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Abstract

The research mainly aims to study the Impact of cloud-based application in transforming supply chain management (SCM). It has become the interesting aspect among all the organisations, especially in the retail sector. With internet and technology accessibility on the rise, companies across the globe have adopted cloud-based software for understanding the influence of disruptions in the activities of supply chain. The adoption of cloud computing within the premises of supply chain is included the advanced features in the business activities like error-free tracking and managing the inventory. Through this, the companies reduce the overall costs of business and increasing the business turnover. The research design for doing this research incorporated with the qualitative research where the primary data is collected in effective manner. Further, Six executives were selected to conduct the interview process in effective manner. The semi-structured interview is used to acquire the complete insight into this topic, as they came from different firms. As concerning the outcomes, the findings indicate that cloud computing is considered as the vital aspect in supply chain management, and the executives agreed that cloud-based application is the best-suited tool for their companies. It is recommended that the organisations have employed the essential steps to mitigate the issue regarding data security in cloud computing.

Acknowledgement

I would like to express my gratitude to my teachers and the supervisors as they gave me the excellent opportunity to do this wonderful project. My sincere thanks to all the participants who contributed in several ways to the research, and I am grateful for all the efforts and time to complete this research.

Yours Sincerely

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Glossary

Cloud-based application: It is utilised for transforming the activities of supply chain management.

Supply Chain Management (SCM): The utilization of cloud technology acts as the driving force towards dynamic and innovative supply chain management.

Enterprise resource planning (ERP): Adoption of cloud computing within the premises of supply chain is heavily reliant on the request of ERP systems.

COVID 19: It has questioned the capacity of cloud technology in terms of responding to the demand of the customers.

Table of Contents

Chapter 1: Introduction

1.1 Detailed description of the research topic

Concept of cloud computing has been around for near about 20 years, nevertheless the professionals of the supply chain have been relatively hesitant and apprehensive towards migrating their systems (Clervi, 2015). Movement of the industry to the system of cloud computing is still in its initial stage, despite that technology caters towards immense sense for the managers of supply chain. Traditional systems of supply chain management are significantly transactional therefore lacks the ability to offer the 360-degree management and real time accuracy of cloud management solutions. According to Agorasti Toka *et al.*, (2013), in modern times organisations are investigating in state-of-the-art practices in order to optimize operational efficiency and cost within the functionalities of supply chain. Emergence of cloud computing is regarded as the best technology to achieve optimization through the provision of the software solutions and infrastructure for a network of the entire supply chain through the internet.

By general estimates, the use of cloud computing has been increasing at a rate of about 20% per annum over the course of the last decade and more, with some predictions that it will account for 80% of the total expenditure on IT by the end of 2020. As per the report of Holst (2020), the market value of cloud-computing expenditure on SCM software is predicted to be worth in the order of $9.4 billion by 2023. Accenture pointed out the fact that utilization of cloud technology acts as the driving force towards dynamic and innovative supply chains (Accenture, 2020).

According to Tim Mackey, Senior Principal Consultant at Synopsys CyRC (Wilson, 2020)**,** “Disruptions within the supply chains are becoming more common,” which means that suppliers at each level require understanding of the impact of disruptions on the operations of supply chain and on the demand of the consumers. Supply chains have been struggling in terms of providing real time control and monitoring systems, which extends across the supply chain through the incorporation of every partner and associates in the network. Challenges towards furnishing a unified picture within the system of supply chains by companies has been inclined towards the purchase of an

information system designed for the operation within a sole company and not around all the networks. Cloud software has been the proactive solution towards the induction of change management through the accomplishment of exploding consumer requisites and demands for enhanced IT economics

1.2. Aims and objective of research

1.2.1 Backdrop and issue

Good global businesses have realized the benefits of applying cloud-based solutions for supply chains operations as a way of increasing efficiency and profitability. According to Alfirevic *et al.*, (2015), competing attempts towards defining the concept of cloud computing is centered towards referring to it as a pool of scalable, networked and virtual software resources which is sufficient towards accommodating the changing requirements of the end users. Concerns that have been faced by supply chains have been the deficiency of traceability and adequate maintenance of the products. Moreover, the lack of proper inventory control, adequate interaction between parties and real time monitoring solutions has been prevalent in the scenarios of supply chain. SCM World is considered as the leading and topmost global community comprising senior professionals of supply chain with the contribution and participation of more than 150 companies, including General Mills, P&G, Nestle, Lenovo, Samsung, Nike, Merck, Walgreens, GlaxoSmithKline, Chevron, Intel and many more (Columbus, 2014). Reports presented by SCM World has been depictive of the fact that Cloud computing provides assistance in maximizing the operations that are mostly served during the course of customers and suppliers benefit from the fast-paced access to the data or information which could streamline business.

An eminent survey has been reflective towards the standardization of 56% companies to SAP ERP structure followed by Oracle. Therefore, the attempt made by the companies to migrate into the system of cloud has been generally deployed and enhanced in layers. Most of the strategies of the supply chain emerge from earlier ages during the times of stability of the business environment. Along with predictable cycles of the businesses, competent management groups might navigate the concerning areas

and still emphasize on the strategies of cost reduction. Digitization is based on the potential of transforming the parameters of supply chain in terms of making it more valuable, accessible and affordable through the establishment of many opportunities. Enterprise service bus (ESB caters towards the procedure of automation in the distribution of the networks through the management of purchasing, selling and furnishing logical coordination and synergy within the supply chain. For instance, application of ESB in the new Belfast transport hub has been the pathway towards the establishment of 400 jobs over the next 5 years (Morgan, 2019). Moreover, this prospect has been signified as the solution for the deficiency of work in the supply chain of civil engineering projects in North Ireland.

According to the report presented by Accenture group, cloud computing is regarded as the real time game changer in the present scenario as it provides the pathway through which the executives supply chain could rapidly and effectively access the solutions of innovative supply chains delivered through SaaS based models (Schramm *et al.*, 2011). Driven by the growing recognition of the associated benefits, SaaS in orientation to the supply chain market has been estimated to grow and develop by 24% in the year 2014 (Accenture, 2014). Moreover it is predicted accomplish 19% growth rate in annual compound in terms of gathering opportunity worth 4.4 billion US dollars by 2018 (Holst, 2020b). Movement of SaaS is leaned to one-step further to the trust boundary in terms of retention of the loyalty of the vendors of software service (Pontius, 2017). This is oriented towards an approach of undermining security against the corruption of data, crashing of the systems and unauthorized access within the infrastructure of supply chains. Therefore, cloud-based services are pragmatic towards propagating connection with everyone in the facet of the supply chain in terms of providing strategic movement for the deployment of inventories. In addition, cloud computing enables the businesses to monitor the networks of delivery and prioritize the slow-paced shipments. In coherence towards the revolution that could be entailed through the application of supply chain, this topic reflects feasibility in terms of propagating with the research.

1.2.2 Research aim and research question

Primary aim

The primary intent of this study is based towards the analysis of the influence of the application of cloud computing in terms of transforming the functionalities of the supply chain. Extension of the aim of the study also emphasizes on the opportunities gathered through distinguished cloud computing models and application within the premises of supply chain.

Secondary aim

Potential risks that are associated with the incorporation of cloud-based solutions in the supply chain also configures towards the depiction of the aim of the study. The achievement of primary aim would be catered through the qualitative approach to procure knowledge regarding the transformation of the supply chain through cloud computing in distinguished companies. Moreover, this analysis would be imperative towards signifying the challenges in terms of implementing cloud-computing solutions.

1.2.3 Research question

Primary question

- What is the impact of the applications of cloud computing in terms of transforming the supply chain management?

Secondary question

- What are the different types of cloud software used in the optimization of supply chain?
- What are the risks associated with the implementation of cloud computing in supply chain management?

1.2.4 Objective of the research

Primary objective

The achievement of the primary aim is leaned towards the conductance of secondary research to reflect the areas of transformation in the supply chain of distinguished organisations. Moreover, an online interview in the situation of COVID 19 pandemic would be conducted for six executives to analyzing the reason behind the adoption of cloud computing solutions.

Secondary objective

In terms of the accomplishment of the secondary aim, a qualitative method of data collection would be utilized through the reference of profound articles to outline the potent challenges that are associated with cloud computing application in supply chains.

1.2.5 Justification

Cloud computing has played an integral part in regards to the efficiency of the supply chain for the last few years and it has depicted as the mainstay. By the end of 2017, influence of cloud solutions on the trend of the supply chain has reflected a positive change management. One of the leading boons in orientation to the industry of supply chains has been the ability of leveraging strong analytics in terms of furnishing smarter decisions and speedy logistics. Cloud computing has been prolific towards enhancing accuracy and efficiency of the flow of the products through the premises of the supply chain. Rise and growth of the cloud has led towards the widespread development of SaaS across maximum industries due to its benefits on affordability and accessibility (Schneier, 2009). Moreover, the application related to SaaS is significantly easier to manage as it ensures central updating and real time accessibility of the information.

Primary challenges that have predominated within the supply chain have been its complex structure, which hindered the streamline dispersion and movement of the products to the consumption centers (Bentz, 2013). Deficiency of the robust and reliable source of logistic data and transportation has entailed towards the visibility challenges within the format of supply chain. Supply chain survey conducted by IDC in

the year 2018 has been demonstrative to the context that 75% of the companies find cloud solutions critical in terms delivering excellence in supply chain from today and near future (Oracle, 2019). This is because cloud-based systems cater towards a wealth of advantages, which is inclusive of low upfront investments, faster deployments, continuous upgrades, secure access, simplified integration, effortless scalability, and continuous upgrades in the supply chain (Schneier, 2009).

IT research firm Gartner has visualized the aspect of significant investment made by the companies on cloud computing which is predicted to affect over 1 trillion dollars related to IT expenditure. ***Annual future of the supply chain survey*** has realized that 58% of the organisations recognize cloud as the critical force within its operations (Thigulla, 2017). Key benefits aligned with the cloud system affordable system, affordable cost and agile operations, which are essential for the betterment of the supply chain. Despite significant benefits of cloud computing, presence of software at each stage of the delivery and assembly chain caters to the risk of the compromise of real time information by the external forces. Therefore, the categorization of the subjective area of this research is based on the understanding of the influence of cloud computing in the revolution of supply chain along with the analysis of the negative areas related to the abovementioned technological system.

1.2.6 Business discipline and academic areas for the operationalisations of the research

Cloud computing encompasses a transformational influence on the operating model of the supply chain by enabling analytics and mobility of the information. In addition, it assists the organisations in realizing the advantages of the trends from primary market place, which redefines the traditional network of supply chains. Leading organisations have been into the advent of establishing a record of accomplishment for the ***cloud computing driven delivery system.*** For instance, the supply chain Pfizer has advanced into the cloud post more than 25 acquisitions within two decades. Main cause towards the initialization of migration has been the need towards re-engineering its complicated supply chain for enabling greater amount of responsiveness and agility to the unexpected circumstances. Therefore, cloud computing is considered as the

powering innovation in the scenario of supply chain at an increasingly elevated space. This study would illustrate the significant impact of cloud computing on the management of supply chain in the organisations. In addition, the dimension of the study would also extend towards the depiction of challenges that are related to the enforcement of cloud computing within the operations of the supply chains.

