

GLOBAL DYNAMICS OF SUPPLY CHAIN MANAGEMENT: STRATEGIC DIRECTION FOR FUTURE

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ABSTRACT: *Strategic development of supply chain management has been a recent phenomenon which has gathered much attention of practitioners and researchers. This paper has identified and reviews various important strategies that are compulsory to be implemented in the field of supply chain management for meeting the current and future challenges. The accurate contingency planning and prediction tools are essential for firms especially operating in transportation and logistics sector which will provide a comprehensive view and enhanced response towards uncertainties such as natural calamities, political interventions and business eruptions. Business firms today need fine tuning of their operational side on continuous basis and placing dynamic planning to execution. Optimization of designs is imperative to be conducted for manufacturability and supply, and precise capturing of actual costs has become important than ever. The reputation of supply chain networks and systems is at stake directly in relation to risk management due to which a dynamic supply chain function is the one which is backed by adequate risk management strategies. By shifting or upgrading on the IT driven tools and software, business firms can gain necessary basic infrastructure and setup of supply chain management that will enable them to survive and operate adequately in this ever changing global business world. The organizing of supply chain management function holds vitality because it keeps on changing with the passage of time and due to internal/ external factors affecting it. The issue of security for supply chain systems has emerged recently and will persist in coming years as well due to which organizations have to respond proactively by making reasonable changes in the strategic paradigm of their businesses.*

KEYWORDS: *Strategy, Supply Chain, Logistics, DHL, Challenges, Business Eruptions, Risk Management, Core Supplier Programme, Integrated SCM, Digitalization, Future Trends, Supply Chain Efficiency, Planning, Optimization, Artificial Intelligence*

INTRODUCTION

This review paper will be undertaking a very important topic in today's business world i.e. supply chain management and its changing landscape in today's world. This paper is intended to conduct a critical and strategic review of the wider academic and professional literature for identifying and understanding the current strategic dimension of supply chain management for business organizations and then discussing the future direction of it so that business organizations can prepare themselves for meeting the future challenges to be posed by supply chain management. This research area is of significant importance because supply chain management has become an imperative part of business firms' larger functional and operational framework i.e. supply chain management has taken strategic importance for businesses to be succeeded. Moreover, sustainability and progress of business firms has started to rely heavily on the effectiveness and efficiency of the overall supply chain management function. The end- to- end information flow and flow of money or products is being encompassed by supply chains today which is one key reason why this research area is important to be addressed, discussed and understood for business firms and for supply chain professionals around the world [1]. The way these aspects are managed by organizations directly impacts on the competitive nature of firms especially in the aspect of service perception and working capital. Since frequent changes have taken place in the international business arena in last few years which has prominently affected the strategic and operational fronts of business organizations such as rapid globalization, growing

customer awareness and swift technological advancements have taken the business world by storm which in turn is demanding active response and understanding from business organizations [2]. Therefore, adequate alignment of the business strategy with the overall supply chain strategy has become essential for ensuring a good level of firm performance and sustainability in the competitive market. This paper will also provide greater understanding of the supply chain management function and the usefulness of its practices. Next sections will shed light on the useful strategies of supply chain management that are pivotal for meeting the current and future challenges of business world.

METHODOLOGY CHOSEN

Since this review paper is going to address a wider research area in which there is a key requirement of gathering secondary data from diverse valuable sources for reaching on concrete conclusion. Therefore, this review paper will employ secondary research method instead of primary research method for meeting the research scope and underlying objective of gaining and providing clarity regarding future strategic direction of supply chain management function/ practices. Secondary research facilitates the view of issue under consideration from more than one lens which is a key advantage of this method [3] and is highly required in this paper as well. Moreover, this research method allows researchers to gather more data/ information in considerable amount of time which is another advantage of this method. Therefore, this review paper will explore diverse recent sources for presenting an in- depth analysis and picture of the strategic supply chain management

function required for firms in today's and future business environment.

LITERATURE REVIEW

Efficiency of supply chain management has been a prominent issue under discussion in the contemporary literature and the precise reason behind this discussion has been the shift of business world towards a digital business world. This shift has caused the emergence of digital supply chain network and has pushed firms to form an integrated strategy within the broader strategic framework of business [4]. This section will present a comprehensive review of the supply chain management strategies and practices that are imperative for business firms today for gaining competitive advantage in the market, for making smooth progress and for achieving sustainability in the business market. Moreover, this section provide a broader view of supply chain management practices and strategies necessary that are essential for meeting future challenges to be faced by business organizations.

