implementation and performance.

Table 7

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.090[a]	.008	-.034	.02933

a. Predictors: (Constant), G_STT, G_SSCMI

In Germany, smart technology trends have a weak mediation in the smart supply chain implementation and performance, with the R Score of .090. In addition, smart technology trends have a .8 % effect on the smart supply chain performance based on the R Square of .008. Hence, smart technology trends have a weak significant effect between smart supply chain implementation and performance.

Table 8

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.150[a]	.023	-.019	.02999

a. Predictors: (Constant), J_STT, J_SSCMI

In China, smart technology trends have a weak mediation in the smart supply chain implementation and performance, with an R Score of .150. In addition, smart technology trends have a 2.3% effect on the smart supply chain performance based on the R Square of .023. Hence, smart technology trends have a weak significant effect between smart supply chain implementation and performance.

4. Discussion

China and India can benefit from sophisticated supply chain management. Technology helps supply chain management organizations automate activities, reduce manual labor, and improve supplier-customer communication. Effective supply chain management reduces supply chain disruptions, which can hurt a company's bottom line. Implementing smart supply chain innovations is unrelated. Smart technology mediation has a weak influence. The inconsistency showed the need for Industry 4.0 supply chain management education. It may become standard in the supply chain in the future years. Gartner predicts that 75% of large organizations would utilize intralogistics smart robots in their warehouses by 2026 [27]. Advanced analytics (AA), AI, and data science will be included in over 75% of commercial supply chain management solutions. Before implementing, developing-world supply chain management enterprises must invest considerably in research and development.

Smart supply chain management in Germany and Japan can improve customer service. Businesses can improve customer service and order fulfillment by automating procedures. Smart supply chain management helps decrease supply chain interruptions, which can hurt a company's bottom line. Smart supply chain implementation and innovation performance are unrelated. Smart technology advancements also have a weak impact. The irony is that these countries effectively established smart supply networks. Digital supply chain twins and control towers improve technology investment insights. These two initiatives are similar and should be combined despite their obscurity [27]. Underperformance and missed opportunities will devalue these activities if kept separate. Separately, neither initiative succeeds well. End-to-end supply chain optimization suffers from a distant digital supply chain twin [27].

Developing and developed economies need to strengthen the smart supply chain innovation implementation. Smart supply chain innovation may boost customer service, efficiency, and cost savings. Businesses can improve customer service and order fulfillment by automating procedures. Smart supply chain innovation performance can prevent supply chain interruptions, which can hurt a company's bottom line.

5. Conclusion

Any business needs smart supply chain management. It manages commodities and services from origin to consumption. Coordinating procurement, production, inventory management, transportation, and customer service. Businesses need smart supply chain management to compete in today's global economy.

Smart supply chain management implementation does not affect innovation performance in China, India, Germany, or Japan. Smart supply chain management implementation emphasizes efficiency and effectiveness. Smart supply chain innovation performance emphasizes product and service innovation. Both concepts are distinct.

Smart technology trends moderate smart supply chain management implementation at a weak level. Smart

technology can boost supply chain efficiency, but competent management is still needed. Smart technology can automate certain operations, but it cannot replace careful research and implementation. Smart technology can cut costs, but you still need to weigh the pros and cons.

Thus, smart supply chain management implementation does not affect innovation performance. Smart technology also has a weak significant influence. Smart technology can boost supply chain performance, but competent management is still needed. Smart technology can save expenses, but competent management is still needed. Businesses need smart supply chain management to compete in today's global economy.

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