Chapter 2: Literature review

2.1 Introduction

Extensive and elaborative globalization of the economies has strongly increased the rate of competition amongst the businesses, which has entailed the supply chain to a factor of critical concern for each organisation. In the fast-paced business environment of the modern era supply chain management coupled with aspects of information technology is regarded as an inevitable option for the organisations in terms of providing goods and services to the consumers in a faster, better and cheaper manner. In reliance on this concept, cloud computing provides a broader range of potentials and capabilities for the businesses. Incorporation of cloud centered solutions is dependent on distinguished factors namely sector within which the business functionalities, viability of porting existing components or entities on cloud, location of the partners and client and most importantly the size of the firm. Thus, the infrastructure of cloud computing acts as a medium of dynamic scalability for the services, that has been proven cost effective for the organisations.

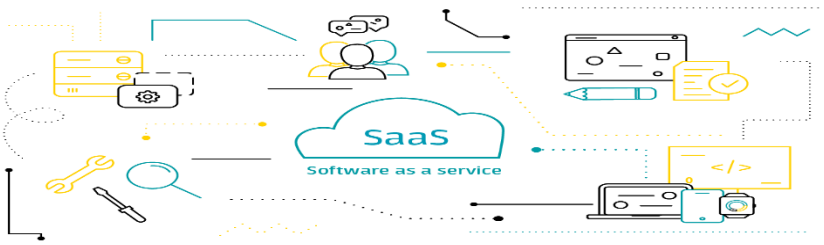
2.2 Existing literature

According to Chou *et al.*, (2004), supply chain management is crucial and critical because the organisation always confronts stringent rivalry on the aspects of its efficiency in the value chain. SCM functionalizes as a back-end system or application through the format of linking manufacturers, distributors, suppliers and resellers within a cohesive distribution and production network. Information technology has contributed enormously to the growth of the global economy. In the premises of the supply chain network, information technology has made it possible for the small and medium sized enterprises entail towards low cost and ubiquitous connectivity with the advantages of furnishing real time and seamless transactions in businesses. In equivalence to this concept Yan *et al.*, (2014), stated that the fierce market turbulence and global competition has been compelling the enterprises towards migrating into digital intelligence for the management of supply chain. Streamlined integration and collaboration related to the facet of information sharing along with the assurance of

operations agility are the two primary benefits of cloud-based application, which assistive towards conquering the challenges of low inventory control and high cost in the supply chain. Moreover, cloud technology presents agile and flexible approaches in terms of furnishing participant collaboration and resource sharing within the entire life cycle of the supply chain. For instance, business of Maxime Firth named online specializes in turning recycled fiber into roofing material has been into the utilization of cloud technology in terms of making right decisions for the modeling of the situations (Belton, 2020).

As stated by Jun and Wei (2011), in the year 2010 cloud computing domestic increase in the market scale of cloud computing has been expected to reach the value of 11.9 billion Yuan Reflecting an increase of 29.5%. ***Supply chain information collaboration*** through cloud computing has been the factor of realization for the partners in the supply chain in terms of sharing market data and operation data. On the other Subramanian (2012), opined the potential of cloud computing is aligned towards the creation of disruptive opportunities for efficiency and innovation across the overall value chain. Relevance to the application of cloud computing in businesses could be thrived through the instance of aiming at competitive leader ***Alibaba*** in cloud by JD during heating up of Chinese market. JD has been famous in the premises of China for its one day or next day delivery service furnished 362 million yearly active consumer accounts in the year 2019 (Cheng, 2020). Thus, in the coherence of increment in the consumer accounts by 18.6%, the company has been on the verge of trying out cloud computing in its retail and delivery network for faster service.

There has been the presence of different cloud-based applications within the medium of supply chain, however, one of the prominent solutions has been the incorporation of SaaS. SaaS is recognized as the framework of the innovative tier aligned to the functionalization of cloud computing. As opined by Marinagi *et al.*, (2015), in the recent phase information systems for



the supply chain management are implemented through the utilization of recent advances of IT namely ***software-as-a-service*** (SaaS). Justification to this fact is visualized through the demonstration of (Ehikhamenor *et al.*, 2014), implicating the fact that Nigeria possesses software-as-a-service as an indication to the democratization of the access of the software (Schneier, 2009). For example, UK based grocer Tesco has planned to utilize Choice Stream Real relevance structure an overall hosted software-as-a-service application in order to furnish personalized recommendation on the shopping cart page and details of the product (Progressive Grocer, 2008). As per the perspectives of Ghosh and Biswas, (2016), in the duration of this information era, one of the primary strategic considerations for accomplishing competitive advantage includes an information intensive SCM (supply chain management) integrating all the partners and activities beyond the boundaries of the enterprise. ERP (enterprise resource planning) forms the pillar of such extensive enterprises (Accenture, 2020). For instance, in the year 2018, market revenue of ERP software in the world has been estimated to 39.4 billion US dollars due to its extensive incorporation in the medium of supply chains. Moreover, this market is expected to increase to 43.4 billion US dollars by the end of 2021 (Striapunina, 2019). Finally, under the assistance of ESB the procurement of work, supplies and services are propagated in the manner, which is prolific towards meeting the commercial and business needs in the supply chain.

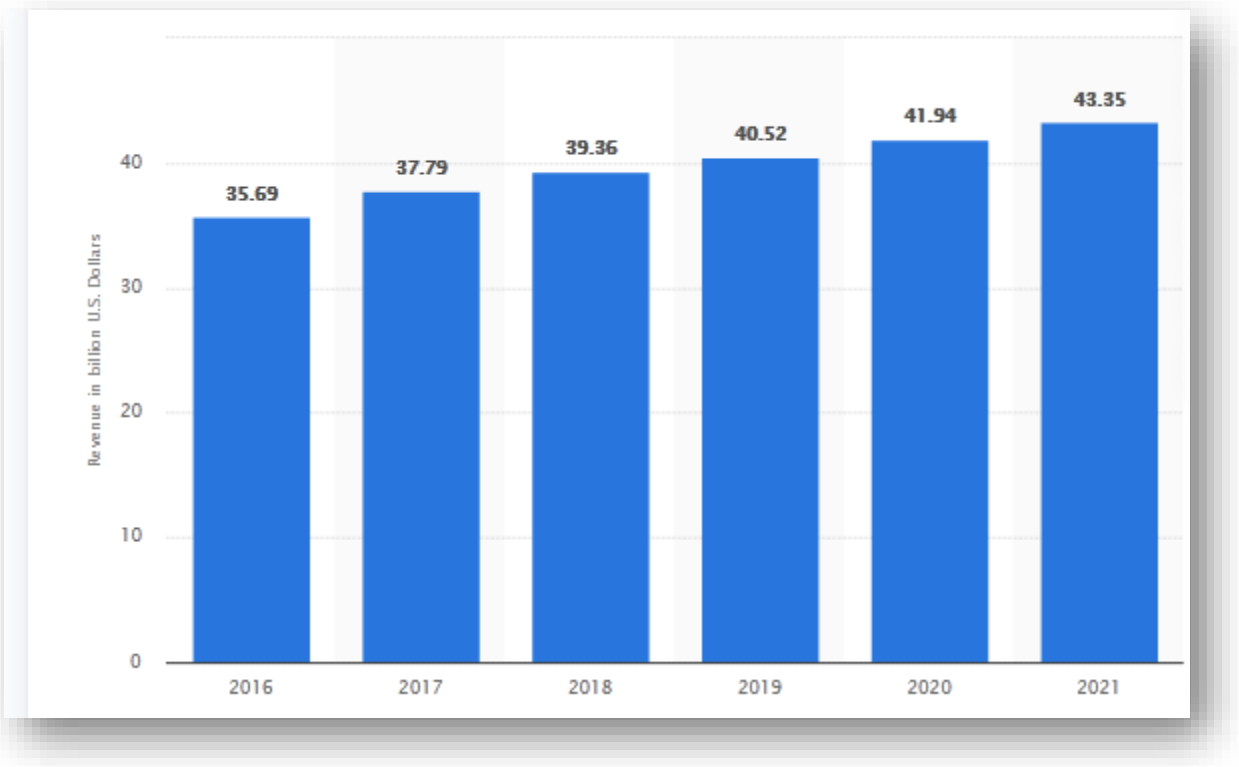


Figure 2: ERP market size (Source of Image: Striapunina, 2019)

However as per the perspectives of Okai *et al.*, (2014), cloud computing increases speed through the reduction of complexities. Despite all the positivity of cloud-based solutions, it is associated with the challenges of security and compliance that are signified as the potential barrier towards disrupting the information flow in the supply chain.

2.3 Theme 1: Supply chain management and cloud-based application

In accordance with Iranpour and Sharifian (2017), cloud based application is referred to as the on-demand availability and adequacy of the computer resources, specifically computer power and data storage without direct management of the end user. This application enables the users to access the software solution that operates on the collaborative computing resources. Cloud based services are pragmatic towards connecting each one involved in the premises of the supply chain. As stated by Nair, (2014), one of the main requisites of supply chain is to attain visibility amongst the

partners and stakeholders. This is because the parameters of supply chain have been struggling with the issues of poor transportation and infrastructural networks. In the presence of this situation cloud-based solutions has been touted as the “next revolutionary thing” and “game changer” for the mercantile or enterprises in terms of improvement of both the bottom and top line of the supply chain. Application areas of the cloud-centered solutions within supply chain main include demand planning, distribution, e-procurement, warehouse, inventory and transportation systems. Equivalently Sharma *et al.*, (2020), illustrated that the influence of cloud computing in the domain of supply chain is positive as it furnishes the enhancement of the information system. Positive aspect of cloud-based application in the supply chain is reflected through the deal between Wal-Mart and Microsoft cloud for furnishing easier and quicker shopping for the customers (Meredith, 2018).

2.4 Theme 2: Different cloud-based solution used for the optimality of supply chain

According to a report of ***2019*** MHI annual industry, 80% of the organisations believe in the context that digital supply chains would be the prevalent model in the next five years (Hogg, 2020). Moreover, the urgency on the incorporation of cloud-based solutions in the supply chain is also related to the recent COVID 149 outbreak, which has forced the companies to be reactive through adding significant inventory sources and ample options for outbound and inbound fulfillment supply. In recent times ***SaaS*** based solutions are preferred by many organisations for the management of supply chains. As the report of Gartner Global revenues related to above-mentioned application is expected to reach 113.1 billion dollars by 2021, visualizing approximately 30% increment in comparison to the year 2019.