UNDERLYING SCENARIO

Due to increased globalization world has become a global village and globalized nature of supply chain management function has been its major implication for business firms which has increased the expectations of business stakeholders and customers regarding efficiency of logistics and transport as well. Global trade and supply chain activities are expected to increase in coming years considerably due to which strategic consideration of supply chain has gained increasing importance for business organizations today [5]. The security perspective of transportation, logistics and supply chain has also become a major issue for business firms internationally which makes logistics and supply chain firms under the pressure specifically in terms of meeting and exceeding the requirements/ expectations of customers. This security issue is in terms of virtual attacks on consistent basis in different countries. This is important to understand as a background in this paper because logistics business firms and supply chain management is considered as a major drive of globalization which will shape the success and failure of businesses in coming years as well. The issue of security for supply chain systems has emerged recently and will persist in coming years as well due to which organizations have to respond proactively by making reasonable changes in the strategic paradigm of their businesses. Due to this security prospect, the communication and information aspect of firms will face extra burden for performing effectively on consistent basis. Secure supply chains will therefore be a key goal of transportation and other business firms in coming years [6]. Inclusion of sustainability within the larger frame of supply chain operations has become increasingly important for business organizations and the triple bottom line of planet, profit and people has become inevitable today as it was not in previous years. Environment and social sustainability is the prevailing issue for supply chain systems and it also embed the degree to which competitive advantage can be achieved by firms i.e. by relying on supplier management skills and efficiency of production. Therefore, major portion of pressure is from these particular aspects that have made it essential for firms to review and change their supply chain management strategies. In today's business world, the use of right tools,

practices and processes is a basic formula that is appearing effective to be applied in various organizational functions [7]. Apart from this, a major factor halting and putting pressure on firms is the need of cutting costs and producing better outcomes due to which managers handling supply chain functions are expected to go beyond just simply improving their operations in line with overall business strategy. Therefore, pressuring is mounting of supply chain managers regarding adopting and implementing best supply chain strategies/ practices for keeping pace with changing business environment and expectations. Moreover, the global economic condition and situation is also changing and will continue to change in coming years which has made organizations to be aware and to modify or change their supply chain strategies accordingly for obtaining best output from this function [7]. Next section will now discuss and present some basic supply chain practices and strategies that every business organization need to employ for establishing and securing a productive and supportive organizational culture which in turn will enable organizations to extract effective results from their supply chain management system.

BASIC SCM PRACTICES AND STRATEGIES

Organizing and Aligning

The importance and value of customer satisfaction/ perception of customers is impeccable in all types of businesses, therefore focus on customers (their requirements, perceptions, demands) is a top priority when it comes to transportation/ logistics firms or other business firms operating with mainstream supply chain management system/ function. Since the deliverance of services and products to customers is dependent on the nature of supply chain function due to which consideration of customer satisfaction/ expectation should be most important for business firms so that they can align their supply chain effectiveness with the expectations of customers. However, organizing of supply chain management function holds vitality because it keeps on changing with the passage of time and due to internal/ external factors affecting it [8]. Therefore, for increasing its effectiveness firms should pay attention on tailoring this function so that optimal benefits can be achieved. This is the reason why practitioners have suggested hiring skilled and competent supply chain managers for creating greater value out of this function as only seasoned and skilled managers can achieve smooth aligning and organizing across the board. Relationship management and communication skills are required to be strong when it comes to hiring supply chain manager.

Adopting and Integrating Technology

Supply chain best practices are now relying heavily on the adoption and appropriate usage of information and communication technology (ICT) across the globe i.e. ICT enables business firms to make best use of their supply chain systems. For transportation and logistics sector firms' processes and workflows are embedded in their efficient structure which needs to use technology driven tools and software for meeting the complex needs and demands of customers. By shifting or upgrading on the IT driven tools and software, business firms can gain necessary basic infrastructure and setup of supply chain management

that will enable them to survive and operate adequately in this ever changing global business world [9]. Adoption of IT makes organizations strong enough to achieve strategic integration effectively which is inevitable for establishing valuable supply chain networks. The emergence of enterprise resource planning (ERP) has been a landmark in the field of supply chain management because it provides efficiency and effectiveness both. Moreover, ERP facilitates and supports the supply chain function of business organizations in terms of information flow and accurate decision making. Empirical evidence has also indicated that supply chain volatility and capability of supply chain execution increases with the implementation of information technology across supply chain function i.e. at external and internal levels [10].