As SaaS TMS, solutions are based on cloud computing, therefore it caters towards maximum time efficiency in terms of managing and sharing inventory data on an ongoing basis. According to Iranpour and Sharifian (2017), dynamic allocation of the resources within the cloud environment has been possible through the influence of virtualization technologies. One of the main applications of virtualization background entails the offering of differentiated applications through the assistance of SaaS

infrastructure in the prima facie of supply chains. Thus the impact of SaaS in the operations of supply chains is imperative as it adds value to the entire procedure through cost savings and maintenance of flexibility (Demand Solutions, 2020).

In accordance with (Pattanayak *et al.*, 2019), competitive environment of the market, coupled with the after effect of globalization has made it critical for all the businesses to manage supply chains. Organisations have been focusing on the deployment of the resources on the automated framework rather than just becoming function-oriented firms. Diversely (Chan and Chan, 2004), stated that involved members within the manufacturing or production supply chain mostly make use of significant information systems like ERP for independent scheming and scheduling of activities. In addition (Jaiswal and Sharma, 2001), implicated that the considerable improvement in the performance of the business specifically the accomplishment of negative capital and decrease in the channel inventory on after ERP incorporation furnishes new insight on the esteem of extended enterprise structure. Enterprise resource planning (ERP) possesses considerable importance towards resurrecting radical improvement in the performances of the firm through the integration of the operations of the businesses. To be more precise, the maintenance of synergy between ERP models and business procedures on the mode of integration is significant towards fetching higher levels of performance.

For example Guinness is a moderate sized brewery which has experienced 819% growth in its sales in the weeks of St Patrick's Day (Bansal, 2020). Reason behind the growth has been the inclusion of ERP in the operation, which has made SCM of the company much easier. ERP does not solely focus on the aspects of manufacturing; however, it has also emphasized on the factors of distribution, transportation and many more in the supply chain, which ultimately requires calculation.

According to Wang *et al.*, (2008), many of the nascent technologies struggle from gaining adoption in terms of finding an issue that could be solved. Concepts of ESB on the diverse prospect have evolved out of essentiality through the industry leading architects operating with the suppliers or vendors within the community of technology in terms of defining it. Therefore, adoption of ESB has been propagated from the time of

its development. As per the suggestive of Chappell (2004), in times of the trend of thinking on lean product development major parts of the product were offshore or outsourced which catered the challenges of collaboration between the suppliers and core enterprises. Automation facility entailed through ESB has been significant towards integrating the operations of supply chain.

2.5 Theme 3: Issues related to cloud computing in the premises of supply chain

Cloud technology within the premises of supply chain has been associated with the security issues. Main reason behind the occurrence of the security challenges has been the inadequate backup and improper synchronizing of data has entailed many businesses at risk of ransom wire. According to Abed and Chavan, (2019), data privacy and data projection are the two primary challenges related to the incorporation of cloud based technology in the premises of supply chain. On the other hand, Coyle and Nguyen, (2019), implicated that digital transformation of the economical prospect specifically the growth of cloud based application as the medium of general purpose technology might pose severe challenges or issues to the traditional practices and concepts of economic quantification in the aspect of supply chains. Moreover, the implementation of cloud technology there is a necessity of procuring knowledge on the goals and business strategy for the utilization of this resource in the value chain. With maximum businesses adopting cloud technology as the integral aspect in the supply chain as one of the main sections of its digital transformation, there is a presence of increased probability of cloud-centered breaches. As documented by Okai *et al.*, (2014), challenges that are oriented with the adaptation of cloud technology in the businesses has left many organisations skeptical in terms of furnishing commitment to the technology. On the contrary Gangwar and Date (2016), specified the fact that the users of cloud computing with significant understanding of the mechanism regarding security and availability of the cloud service provider and compliance related factors impact the adoption of this particular application. It has been predicted that large enterprise utilizes near about 730 independent cloud services and capabilities. It has always been

essential for the supply chain to establish policies that might ascertain that employees use trusted vendors and services involving IT.

Furthermore, the outbreak of COVID 19 has questioned the capacity of cloud technology in terms of responding to the demand of the customers (Bridgwater, 2020). Contradictorily this pandemic is also recognized as the major driver for the cloud infrastructure; however, cloud applications are placed with the apprehension of maintaining the continuity of rebooting the software. Thus, cloud computing is associated with the issues of the establishment of cloud accounts within the supply chain outside the forum of IT visibility. Incomplete control on the medium of accessibility of the supply chain information has restricted many firms towards implementing cloud infrastructure.

2.6 Theories and framework

Theories

Categorization	***Transaction cost economics***	***Agency theory***	***Resource centered view***	***Resource dependence theory***	***Network theory***
Primary assumption	Bounded opportunism and rationality Destructive reading reflected that presumption of opportunism, which leads to the issues of economic organisation as developed	Asymmetric information, bounded rationality and goal conflicts. This theory has emphasized attention on the conflicts inclined to	Trust, bounded rationality Resource based view implicitly analyses the consequences on the behavior of the firm due to firm dependency	Uncertainty (variability and complexity in terms of procurement of resources), existence of coalitions Pfeffer and Salancik have furnished seminal work on resource	Trust and bounded rationality (Segre, 2004)

	or conceptualized, by Williamson also caters towards undermining the solution of the issues (Noorderhaven, 1995).	role between the interest of the owners and managers plays in the financial performance of the organisation (Pinfold, 2003).	Influence of path dependency on the organisations includes diversification, corporate refocusing, and innovation activities amongst the firms, performance and finally evolution of the industry with rapid change in the products (Lockett and Thompson, 2001).	dependence theory which elaborates the mechanism of the organisation in terms of reduction of environmental uncertainty and interdependence (Hillman *et al.*, 2009).	
Orientation of the problem	Effective structure of Governance: Why is the existence of the firm?	Design of the contract: Which one is the most effective contract?	Intrinsic development of competence: Why there is a presence of variation amongst the firms?	Reduction of uncertainty and management of dependency: why do firms shape towards strategic alliances	Network connectivity: why there is a need for the firms to establish network
Time	Attributes of	Static	Dynamic/static	Static	Connection

dimension Key focus or emphasis of the analysis	statistic transaction For example, asset specificity	intensive and contracts	attributes of resources	dependence oriented to inter-firm	s of dynamic network
Operation of relationship	Failures of the market	Efficient division of labor (control and ownership)	Accessibility to the complementary resources Firms and production capabilities and resources	Setting of power relations based on exchange of the resources for the maximization of organisational power	Control and assessment of the activity, actors and resources

2.7 Conceptual framework

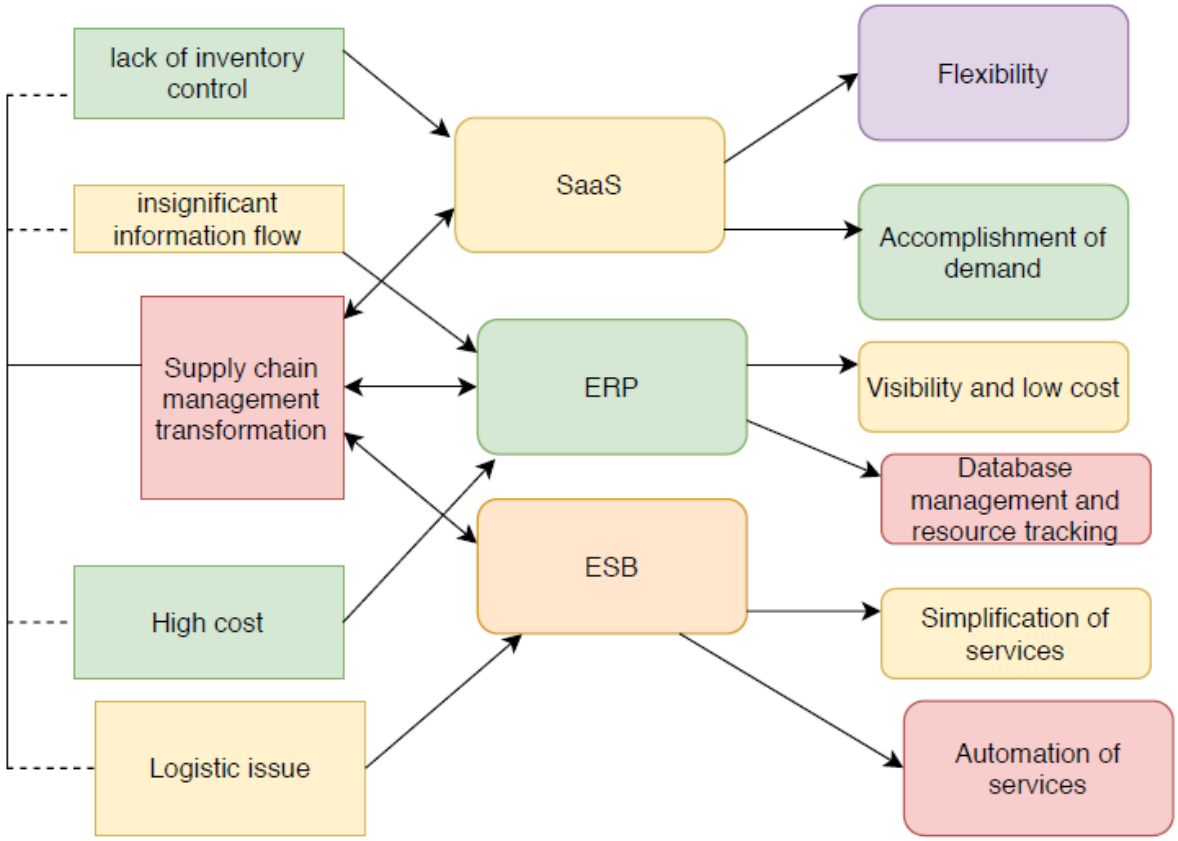


Figure 3: Conceptual theory

2.8 Literature gap

The main gap in the literature has been seldom demonstration of the negative impacts associated with the incorporation of cloud solutions in the supply chain. Moreover, the areas which are adversely influenced through cloud computing has not been significantly mentioned in the chosen literature. Focus has been strived towards the illustration of positive and prolific transformation of supply chain through cloud solutions in alignment towards the mitigation of the issues related to the traditional format.

Chapter 3: Research Methodology

3.1 Research paradigm

Category	*Emphasis*
Paradigm and Philosophy	Interpretive and Epistemology interpretivism
Explanation	Research paradigm renders linkages between ideology and research subject through the momentum of social approach and detailed investigation. Radical change perspective would be the main propaganda of this research in association with interpretive formulation of the analysis (Saunders *et al.*, 2015). Organisational challenges that have been related to the supply chain prior to the incorporation of cloud technology would be one of the main causes for the progressiveness of radical change perspective in the research. Approaches that would be adopted towards the propagation of this research would incline towards the social phenomenon. Regulations towards the gathering of data would not be obliged towards stringency, as the entire process would be confined to the analysis of the perspective of eminent articles. Approach that would be followed in this research is interpretive. Hence, subjectivism would be the main pathway to carry forward the research. Profound journals and articles would be interpreted in terms of determining the rate of transformation and revolution of the supply chains through the intervention of cloud computing techniques. Therefore, the research philosophy that would be utilized for the conductance of the

	research is epistemology interpretivism. Inculcation of this approach within the procedure of inquiry would be definitive towards the elucidating distinguished cloud-based applications that are incorporated for the streamlining of the information flow in the supply chain. Furthermore, the extensiveness of the research would also be aligned towards evaluating the issues or the challenges faced by the organisation in terms of transformation from the tradition modeling of the supply chain to cloud computing infrastructure.

3.2 Overall approach

Research approach that would be incorporated for the conductance of the research includes deductive approach in terms of examining the theories of supply chain to the new advanced. Deduction approach would be significant towards formulating the basis of the explanation ascertained in the research. Evaluation of the subjective area of the research based on the opinion presented in the eminent articles would be inclined towards descriptive purposes to cater towards detailed procurement of knowledge on the research topic. Therefore, the research method that would be deployed in this prima facie would be qualitative as the main motto is aligned towards garnering in depth knowledge on the research subject (Wester and Peters, 2000). Thus, the logic that would be enforced in the prospect of the research is deductive in terms of furnishing fundamental outcome.

Reason behind the choice of interpretivism philosophy includes:

- Deficiency in terms of the presentation of the challenges related to cloud computing within supply chain
- To determine the opinions of executives regarding the transformation or positive modification of the supply chain through cloud computing

- To procure knowledge on the types of cloud computing solution utilized in supply chain

Category	*Chosen approach*	*Explanation*
Purpose	***Descriptive***	Descriptive research would be feasible in displaying elaborative and explicit discussion relative to the topic
Process	***Qualitative***	Qualitative method has been utilized in terms of the fact of analyzing non-numerical data in terms of providing justification to the research.
Outcome	***Basic***	Outcome would be basic as the study would emphasis on the answering three significant research aligned to the topic
Logic	***Deductive***	Post the collection of the data, presentation of logical reasoning based on the subjective area of the research would inculcate towards deductive approach.

3.3. Research design

Research design is considered as the framework of the research techniques and procedure reflecting the type of the research. Strategies that would be implicated within the premises of this research would include narrative inquiry (Saunders *et al.*, 2015). Series of events documented in the articles would be analyzed through narrative inquiry in terms of furnishing coherent justification of the research along with interviewing six executives (participants) of three distinguished organisations, implementing cloud technologies in the supply chains.

3.3.1 Research strategy

Entire framework in orientation to the propagation and procession of the research would be based on the prospect of research strategy. Strategy that would be formalized to the ground of this research would be descriptive in terms of garnering detailed ideology on the research subjective area. In addition, prerogative of the research confined to the basis of narrative inquiry towards analyzing the range of revolution in the supply via

cloud computing aspects. Responses of the chosen participants would be compared with the opinions of the authors to maintain reliability of the research. Underlying challenges within the premises of the supply chain due to which cloud technology has gained importance and would be demonstrated through regulation perspective (Burrell and Morgan, 2011). Conditioning rate in terms of furnishing compliance towards the utilization of cloud computing systems would be analyzed through the assistance of interpretive approach. Increased preference towards cloud software chain has been due to the prevalence of the inappropriate information flow, lack of proper tracking of the resources, high cost and logistic issues in the domain of supply chain. Moreover, the analysis of the psychological prospect oriented towards the implementation of the advanced technology would also be evaluated through the basis of the selected research strategy. Thus, descriptive strategy would be prolific in terms of furnishing the ground of narrative inquiry (Yin, 2014).

Issues in the supply chain have always been prominent on a worldwide prospect, therefore the presentation of elaborative discussion on the topic would be beneficial towards analyzing the role of cloud computing in the revolution of supply chain. Backend intention towards classifying strong analysis on this topic has been to recognize the distinguished software that has pragmatically helped the supply chain towards migrating into the zone of betterment. However, each new implementation is associated with certain forms of barrier, cloud-based software is no exception (Wu *et al.*, 2013). Very little research has been undertaken till date defining the complexities that has taken place in the organisation regarding the adoption of cloud software. Exemplification propagated within the eminent sources would be significant in depicting the challenging areas apart from the advantageous ones. Thus, regarding the maintenance of prominence in the research, the strategic model that would be utilized for the collection of data is narrative inquiry (Denzin and Lincoln, 2011). Multifaceted approach would be undermined through narrative inquiry. Procedure would be aligned towards examination of the chosen topic related to social phenomenon in terms of furnishing answers to the question starting with "what".

Main concepts that have been recognized through the subjective area of the research include supply chain management and cloud-based application. Operationalization of these variables would be categorized through the prospect of interpreting various articles owing to the implication on the subjective arena of the research. Initially the influence of cloud computing on the positive changes of supply chain would be signified, followed by the understanding the role of differentiated cloud computing software. Finally, the research would emphasize on the dimensions of challenges related to cloud computing. Association of the identified concepts would be operationalized towards accomplishing the objectives of the research from the perspectives of distinguished journals and news articles.

3.4. Data collection

3.4.1 Sources of data

Data sources for ascertaining the appropriate conductance of the research would be inclined towards both secondary and primary approaches. Information towards analyzing the parameters of research objectives would be gathered through the opinions of eminent authors in journal and news articles as well as through the narration of the chosen executives for interview. Medium or the entire statutory of the research would be formed through secondary and primary sourcing of data. Vitality in the research prerogative would be maintained through the prospect of interpretation of different examples outlined in the articles in association to the topic. Therefore, the main requisite towards leaning on secondary and primary data sources would be to accomplish the intent of the research. Subsequently gathering of information from news and journal articles and online interviews would act as the driving force towards ascertaining accurate and reliable response to the research question.

3.4.2 Data collection

The basis of the research would be leaned towards understanding the perspective or the narration of the authors and respondents on subjective areas of the research. Utilization of a qualitative method would be facilitative towards collecting significant

information from the news and journal references and online interviews that aligns with the portfolio of the topic. Main emphasis of the research would be catered through implicating and identifying the positive intervention of cloud computing technologies on the transformation of the functionalities of supply chain management. However, extension of data collection would also circulate on the analysis of issues associated with the influence of cloud-based application in the supply chain. Configuration of the data collection techniques would be solely based on the viewpoint of authors and their presented examples in demonstrating the transition in the management of supply chains through cloud technology. Issues of supply chain which required mitigation technique through the influence of cloud computing would be identified at the prior level (Nowicka, 2014). This is because the procurement of knowledge on the accurate range of transformation in the value chain would be streamlined and reliable towards ascertaining ample justification of the research objectives. Online interview would be feasible in the pandemic of COVID 19 to procure suitable responses from the chosen participants. Moreover, the convenience of chosen respondents could be maintained through the propagation of interviews through digital mediums. Six executives from three different firms, two from each would be chosen to garner detailed opinion or responses based on the parameters of the research subject.

Here, I have selected six executives from three IT firms i.e. **Accenture, Wipro and TCS**. Here, the key role of executive is direct and coordinate the operational activities for the organisations and are mainly responsible to devise the strategies and policies. Further, it will meet with the company goals. Due to the ongoing pandemic, I have to communicate with executives via social medium i.e. **Facebook and LinkedIn**. After that, I have requested them to join in the interview process, and share their important views. I have also sent the consent form to them, and it indicates that they are involved in the interview process by their willingness. After they signed the form, I have started the interview process.

3.4.3 Nature of data intended to be collected

The intent of the research would be accomplished through the utilization of accurate mechanisms or tools for the collection of data. Moreover, the implication of grounded theory would be conceptualized within the pathway of the collection of information from varied sources in terms of retaining the reliability of the information. Therefore, qualitative method of data collection would be eventual towards signifying the in-depth analysis of the research subject through appropriate fictionalization of research variables. Comparative analysis of the viewpoint of authors of eminent sources and respondents of the interview would furnish towards defining elaborative analytics for the research in terms of satisfying the purpose. Questionnaires would be documented for the conductance of online interviews through the consideration of the fact that the supply chain of the organisation of the selected respondents have migrated into cloud computing technology. The formative aspect of the questions would be subjective and open-ended.

3.4.4. For online interview: Open-ended question

1. Why did you decide on adopting cloud technology in the supply chain?

I have decided to adopt the cloud technology in the supply chain. As the physical systems come with several limitations, most of the organisations have failed to develop their business activities in the global market. The cloud-based software makes it easier for conducting the businesses from anywhere. While dealing with the new partners, several difficulties have occurred in the supply chain. It is evident that about 30% of trade partners have experienced a problem-free transaction while developing its business operations. The cloud-based service will offer more easier approach to the organisations, as the onboarding through the

2. How have you been benefited through the entire procedure?

Through the online interview process, I have benefitted a lot. As the executives are involved in the process, they motivated to share the views regarding the cloud-based software in SCM. During this pandemic time, it is difficult to conduct the face-to face interview. Thus, I have preferred the online process, and here, the data is transcript through the content analysis. In this interview process, both the parties have the option to review their activities. I have gained a brief view about the adoption cloud-based software in SCM.

3. What are the potential barriers that have been faced by the organisation for overall customization of cloud technology?

As concerning the views of executives, it has been observed that there are several barriers faced by the organisations while customizing the cloud-based technology. Security issues of cloud-based application have become the key concern in the organisations. While the firms audit the privacy and security laws of the provider, they must ensure to take care of compliance the data. The organisations have been capable to comply with standards and regulation. Another risk is cost management. It is evident that most of the organisations have saved their business money by adopting the cloud-based application. However, the scalable and on-demand nature of cloud service makes it difficult to predict the charges. As a result, the organisations faced several issues within the market. In recent days, the cloud challenge that the organisations face is lack of resources.

3.4.5 Ethical consideration

At first priority would be given towards garnering spontaneity of the respondents in terms of answering the questions. Secondly, the convenience of the participants would be given utmost preferences to maintain the authenticity and transparency of the

research. Detailed description regarding the purpose of the interview would be presented in the forefront of the respondents. Interviews would be conducted post garnering written consent from the participants and data privacy would be assured. Collected information would be secured in encrypted format and dispersion of personal information would not be entertained in the research.

3.4.6 Analysis

Qualitative research data analysis would be considered in terms of analyzing the data. Sequential order would be followed in terms of organizing the gathered information based on the identified concepts. Completion of the procedure of data collection would entail the formalization of comparative analysis to obtain a general and prominent framework for the guidance of future research.

3.5. Potential outcome

A Potential outcome that is oriented to the fundamental of this research is to garner reliable information on the management of supply chain through cloud-based application. New pathway of future research would be created to enlighten the dimensions of minimal or insignificant research areas. Transformational scenario of the supply chain could be signified through the prospect of adoption of cloud technology on a wider level. Moreover, the outcome through the incorporation would highlight the quotient or facet of transformation. Lastly detailed recognition of the associated challenges or concerns of cloud computing would pave the way towards determine its mitigation strategies in terms of maintaining the continuity of the transformation rate.