Risk and Inventory Management

Risk management is a useful practice in every business sector around the world; similarly risk management is essentially required in terms of supply chain management especially when the business is expanding across borders. Risks are taking different shapes and forms in today's business world which is putting pressure on business firms to engage in risk management on continuous basis. The reputation of supply chain networks and systems is at stake directly in relation to risk management due to which a dynamic supply chain function is the one which is backed by adequate risk management strategies [11]. Inventory management can have a greater impact on the effectiveness of supply chain function which is another key factor that business firms need to consider while pursuing for robust supply chain system. This is a basic tool/ technique that make supply chain enhanced especially by enhancing the velocity of firm's products at large. Sales and Operating Planning is a reliable technique in this regard that assists firms in managing inventory appropriately. These basic practices and approaches towards supply chain management can lead organizations towards sustainability which is complex to achieve. In the context of this discussion, next section will now present some highly useful supply chain strategies and practices that are essential for enhancing the SCM function in the current economic and competitive international business world i.e. next section will present strategies that are not basic level and require proactive approach/ careful consideration from firms in where supply chain has a major role to play:

ENHANCED SCM STRATEGIES IN CONTEMPORARY BUSINESS DYNAMICS

In recent years the world has witnessed increased economic volatility backed by global economic recession as a major contributing factor. Due to this reason a remarkable instability in terms of customer has occurred along with quick shift in commodity and fuel prices which hampered the supply chain management function for business organizations. Due to this scenario supply chain managers and executives in the contemporary organizations are going through an immense pressure in terms of establishing or achieving more customer- focused and efficient supply chain management function along with finding innovative methods of reducing the associated costs. In addition, in the current complex economic conditions it has become difficult for

supply chain managers/ executives to achieve competitive advantage by developing effective supply chain strategies and systems [12]. Basic SCM techniques mentioned above can only provide limited benefits and uses in such situations i.e. inventory and logistics expense can be reduced using the above mentioned basic SCM strategies which include prioritization of projects by organizational leaders. These approaches provide only short term benefits which is not enough in today's changing business world. Therefore, advanced and improved SCM strategies are required by contemporary business firms for meeting the current turbulent factors and challenges. It has been stated that effective SCM strategies in combination with effective tools and clear plans is required for alleviating the pressure mounting on supply chain function and executives today [13]. The below given set of five SCM strategies are addressing the currently changing business and market scenario:

Strategy Number One

Adoption of planning driven by demand is the first strategy i.e. by relying on real time demand shaping and insights. The accurate contingency planning and prediction tools are essential for firms especially operating in transportation and logistics sector which will provide a comprehensive view and enhanced response towards uncertainties such as natural calamities, political interventions and business eruptions. This strategy also provides firms to adjust their promotions and pricing strategies for shaping demand, further expanding margins in case of restricted market supply and for moving additional product swiftly. The key for organizations today is to possess the foresight for meeting the challenges and leveraging opportunities so that progress in business achieved by going beyond survival [14]. A wave of strategic sourcing has been the recent trend among majority of transportation modes which has provided shippers and transporters with improved benefits i.e. it is perceived different because it strengthens relationships and goes beyond the traditional problems of reliability and carrier cost. Therefore, strategic sourcing is the trend to be followed in today's complex economic environment.

Strategy Number Two

Advanced risk management within supply chain system is the second strategy which is inevitable today for business firms as it directly relates with the financial viability of the firms especially for transportation and logistics organizations. Potential operational disruptions are the main focus under this strategy because with the passage of time these challenges are increasing and will continue to increase due to the political and economic landscape of the global world. Therefore, embedment of advance risk management within the overall supply chain strategy is essential [15]. This is one key reason why core carrier programs have been initiated by the top supply chain and logistics firms around the world with the help of which enhanced leverage is achieved in terms of improved reliability, processing costs and freight spend. Below given figure number 1 is indicating a holistic view of a best practice core carrier program which has been recommended in literature to be used by business firms especially for transportation and logistics organizations:

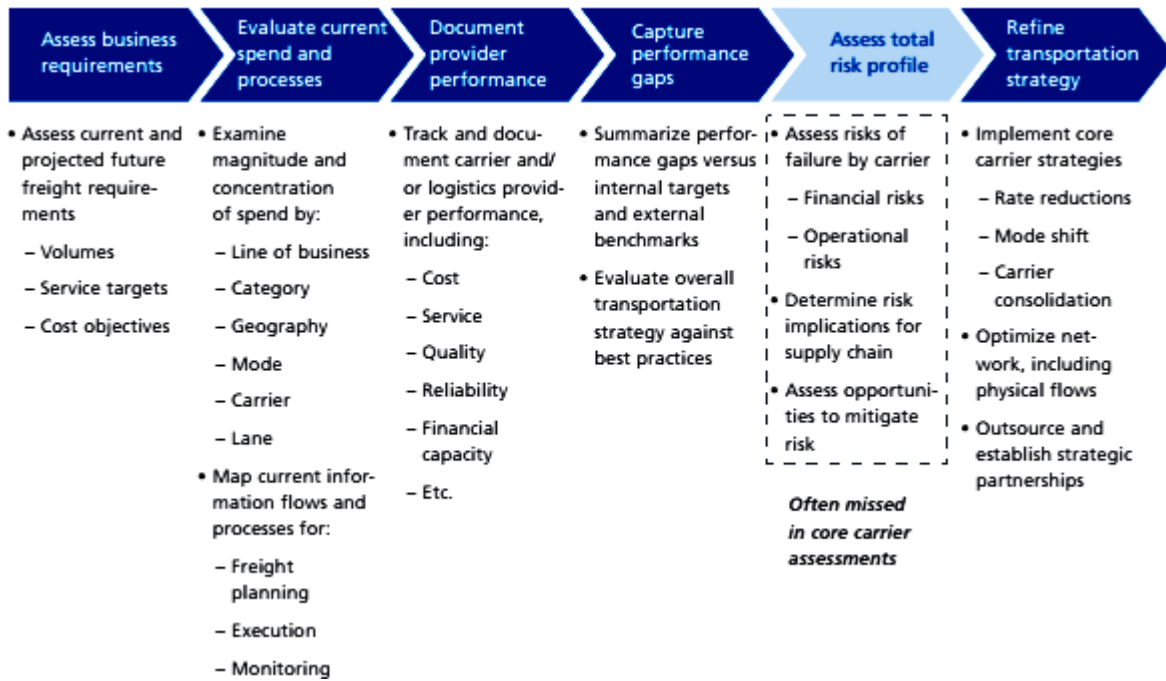


Figure 1: Core Carrier Program

Source: [16]

In response to the increasing uncertainties in supply chain in terms of carrier base i.e. this technique focused on quantification of operational and financial risks for transportation and logistics firms. This approach also exhibited benefits for supply chain strategy of business firms. Probability of default overtime has been referred as important for inclusion in financial risk and probability of main operation disruptions has been referred as important for inclusion in operation risk along with minor disruptions which includes labor volatility and carrier performance (self-reported).

Strategy Number Three

Establishment of an adaptive SCM system with integrated execution and rapid planning is another imperative strategic dimension that is required to be embedded within the larger supply chain strategy and framework of business firms. The idea behind this strategy is that executives should be capable of predicting risk and demand in an effective manner given the complexities of economic, political and security factors. Not only that they need to predict in a better way, but they are also needed to adapt their SCM function in line with the changing marketing events and opportunities. Business firms today need fine tuning of their operational side on continuous basis and placing dynamic planning to execution. Previously business firms used to wait for the month end for shifting supply and production based on sales and shipments, i.e. as part of the old supply chain model [17]. However, this has become ineffective in amidst of today’s complex business and customer requirements. Responsiveness to the market changes and adjustment towards dynamic supply chain of this new model is commendable as it supports in accelerated decision making, distribution, transportation and sourcing.