3.6. Gantt chart

Period for the culmination of the research would be 15 weeks. Initialization of the research would be catered through furnishing approval from the supervisor on the research topic. Background and intent of the research would be presented after ascertaining consent on the research topic. Later literature review and research paradigm would be presented through reviewing it from the lecturer and supervisor at

each stage. Finally, research design would be documented which is presumed to intake ample amount of time, followed by the implication of potential outcome.

Activity	Plan Start	Plan Duration	Actual Start	Actual Duration
Presentation of research topic	1	5	1	4
Approval from supervisor	1	6	1	5
Presentation of research objective and aim	2	4	2	5
Documentation of literature review through different themes	4	8	4	6
Revision of Literature review	4	2	4	7
Research paradigm and approach presentation	4	3	4	6
Submission of draft of LR and research design	5	4	5	3
Documentation of research design	5	2	5	5
Preparation for online interview	5	2	5	6
Demonstration of detailed purpose of interview	6	5	6	7
Documentation of	6	1	5	8

questionnaire				
Providing questionnaires to the participants	9	3	9	2
Conductance on online interview	9	6	9	7
Garnering of data from interview	9	3	9	1
Researching of news articles and journals	9	4	8	5
Analysis of interview data	10	5	10	3
Open code preparation	11	2	11	5
Comparative analysis	12	1	12	5
Feedback from supervisor	14	5	14	6
Detailed examination of the interpreted data	14	8	14	2
Potential outcome	14	7	14	3
Checking of entire report	15	4	15	8
Submission	15	5	15	3

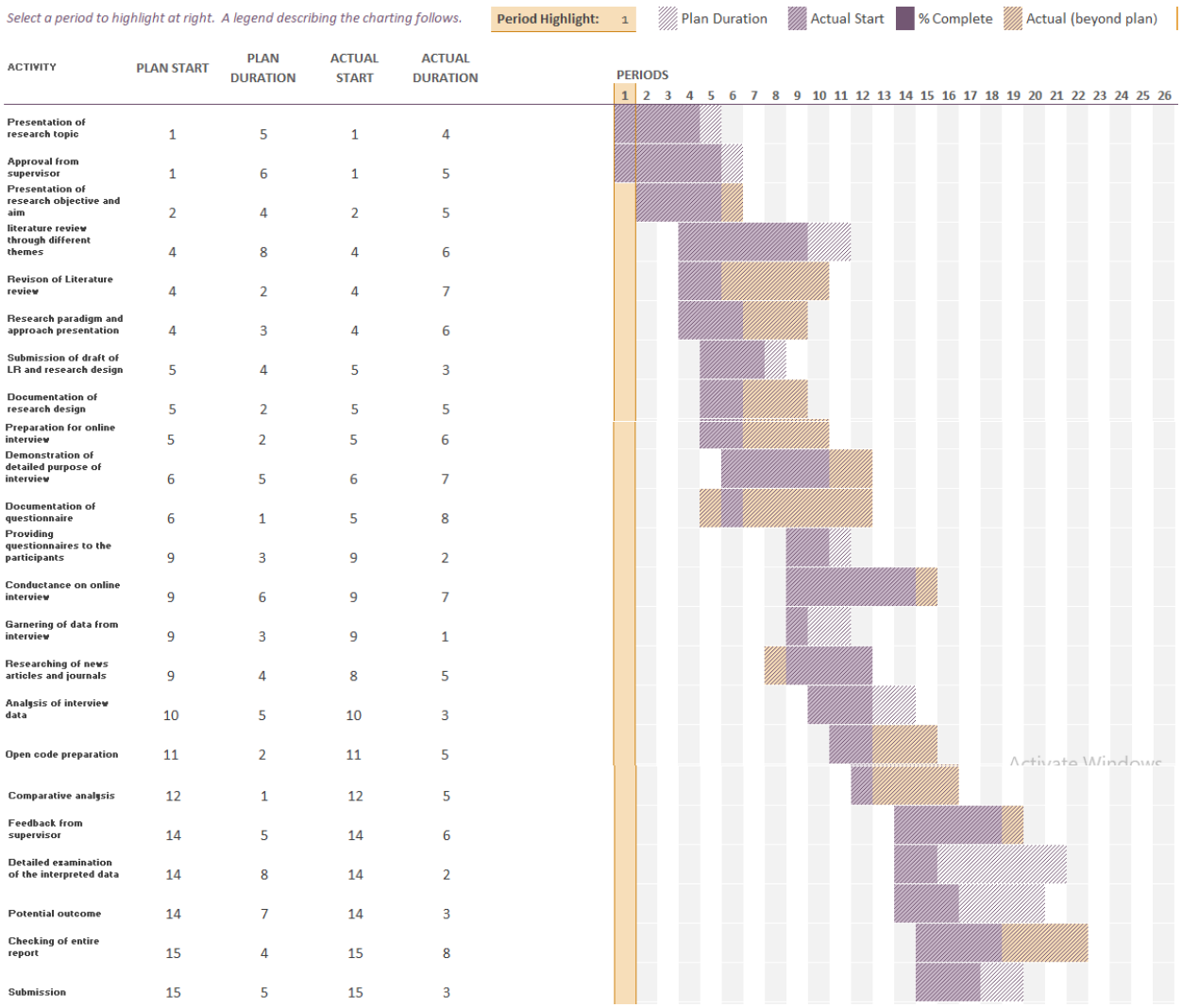


Figure 4: Gantt chart

4. Findings, Analysis, and Discussions

4.1 Introduction

In this research, the data analysis plays the most important role, as it helps in interpreting the result. The research included the interview, which was performed among the executives of the firms to check the utility of cloud computing in their organisation. These responses are summarised and after that, the analysis is made to interpret the outcome. This helps in performing the logical analysis of cloud computing and its importance. The interview included 6 interviewees, among whom 10 semi-structured open-ended questions are performed to investigate the potential outcome of the topic.

4.2 Findings

Theme 1: Cloud computing is the key driver in supply chain management

There are several reason identified by the participants as to why their companies have selected the cloud-based approach to SCM. Majority of the respondents in telephonic interview stated that cloud computing is working as a key driver of SCM. Within the workplace, it helps him in managing the connectivity in the supply chain network through its versatile data accessibility. As per their views, it is stated that Cloud computing acts as an important tool, mainly in those segments of their company, which are related to global business operations. Based on the connectivity and flexibility, the company have adopted the cloud-based application, which supports the business in its expansion. Cloud computing offers better scalability in the business and it offers faster services with a collaborative approach. In order to include better value, the companies also include the cloud-based application in the business. Regarding the views of respondents, it may be cited that cloud-based software offers the easiest process to tract the product. This allows the management to cut down on lost product, as it may locate a shipment in the time of transport. It allows the executives to make the decisions regarding the SCM, and communicate efficiently of they need to switch a misdirected shipment. As suggested by majority of the executives, Cloud computing has been a revolutionary concept within the management of supply chains. This can be backed up

by the fact that it provides increased connectivity through magnification of accessibility of data. It can leverage the supply chains in various industries by making the logistic system more efficient. As the cloud-based application is existed within the digital world, it may easy for the organisations to scale up or scale down the cloud-based software.

Theme 2: Assessment of benefits of Cloud-based application in the company

There was a broad agreement that the DropBox, which is a cloud-based application, is the most suited tool for developing the business activities within the company. This cloud-based infrastructure helps in hosting services and ensuring the client's protection. According to the transcripts, the executives indicated that cloud infrastructure is an aspect through which, they can handle the internal components of business effectively, and align the supply chain activities. The cloud-based anti-spam and anti-virus service plays the most important role in his business, as they mainly rely on these to execute his functions. Most of the companies use cloud computing in big data projects to collect information from multiple ends. Recently, the use of DropBox is a popular cloud-based application that allows companies to share the files easily. It was agreed by most of the executives that cloud-based applications have helped their company make productivity jumps in a major way. This notion is a general observation that suggests cloud services are beneficial for growing and already established businesses that display growing or fluctuating bandwidth demands.

It has also been pointed out that the maintenance of these cloud services does not require huge IT teams, further decreasing the costs related to IT. Through this application, downtime costs are also minimised significantly. It was agreed by most of the executives that cloud-based applications have helped their company make productivity jumps in a major way. It further supports this notion is a general observation, suggesting that cloud services are beneficial for growing and already established businesses that showcase growing or fluctuating bandwidth demands. Most of the executives have also pointed towards reducing IT costs after the implementation of cloud-based services in their infrastructure. The usage of cloud infrastructures eliminates the extra costs incurred by the companies related to the procurement and management of equipment. It has also been pointed out that the maintenance of these

cloud services does not require huge IT teams, as it further decreases the costs related to IT. Through this application, downtime costs are also minimized significantly.

Theme 3: Features of public cloud that associated with the supply chain in scalability and data security in business

Most of the executives stated that the suitable feature for selecting a cloud-based application is security capability. This is an important factor, which one (executive) thinks an organisation should focus to implement the application. The security and protection of information is the primary concern. Data security is the best feature to use the cloud-based application, but the companies have to consider the price of the application while implementing it. The data storage is another feature, which ensures the efficiency of the operating system. As opined by most of the executives, it can be noticed that the public clouds have the ability to be managed by the company and its multiple partners. The major advantage of the public cloud that attracts companies is that the management does not have to worry about the construction and maintenance of the infrastructure. In addition to that, it has also been inferred, that private clouds, which although allow a higher level of security and service level agreement, have less flexibility than the public clouds. This explains why most of the executives chose private cloud systems over the public ones. These can be attributed to the heightened data security that comes with the private cloud infrastructure.

Theme 4: Benefits of using the private cloud in the activities of SCM

The main feature, which distinguishes the private cloud from the public one, is its better accessibility. It is helping the executives in performing multiplexed workload and expanding operating capacity. For having the control mechanism, the private cloud is delivering to manage the business properly. Based on the security system of the private cloud, which is far better than that of the public one. It offers better protection to the data with encryption and authentication. Due to cost-effectiveness, the private cloud allows the organisations may deal with any difficult task. The importance of the scalability of the private cloud is better than the public one, and this statement is supported by most of the executives. Private cloud is mainly hosted either on-site or within a third party,

data enter, which is considered as the private environment. This offers their management to more control over the infrastructure and the data, and allowing them to intervene promptly should change must require. The executives have also included that customisation is an important feature of private cloud, and the organisations may easily select any infrastructure. Thus, the entire system may meet with the individual requirements perfectly. The organisations could perform multiplexed workload by adopting this private cloud, as it has the capacity to expand, whenever it is required.

As stated by the majority of the respondents, it is evident that the private cloud network provides better accessibility than the public one that has been noticed to have a direct relation with increased capacity. Moreover, the security benefits along with greater scalability provided by the private cloud systems related to its public counterpart have given it the upper edge in the eyes of the majority of executives.

Theme 5: Requirements to forecast and plan to develop the service levels while coordinating with supply chain partners

Majority of executives commented that the forecasting and planning for multiple levels of action are highly required for continuing the business and getting competitive advantages. For managing a business at a large scale, it is highly important to handle the work and meet demands. Forecasting the business is important, as it helps in predicting the upcoming business activities, and modifying the operations accordingly. The main advantage gained through forecasting is that it helps in assuring the presence of sufficient resources and supplies for meeting the current or forecasted demands of the customers. This in turn helps in avoiding the issues that might be created due to under or over availability of supplies as compared to the demands made from the company. Predicting and forecasting the business activities have been considered important, as it helps in making plans for upcoming events. According to the executives, the movements made by other key players within the surrounding environment can be noticed by being updated about the operating environment. Thus, through making proper forecasting it can be easier to gain edge over competitors and remain successful in the market. It is just necessary to utilise proper technologies and resources for making strategy and allocate resources accordingly.

Theme 6: Efficiency of cloud-based application on SCM activities

All the executives agreed that cloud based applications helps in inducing cost and time efficiency and bolstering flexibility within the SCM activities. All these qualities are indeed some of the major advantages of adopting the cloud-based services for SCM. It helps in proper storage and management of the information related to the activities in supply chain management. The access of inventory data becomes easier in SCM owing to the inclusion of cloud-based applications. This facilitates better decision making and formulating of an effective plan for SCM. SaaS TMS solutions aids in proper time management eliminating or restructuring of the activities that consume extra time in SCM. The flexibility attribute is bolstered through enabling collaborative effort input in supply chain and automating the tasks for fast process conduction.

According to the executives, technologies like ERP and ESB helps in accomplishment of these optimisations through integrating the various operations related to SCM. Through implementing cloud-based services in SCM, it becomes easier to shift the human or any other resources among various levels based on the requirement. This way, time efficiency, cost efficiency and flexibility features are inculcated within SCM through adopting cloud based application. In addition to this, positive impact has been observed following the implementation of cloud computing in SCM on the transparency of operations. Increased cooperation between the individuals related to supply chain is also noticed as a direct result of availability of data stored on cloud systems to all the partners and stakeholders simultaneously.

Regarding the efficiency of cloud-based application in SCM, it could connect everyone within the supply chain and offering the strategic approach for the business operation. Most of executives have pointed that cloud-based service will allow the organisation's management to control delivery procedure and prioritise the slow-moving shipments. It cloud also automate the activities, and more effortlessly reduce the issues that associated with SCM. As a result, the organisations could optimise the procedure of product development, and enlarge the market with delivery process. As it reduces the entire cost, the organisations could develop the agility in business by taking the operational model.

Theme 7: Risks associated with the supply chain management

There were three risks identified by the participants while integrating the cloud computing. Three potential risks of cloud computing, the risk from vendor site is the major one. The other two risks are identity theft and potential revenue loss. According to their views of executives, another 3 sets of issues are associated with cloud computing, and these are easy access of data to the hackers, lack of information from the vendor, and risk in supply chain management with legal framework. As per their views, it may seem that the potential risks in cloud computing are, security defeats, unauthorized data access, and lack of business viability from the data-driven tool. Cloud computing can invade malware attacks in the system, and it increases legal compliance and data loss.

As stated by most of the executives, the primary concern regarding the implementation of cloud marketing in supply chain is the vulnerability of the vendor site that is being used. Hackers can inject malicious codes in the transcripts of websites, allowing them to access the data stored in the cloud system. This can endanger the sensitive data regarding the company, which if available to the wrong parties can cause disastrous effects upon the company. In addition to this, another issue recognised by majority of the executives is the risk of identity theft and revenue loss, brought around by the compromised data. The compromised data might include information related to financial assets and other valuable holdings, which can be exploited by hackers for their own benefits. In addition, it can be inferred from the survey that the easy access of data to the hackers can prove to be majorly detrimental to the company.

Theme 8: ERP can help in supply chain management

ERP is acting as an important tool in managing its supply chain network with its connectivity and coordinating capability. With the use of ERP, the continuous demand generation and its supply could attain by the organisations. ERP may change the activities of SCM, as it works in demand fulfilling and ensuring production policies. Most of the executives have supported the use of ERP in managing the supply chain activities by ensuring a streamline management logistic in the operating environment. It is helping them in keeping the demand constant. As inferred from the opinions of the

majority of executives, it can be stated that ERP has proved to be a staple in the world of Supply Chain Management.

It can be stated that ERP provides a streamlined management of the supply chain. This in turn helps with the facilitation of effective job scheduling. Because of this, ERP allows the supervisors to keep an eye on the utilisation of resources. More specifically, the ERP can help them track resources that are being consumed at present and those that have already been consumed in real time. Moreover, it can be stated that ERP is responsible to ensure that the production policies for the supply chain are aligned with the demands. An ERP that has been devised for the SCM can facilitate a more effective management of the procurement, as well as supply of raw materials such as goods and services evenly across the supply chain.

Theme 9: During Covid-19, the capacity of cloud technology is responding to the demands of key customers in SCM

As per the view of r executives, it is evident that cloud computing is helpful for them in managing the business under the pandemic condition of the Covid-19 outbreak. According to them, this is mainly supported the employees by providing such a condition, under which they can work and access data, even staying at the remote place. As most of the employees are working from the home, access to data and other information is highly required to them, and it is done by using cloud computing. For having the scalability and flexibility feature of cloud computing, the organisations may successfully control their business activities in the time of the pandemic. As the organisation allows the employees to do their task by staying at home, cloud-based software induces a large-scale transformation within the traditional supply chain, making it more dynamic and innovative. Cloud computing is one such innovative technology that may be adopted by the organisations to enlarge the overall efficiency during the pandemic. By employing it within SCM, the organisations get several benefits like simplified the business activities, save the capital investments and so on. The majority of the respondents think that due to easy accessibility and flexibility, the organisations will easily feel the demands of key customers in the supply chain.

Theme 10: Cloud computing can increase the cash flow in the organisations during this pandemic condition

As the companies have faced a declining phase during this pandemic situation, but Cloud computing can capable to continue the business during the situation, which helped the executives in cash inflow in the company. The up-front charge of an application stored in the data center is the key advantage of cloud computing. Due to this, either the organisations may partially or fully cut down the charge of infrastructure, hardware, or work force associated with the data. During this pandemic, the cost of managing the own data center is one of the achievements of the organisations. As a result, they can manage a considerable amount of sources in production and SCM. After that, management and integration are needed, and it means that the organisations need to have qualified staff, which may handle the resources and integrate it constantly. The successful deployment of the application and maximise all the applicable features enlarge the overall success.

The service provider, who may reduce churn and enlarge the lifetime value of the customer, may enjoy the success. Along with this, the organisation, which will maximise the profitability and production, is also enjoying success during this pandemic. The employees continued to work during the pandemic situation, and it made not often any impact on the organisational cash flow. The majority of respondents agreed that as their organisations remain active during this pandemic outbreak, they would successfully handle the customers.

4.3 Discussions

From the interview analysis, it has been found that there is a mixed opinion of six executives about the usage of a cloud-based network to maintain the procedure of SCM. The majority of executives have shared positive opinions about the advantages of cloud-based software in supply chain management. Considering the view of 1st executive, it can be observed that cloud computing is one of the main aspects in SCM, as it enhances the data connectivity and leverages the global chain network. The 1st executive also included that cloud computing makes it possible to closely track the item throughout its lifecycle, and it allows the management to make quick decisions and

converse efficiently if they need towards redirecting the delivery. Cloud services enable the management to resolve the issues regarding supply chain management. This can be supported by the literature review provided in the report as it states that cloud based storage systems helps connect the individuals working for the supply chain. As the literature review suggests, it also takes out the chance of clash between the partners and stakeholders by enabling top-level transparency in the supply chain. Cloud-based networks have helped take out the weak link of SCM, which is the lack of effective transportation and infrastructural networks. Information gap has been mitigated largely with the help of cloud computing. As linking the view of 1st executive with the literature review, it may note that the utilisation of cloud-based service within SCM directs to both the operational and economical benefits. The cloud-based network supported the company to develop its service level by coordinating the chain's partners, which play a key role in demand forecasting. While opinion about the benefits of public cloud, the first executive stated that for having better accessibility in the private cloud, the company could perform multiple tasks at a specific time. However, the private cloud also offers the essential resources that meet with the customer's needs. By integrating SaaS within supply chain management, the company easily upgrades the entire system and enhances the real-time accessibility of the information. To relate this interview with literature, it may be noted that there is a huge demand for forecasting product and service in the business. The executive also added that during the outbreak of Covid-19, cloud computing easily deals with the demands of key customers within the SCM, and it enhanced the cash flow during this pandemic situation. As stated in the literature review, the SaaS system has made operations in the Supply Chain management smoother. It has increased the time efficiency of operations like management and sharing of inventory data that is very critical to the facilitation of an efficient SCM.

While discussing the view of 2nd executive, it could be cited that a cloud-based network is considered as an efficient tool that easily handles the global network of the supply chain. For having flexibility, cloud-based solutions could connect every employee in the supply chain, and offering a more coherent approach for the inventory deployment. It has also been stated in the literature review that with the help of ESB, the procurement of work, supplies and services has become more efficient. This in turn, has been

considered responsible for the meeting of commercial, as well as business needs in the supply chain for various companies in a prolific manner. As per the view of 2nd executive, it has been found that the prime concern for using the cloud-based application is to ensure the protection of the information. The executive also included that the framework of the public cloud is mainly utilised by the common people. In case of a company, it may be operated and managed by the management and its partners. It has mainly existed externally, and the suppliers offered to the business for maintaining the business activities. By using the public cloud, an inexpensive set-up is attained by the end-user. To relate the view of 2nd executive with the literature section, the company has preferred to use the private cloud, because it offers better control in the working activities. The cloud-based network is entranced by consumers of different industrial units in an organisation. Due to its flexibility, the private cloud is also offered high security in case of business operations.

Generally, the selection among public and private clouds could depict a trade-off among flexibility and security respectively. The 2nd executive also noted that the private cloud is highly valuable for the organisation to predict the business workload and customize the requirements. While discussing efficiency of cloud computing on SCM, this application allows the users to access the software solution, which may operate to control the resources. However, it is important to note that many firms have been unable to implement the cloud infrastructure because of incomplete control over the medium of accessibility of supply chain information. However, different potential risks are associated with cloud computing while integrating into supply chain network. It is essential for the supply chain management to establish policies that mandate the usage of trusted and credible vendors of these cloud services, in addition to other services involving aspects of IT. According to his opinion, the lack of information from the vendor site is making risk in the supply chain, which further directs towards the legal risks. This can be further supported by the findings stated in the literature review section that approaches the security issues related to cloud computing in the premises of supply chain. As the literature states, data privacy is a major challenge that needs to be addressed in order to incorporate cloud computing successfully in the premises of supply chain. It has been suggested that as more and more organisations integrate the

cloud technology in their supply chain operations, the probability of cloud-centred breaches has also gone up.