Strategy Number Four

Optimization of product designs in terms of sustainability, manufacturing and supply for the purpose of accelerating the profitability has been referred as an inevitable strategic dimension that needs to be included in the supply chain management paradigm. Since innovation has been a recent trend among international business circuits and is essential for staying one step ahead when it comes to market competition. But it is important to understand that innovation does not happen or prevail in a vacuum [18]. This is one key reason why optimization has been stressed on as a key strategic component for business firms looking to strengthen their supply chain system. Therefore, products are required to be manufactured within the range of acceptable and right cost for achieving success. Designs are now can break or make the product as designs are being prepared during the early phases of the product development. Therefore, optimization of designs is imperative to be conducted for manufacturability and supply, and precise capturing of actual costs has become important than ever. Apart from this, it is important to understand that competitive advantage and product innovation are connected with the technology and supplier selection undertaken by business firms. Therefore, if a business firm is effective in managing the decisions, processes, people and information about a product across its entire life cycle then the firm can obtain valuable market leadership and dividends. This strategy is indicating that supply chain management cannot operate alone and requires support from several other aspects for performing well in difficult and changing external market conditions [19].

Strategy Number Five

Last discussed and presented strategy here is regarding alignment of business goals with overall supply chain management system in an advanced manner i.e. by associating operations planning and sales planning with

corporate business planning. Even though coordination is provided by sales/ operational planning regarding distribution, manufacturing and sales, but there are still certain gaps and disconnects regarding operations, strategy and finance in many business firms around the world. A key method of bridging such gaps has been the use of integrated business planning. Forecasting systems and financial strategic budgeting is integrated by this process in line with operations planning. This collaboration of processes tends to make sure that budgets and revenue goals established in finance are valid in line with bottom up and detailed operational plans. Ultimately, the operational plans are reconciled by the strategy in the context of financial goals. Therefore, in this way a right balance between demand and supply is achieved and that too in line with the strategic business objectives of the business firm. The basic motive behind this strategy is to facilitate with real- time visibility of various dispersed factors such as performance, risk, and product, supply and demand throughout the business firm and across the extended supply chain system [20].

Now this paper will reflect on the futuristic approach that is essential to be considered and adopted for business firms i.e. for the sake of making their supply chain management function effective, efficient and reliable in coming years. Since the emergence of e- business strategy and inclusion of IT in business functions, considerable shift and change has occurred in the context of approach taken by firms regarding their business activities. Therefore, this section will shed light on how business firms should and are expected to shape their supply chain system in coming years. Supply chain is heading towards being digital and this will continue to happen in coming years due to which it is important to understand the significance of strategies that can better shape this going digital approach of business firms in years to come. A new wave has emerged as a result of including technology in business i.e. digitalization of business and financial processes which is supporting in the development of vital collaboration throughout the business firms. In coming years a digital community of supply chain partners will continue to emerge for the sake of executing coordinated processes i.e. in a highly informed and organizations manner as compared to what is being achieved currently [22]. Accenture a prominent global company mentioned in their report that every business will be digital business in coming years and traditional operations will continue to be disrupted by the digital technology due to which the sooner firms will adopt digitalization strategy the better they can perform in coming years. The impact of digital age is quite heavy on SCM function as without reinventing the supply chain strategy no business firm can unlock the optimal benefits and potential of digitalization. A large number of business organizations have already understood the elemental nature of this discussed point about digitalization and therefore have started to initiate digital technology within their supply chain operations [23]. Moreover, the understanding and awareness of the huge difference that exists between digital and traditional methods is of significant importance which will help in reinventing the overall supply chain strategy for firms. Before highlighting the future supply chain trends it is important to note that digital supply chains in today's connected and global

economy are moving forward on ramp to success and innovation. And business organizations aspiring to be successful in the new digital age are required to react fast in developing digital strategies which will enable them to evolve proactively in this fierce competition. Below given is a brief discussion on supply chain trends that will shape the dynamics of SCM function in coming years:

SUPPLY CHAIN TRENDS FOR FUTURE

Trend No. 1

Being responsive towards change and innovation has already been mentioned as a key strategy for success in years to come, however a keen eye on the fundamentals and basics will make the difference. As it was stated by Bill Gates that skipping or shifting the focus away from fundamentals will only result in highlighting the inefficient process. Therefore, organizations will have to stick to their basics even though on one end digitalization will be underway especially in terms of supply chain systems. This is important to keep an effective management and for meeting the persistent challenges of global market expansion, labor problems and turbulent economies. Technology will facilitate with positive and desired outcomes only when it is executed with the help of operations and strategy that will be in line with best practice of SCM i.e. getting the basics appropriate [24]. Moreover, high implementation costs of implementing the available technologies in supply chain function will prevail as a myth and will play the role of a key barrier. However, secure data exchange and real- time system integration between dissimilar systems in the context of more than one industry and supply chain verticals will be considered as useful choices for heading towards digitalization. Guidance will certainly be required by supply chain practitioners/ executives even though they have already developed a strong strategic plan i.e. repurposing of the current technologies will be a key aspect on which guidance will matter a lot [25].