Regarding the efficiency of the cloud-based application, the 3rd executive noted that a cloud-based network enhances efficacy of internal components, which are associated with the supply chain network and the global business operations. Along with this, data security is the key concern for the cloud-based network. By associating the view of 3rd executive with the literature, it has found that ERP is mainly supporting to manage the activities of the supply chain. Based on the literature review, comments can be made in support of the views of the 3rd executive. The literature suggests that Enterprise resource planning (ERP) has played a major role in the facilitation of improvement within the radical movements related to the firm performances. A more in-depth approach suggests that synergy between ERP models and business procedures in the mode of integration have allowed companies to achieve a higher level of productivity. It also develops better coordination between demand generation and its fulfilling. ERP also monitors and tracks the activities across the channels in real-time, from a specific platform. It develops information sharing, enlarges the departmental communication, and reduces the delay in the process of decision-making. It can also be inferred from the literature review that ERP is mainly used by individuals related to the production supply chain. It is done in order to facilitate independent scheming and scheduling of activities. From the literature review, it is contrasted that the ERP system offers the power to business for acting properly and stay competitive within the market. During the outbreak COVID-19, the company has forced to reactive through including the inventory resources and ample options for fulfilling the inbound and outbound supply chain. The 3rd executive has also stated that SaaS-based solutions are preferred by the company to manage the supply chain network during the time of Covid-19. To narrate his view with the literature section, it has been observed that cloud computing can increase the cash flow in the company during this pandemic condition. At the time of this pandemic, SaaS has been noticed to affect the supply chains. It has allowed remote access to the inventory data resources and other parts of the supply chain mechanism. This, in turn has made it possible for employees to balance the creation of demand and fulfilment of demand in an effective way. Consequentially, the organisations have been able to

undauntedly keep up with the operations related to supply chains. The employees also offered the best performance to maintain production. Moreover, the effect of cloud-related software within the activities of SCM is imperative, as it includes value to the entire procedure through cost savings and maintenance of flexibility.

The opinions of 4th executive depict that the attributes of cloud computing such as its cost effectiveness, scalability and its reliable service provision makes it effective for supply chain management. This opinion may relate to literature review, where these attributes can be utilised for improvement of the bottom and top line of the supply chain. The facts mentioned in the literature that cloud based services enhance the various activities taking place within supply chain management. These activities mostly range between planning, decisions making and management of various aspects of supply chain management including the management of warehouse and inventory. These factors underpin the opinions of 4th executive as all these contributions of cloud solutions helps in saving substantial amount of time and resources leading to the time and cost effectiveness of SCM. The executive also enunciated about risk such as data loss, malware infections and legal compliance. This also rationalises his priority for security and safety of the information owing to which he preferred anti-spam and anti-virus services of Cloud. This can help in prevention of any risks emerging due to the increased probability of cloud centred breaches as mentioned in literature. The 4th executive also mentioned data storage locations as the feature that can be used for assessing the efficacy of cloud based applications. Adding to the security measures, the executive stated that private cloud is though expensive but its two-layer security system makes it worth it. This view of the executive can be related to the literature, which states data privacy and data projection are the main challenge regarding cloud services. Similarly, it has been mentioned in the literature that cloud solutions have turned out to be a useful tool during the time of Covid-19 pandemic as the services have helped in management and sharing of the inventory data on ongoing basis. Thus, prioritising private cloud services will be a better option for this concern in SCM. As stated by the 4th executive, through data accessibility and coordination with supply chain partners, proper planning through demand forecast can improve supply chain logistics. This is aided by regularly updated IT infrastructure, which facilitates the inculcation of latest

technologies in the operations. Use of SaaS based cloud solutions can be another such exemplification given within the literature that suggests adoption of such technological services bolster the management of supply chains. According to the 4th executive, automatic demands generated by ERP helps in SCM, which bolsters resources management in the operations. By relating this view with literature, it can be inferred that synergy between ERP and business operations results in enhanced performance standards. The executive also credited cloud computing for management of work and cash flow during the pandemic. This opinion of the executive can be backed by the data provided in the literature review. Such as the use of SaaS services has been stated to be adding value to the process and the reason behind this has been mentioned as cost efficiency and flexibility facilitation within the processes.

The 5th executive opined accountability as the attribute that bolsters the selection of cloud services in supply chain software. The executive opined big data projects as the best-suited application for the company. As per the executive's opinion, feasibility of the offered services is to be reviewed while adopting public cloud services. For this, the service legal agreement is to be referred regarding cloud based softwares or applications. Through associating this view with the literature review, this feasibility check can assure that trusted vendors and IT services are employed within the organisation. In addition, opting for this method will also help in prevention of several security and data privacy issues, which have been mostly associated to adoption of cloud, based solutions in the various organisational processes. One of such main issues as mentioned in the literature is cloud centred breaches that can cause the company face heavy repercussions owing to selection of wrong and less trustable vendors and service providers. The reason for preferring private cloud as stated by the 5th executive is flexibility and optimum security. Through relating this point with literature review, it can be said that the SaaS is better way of maintaining flexibility within the supply chain operations. These features also act as the solution for preventing the data breaches linked with cloud services adoption as mentioned in the literature review. The data projection underpinned by the cloud-based technologies has helped in forecasting of services demands helping proper service and data management. It is further stated by the 5th executive that the main positive aspect of cloud adoption is its assistance in

business continuity planning. Through relating this view with literature, it can be said that technologies like ESB has facilitated this continuity within the business planning through enabling collaboration among the suppliers and the core enterprises. The inclusion of ESB within supply chain management has helped in integrating various operations of supply chain and established harmonious functioning within all these integrated operations of SCM.

The major risks identified by 5th executive are unawareness of the services provider, legal compliance and unauthorised access to data, which relates to the privacy and security concerns of company's data. These risks are to be considered while adopting any cloud-based services. While relating this view with literature review, it can be observed that risk related to data security and safety has been paramount concern for the businesses and organisations while adoption of cloud based solutions in SCM. Thus, few measures as mentioned in the literature like preparing proper backup of the data stored and appropriate synchronisation can be an effective solution for combating these issues related to cloud service adoption. Value chain management and consistency of production polices as per the demands are bolstered by ERP utilisation. This opinion of executive aligns with the idea mentioned in literature review and thus it can be inferred that ERP can be an effective tool for scheming of activities within their production supply chains. The 5th executive also added that cloud technology has made it possible to continue the activities and work management even during the outbreak of pandemic.

When undertaking the opinion of 6th executive, the cloud technologies are major driver in SCM owing to various innovations taking place within the environment. According to the executive, the Dropbox application is the best suited as it has made the interaction easier through fortifying the safety measures and provides faster mode of carrying out interaction. Through relating this point with literature review, it is now clear that this feature of cloud-based technologies can be an effective way of responding to the demands of customer even during the outbreak of Covid-19 pandemic. By associating this view of the executive with literature, it can be inferred that solutions like ERP and ESB have been fruitful for the management of supply chain even during the pandemic

for meeting the demands of customers. This is because these solutions have facilitated collaborative effort input with the various aspects of SCM and has enabled proper planning, discussion and allocations of resources at required spots within supply chains. The tech support as per the executive's opinions is the primary factor while selecting cloud services. This is because it is associated with management and connection development among the client and stakeholders of SCM. Features like virtualisation and data centre size are better over the private clouds as opined by executive. Through relating this opinion with literature, it can be said that the SaaS facilitated virtualisation technology has been helpful for the effective management of operations within SCM. This has also assisted companies in dynamic allocation of resources within various operations as mentioned in the literature. Along with that, the feature of automation owing to the inclusion of ESB has also contributed in this regards by facilitating the integration of operations within the supply chain. This has also helped in elimination of collaborative challenges occurring between the suppliers and the core enterprises. The executive also included that the direct coordination with the supply chain managers and partners is highly required for forecasting the business and the operating market. Regarding the positive effect of cloud based network on SCM. The ERP software also added the features to allow the error-free tracking and managing the inventory. This efficiency in controlling the supplies is essential to reduce the charges, and as a result, the company has gained the enhanced turnover in the business.

Chapter 5: Conclusion and Recommendations

5.1 Conclusions from the findings

The findings indicate that most of the executives shared the optimum view regarding the application of cloud network on SCM software. Most of the executives think that think that cloud computing is a key driver in SCM. Due to its flexibility, cloud-based application is the best-suited tool for the organisation. Regarding the use of public cloud associated with the supply chain, the executives have stated that it is the most efficient model in cloud computing, and the providers of public cloud offer flexibility to the business. Due to this, the HR management can easily control their charges by paying for the infrastructure only based on the needs. The organisation cloud run their activities of SCM without a committing to a fixed charged for the delivery, server and maintenance. As per their opinions, cloud-based solution is the most suitable operation, as it ensures protection to the client's data. A vast majority of people participating in the interview analysis agreed to the statement suggesting the facilitation of cost reduction following the acceptance of cloud storage in the SCM. The cloud computing provides extensive control over data management in the business operations of the companies.

Regarding the question about the benefits of private cloud in SCM, the views of executives are different. The main feature that distinguishes the private cloud from the public one is the better accessibility and the security system of the private cloud, which is far better than that of the public one. It offers more control on the infrastructure and the marketing activities. It also enables the management to adopt the changes while it is needed. While controlling the activities of SCM, the company may use the advanced analytics to prevent and predict the bottlenecks. Rise and growth of the cloud has led towards the widespread development of SaaS across maximum industries due to its benefits on affordability and accessibility. Moreover, the application related to SaaS is significantly easier to manage as it ensures central updating and real time accessibility of the information. The companies have to take the essential steps to deal with the issues regarding the cloud computing. Regarding the benefits of ERP system in SCM, the executives have stated that it has supported them to get competitive edge within the business. The growing complexities within the business have developed this system a

vital aspect of supply chain companies. ERP software includes the advanced features to allow the error-free tracking and managing the inventory. Inventory is measured as the key part of SCM, and proper management of it could reduce the operational charges within the business.

5.2 Recommendations developed from the findings

Based on the research findings, I have offered some suggestions for integrating cloud-based network to transform the functionalities of SCM. These suggestions are focused on cloud computing and the multiple activities of supply chain management, which can be secure for use and be cost-effective at the same time. As per the views of executives, it has been observed that several potentials risks have existed in supply chain management while adopting the cloud-based service. From the analysis, it has been observed that customers have less information regarding the vendor it can come as a risk factor. In the cloud-based network, the key risk factor is the compliance and legal framework, because of security regulation. To reduce this issue, the company could take better steps in upcoming times. It is suggested that amplified compliance will allow this sector to enjoy better data security, and trust from the consumers, eventually favouring growth within various aspects of business and controlling the activities of SCM.