Trend No. 2

Augmented reality is another key supply chain trend that will continue to exhibit its importance as it certainly is the future of supply chain. DHL has been a key advocate of this trend in supply chain management and they have already developed picking optimization as a useful futuristic trend. Facility planning, freight loading and dynamic traffic support are some other useful trends that have been adopted by DHL. Modelling of workflows with the help of facility and relevant measurements will be possible under this trend and that too on virtual terms. Loading of container/ freight will also take new shape as instructions regarding loading will be displayed heads- up in a systematic manner regarding most efficient way of container loading in relation to its weight, dimensions and size. This will be a breakthrough trend in the field of supply chain management especially for logistics and transportation related firms. In addition, the use of GPS navigation for effective delivery will continue to be a useful trend in coming years [26].

Trend No. 3

The use of artificial intelligence will be a key trend in the field of supply chain management in future. Robotics and machine vision will come under extensive use especially in the context of warehouses which will make supply chain error free and smooth. Speculations are arising in notable

circles that artificial intelligence have the capacity to control and surpass the human mind due to which care will be required while using artificial intelligence in supply chain related functions. However it will empower supply chain operators and leaders i.e. it will make their performance effective and will make supply chain function highly effective. Autonomous vehicles will also be used via artificial intelligence and functioning of supply chain will become easy with Internet of Things as its backing support i.e. new and useful applications in supply chain field will emerge with endless use of artificial intelligence in coming years [27].

Trend No. 4

Another interesting and worth considering trend will be the new role of procurement in the field of supply chain management. The struggle underlying the procurement process regarding convincing the vendor or supplier for providing the products/ materials in the best possible price will start to fade away. This is because the new role of procurement will be to increase collaboration and foster positive new associations with suppliers. Supplier relationship management will be the focus of procurement function and collaborations will be on the rise. The power of digital and social media information will be unleashed by the procurement function for optimizing the supply chain decisions of the business firms and for accelerating growth and innovation [28].

Trend No. 5

Efficient supply chain management will rely heavily on the nature of collaborations i.e. in the field of supply chain management the center stage will be occupied by the nature of collaborations achieved by business firms [29]. The automation of this process will be a key trend i.e. going beyond simple traditional procurement processes i.e. automating the payment, invoice and orders backed by data. Digital strategies will come into play for making this trend successful i.e. dynamic discounting is one key example which will enable firms to avail discounts for reinvestment in development and research activities. Smart ways will be developed and adopted by supply chain firms for achieving effectiveness and efficiency of operations i.e. the lower the costs, the longer will be the collaboration which will certainly enhance share of wallet. Innovation will be pursued by capitalizing on long term collaborations with suppliers which will mark a key trend in the field of supply chain management in coming years [30].

CONCLUSION

This paper has shed light on range of interesting, relevant theoretical and practical aspects of supply chain management field. A number of concluding remarks have been drawn from this comprehensive discussion and review of supply chain management strategies, perceptions, trends and future directions. It has been concluded in this paper that supply chain management is an integral part and component of any business organization due to which its consideration in terms of better management and strategy development is of crucial importance in today's fast paced globalized world. The pressure is mounting on supply chain managers and business firms regarding using supply chain as a strategic component and then obtaining its underlying benefits for enhanced business success and growth. There are several factors

associated with supply chain management that needs to be included in strategic paradigm for enhancing supply chain decision making and flow of information. Focus on risk management; planning and use of adaptive supply chain system are some essential basic strategies that can make supply chain management effective for business firms and can make business firms able enough to gain competitive advantage in the market. This paper has also concluded that the inclusion of information technology in supply chain management function has become inevitable today for firms because it provides unique and greater benefits which can lead a business firm towards consistent growth. This paper has also suggested that for making supply chain management function to work in the best interest of business firms in future, it is important to consider and be aware of the future trends that are expected to occur in the field of supply chain management. Digitalization of supply chain and development of digital strategies is one key trend that firms will have to adopt along with optimization and use of artificial intelligence. Especially for transportation and logistics firms, the adoption and consideration of IT driven approaches is imperative for achieving efficiency and effectiveness in ongoing complex business environment.

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