Regarding the issue of unauthorized access to data, the company may deploy **Multi-Factor Authentication (MFA)**. Due to deficiencies in the robust and reliable source of logistics data, hackers easily get access to the business data. By deploying MFA, the company could ensure that the only authorised personnel can log into the cloud apps and access the sensitive data regarding SCM. It is offered one of the cheapest ways to keep the data in a secure place. Though cloud computing provides security to the data, one of the executives has found that there is a risk of losing data. To mitigate this problem, the company may set the proper levels of authorisation. It also ensures that each employee could only view or manipulate the data that is essential for him or her to perform the task.

The companies can try to implement better training programs for their employees in regards to cloud computing technology. This can allow business ventures to create

efficient workforces, who are capable enough to use cloud computing services and seamlessly conduct business operations. The skillful workers are capable to do the activities of SCM. There are three types of cloud platforms i.e. public, private, and hybrid. For the aspect of saving operational costs in the supply chain network, small and mid-sized companies can take the aid of public clouds. Through this, two or more organisations can share the subscription fees for the process of storing data or using the analytical services. In the case of larger organisations, they can be considered the hybrid and private cloud that further provide the best level of data security to the users. Another suggestion in this regard is to hire people who are skilled enough to handle different factors related to SCM. These people can aid in training other employees about using cloud services and look after the peer-to-peer encryption processes during the transfer of data from organisational servers to the cloud space. This can help to secure the data even further and reduce the chances of data lost by unskilled handlers and the cost of collecting it again.

5.3 Linking with the objectives

Objective 1: The analysis of the influence of the application of cloud computing in terms of transforming the functionalities of the supply chain

This objective can be linked with the interview question number 1, 3, and 8, in which the researcher can get information regarding the usage of cloud-based software in the activities of SCM. This interview question highlights the factors, which are associated with supply chain management, and the interrelationship between cloud computing and its functionality. Question 1 highlights the variable, which acts as the key variable for implementing cloud computing in managing supply chain logistics. Even, question 3 also identifies the factors, which make the private cloud suitable for use in supply chain management over the public cloud. The benefits, which are usually observed from this sector, are included also in this case. The last question in this objective highlights the importance of ERP in SCM, which is the most important part of cloud computing. These interview responses give an overview of application of cloud computing is transforming the functionalities of the supply chain.

Objective 2: Potential risks that are associated with the incorporation of cloud-based solutions in the supply chain

Question 6 can be linked with this objective. This question highlights the factors, which are making risks for the company to implement cloud computing, and cloud-based applications to manage supply chain logistics. The question seeks the reviews from the executives of the companies, and they commented on the negative impacts, which they have faced from cloud computing in their business. The question also identifies the impacts of these negative results or shortcomings in the business. The main risk is coming from the vendor side of the company, as in most of the cases, the supply chain partners have very limited information regarding the vendor, and this can finally make an impact on the business. However, in cloud computing, the evidence of losing data is also observed, though it is known for data protection. These are the potential risk of cloud computing.

5.4 Implication of research using potential cost, and methods applied

In terms of the implication of research, I have taken 15 weeks to complete the research in a proper manner. The research aim has catered through furnishing approval from the supervisor on the research topic. The background and intent of the research have presented after ascertaining consent on the research topic. The research, which have submitted by the author is also reflected the self-ability, how effectively he has pondered to the outcomes of the applications of cloud computing in terms of transforming the supply chain management. To complete the research, I have spent €200, and gathered the essential sources regarding the given theme. I have to buy the journals and scholarly articled to complete the entire study within a given time. Through this study, a proper vision of cloud-based system that may utilise to optimise the activities of SCM. The research will imperative to signify the issues in cloud-based network that faced by the companies while dealing with the functions of SCM.

5.5 Future scope

In this research, I had to work hard for presenting different aspects regarding the application of Cloud and its effectiveness of cost management and security benefits for maintaining the activities of SCM. However, as the study was done on a limited aspect,

there is a great scope for me to conduct a thorough research by collecting even more data on cloud computing services. Furthermore, the present research can help others to gain the basic understanding about the cost and security benefits of using cloud computing in SCM. This can help various businesses to remodel their digital strategy based on the cloud services. Another potential for this research is to act as a reference material for other researchers. With the help of the data presented in this paper, other people can initiate their projects on similar subject matters. This in turn can help to create further analysis about cloud-based network in SCM, as there are limited numbers of accurate research. The fast-paced business environment of the modern era of SCM supply would be discussed in the future research. In future, I will take new methods for assessing information. The author will conduct online survey by involving the employees of different firms. In case of research design, the exploratory design will select by the author in further research, and easily analyse the problem that associated with the given theme.

5.6 Personal learning from the research

According to my opinion, cloud computing is an important tool, which one can utilize in the company to manage the business mainly from supply chain logistics. With the help of cloud computing, the connectivity among the supply chain partners can be followed, which can help the business in their growth. I believe that it is helping an organisation to manage the business at a global level, and remain connected with multiple levels of stakeholders. This is also helping to get opportunities from the business environment and remain competitive in the operating sector. The main role of cloud computing helps forecast the upcoming events and make proper planning for it. This can be done with the data accessibility and better scalability of entire services. According to my opinion, one can use the ERP, as a cloud-based application, which is helpful in this regard and contributes towards the improvement of the company from SCM.

While performing this research, I got an idea about the importance of cloud computing in the business. I would prefer to implement cloud computing for ensuring a better security level for the company, mainly for the data and shared documents. This is highly important for the company to arrange connectivity within the multiple partners in supply

chain logistics. The supply chain is a complex network, which is maintained by keeping the documents encrypted and secured. Even, the authentication of the users is also a necessary step, which the companies should take before implementing cloud computing in introducing it within the operating sector. The main outcome of this is to get global connectivity and expand the business in a large operating market.

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Appendices

Appendix 1 Interview Questionnaire

1. Is Cloud computing solutions a key driver to Supply chain management today? If yes, why adoption of cloud technology is made on supply chain?

2. What according to you is the best Cloud-based solution that increases optimality of supply chain? If possible, can you give me some example that you can identify before?

3. What features can you identify as a best possible option for public cloud associated with supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

4. Other than public cloud, what is the case of private cloud according to your view? Can you reveal me some real-time examples, if possible to develop visibility of my research?

5. Do you think there is a huge need of forecasting and planning to improve service levels while coordinating with supply chain partners? Can you give possible examples where you had a direct coordination with suppliers, retailers or distributors?

6. What positives can you cite on the efficiency put by cloud computing today on supply chain management? Can you provide detail review, for my research analysis?

7. With positives you can cited, are there potential risks/ barriers that most companies have to encounter through cloud systems in supply chain? What are the risk companies has to face actually?

8. As ERP develops database management and resource tracking, do you think it has lot to do with cloud in supply chain. In case it does, what is the actual mechanism?

9. With the Covid-19 outbreak, how capacity of cloud technology is responding to demands of key customers in supply chain system?

10. Finally, how cloud computing in this Covid-19 pandemic is increasing company cash flow, and other operational costs with effective supply chain process?

Appendix 2: Interview transcripts

Interview 1:

Me: Good morning sir. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning. Yes, I am ready to answer you.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: Yes, I believe that cloud computing is working as a key driver in supply chain management. I found it very much effective in this case, because it increases the connectivity through the accessibility of data, and leverages an efficient global chain network.

Me: What cloud-based application do you think is the best suited for your company?

Executive: In my company, I mainly think that the cloud-based application promotes the third-party infrastructure for creating the websites and promotes the client's products is the most important. It offers an additional platform for my clients, which they can use separately.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executive: If you consider my opinion, I would say that the security capability, which the cloud storage solution can deliver, is my target feature. I mainly focus on this factor, because I think, it is highly related to data security and scalability.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: I mainly believe in the better accessibility of the private cloud, which makes me influenced to use this in the organisation. I can perform multiplexed workload on this because this private cloud has its capacity to expand, whenever it is required.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: Obviously, there is a huge demand for service forecasting in the business. This is because of the fact, that without forecasting it, one could be able to meet the demand of business, and remain competitive in the market and among competitors.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: The main important factor, which I mainly refer to as the positive site in cloud computing is the reduced IT cost. With this, I can manage my activities at a reduced price, and being an executive, I find it profitable for me.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: In my opinion, I found that cloud computing is making a risk from vendor site, because, the company has only limited information regarding the vendors. Identity theft is another set of risks, which is combined with potential revenue loss.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executive: If you take my response, I would say that the ERP is acting as a useful tool for me, in managing the supply chain activities. This system is mainly meant to automatically create the demand when the orders are received properly.

Me: With the Covid-19 outbreaks, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: Cloud technology is mainly known for its flexibility and better scalability. This particular feature is helping me in managing my business under this condition. My employees perform the activities with this data accessibility feature by using cloud computing from their homes.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: Obviously, I became able to handle my business operations during this time, and this is mainly done by engaging my employees to work under the pandemic Covid-19 outbreak. This is helping in cash flow in a business, though it faces some issues.

Me: Thank you so much, sir, for your cooperation. Have a good day.

Executive: It's okay. Goodbye.

Interview 2:

Me: Good morning sir. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning. Please carry on.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: I believe that cloud computing is an effective tool, which can handle our global supply chain network. As our business is expanding day by day, we need to introduce advancement in technologies, and cloud computing is an important part of it.

Me: What cloud-based application do you think is the best suited for your company?

Executive: I mainly use cloud computing, because by using it I can offer my clients to use the infrastructure and to host the cloud services. This is the most suitable operation from my idea because it ensures protection to the client's data.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executives: As the prime concern for using a cloud-based application is to ensure the protection of the information, I also rely on this factor while selecting this for my business. I check how far the application authenticates the users, and prevent third-party access.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: As an executive, I prefer using the private cloud, because it offers better control to my works. The benefits, which I get from the private cloud are highly valuable for me in the organisation for predicting the business workload and customize the requirements.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: Managing the business at a large scale is highly requiring the prediction from the market, which can help in addressing the business demand and work accordingly. Without proper forecasting, one would not be able to handle the business for a large scale.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: With the cloud-based application, I can perform my activities, even at a faster rate. This increases my flexibility, because, I became able to access data at a faster speed, and even from the remote places, which is found convenient for me.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: In cloud computing, I have found that sometimes, it remains easily accessible to hackers, and this increases the chances of malware attack. The lack of information from the vendor site is making risk in the supply chain, which is combined with legal risks.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executive: I think ERP is a helpful tool in supply chain management. This is because it maintains a streamline, by effective scheduling, with proper production policies. This helps in keeping the demand consistent and replenishes these at the right time with a lean inventory.

Me: With the Covid-19 outbreaks, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: The flexibility of cloud computing is helping me in managing the working condition under this pandemic Covid-19 situation. I helped my employees to continue their work without visiting the office regularly, and this is mainly done with the help of cloud computing.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: Yes. My business faced trouble during this pandemic condition, but I became able to maintain continuity in the business. This is helping me in managing the cash inflow in the business and run the business without making many interruptions.

Me: Thank you so much, sir, for your cooperation. Have a good day.

Executive: Mention not.

Interview 3:

Me: Good morning madam. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning. Yes, I know that, please carry on.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: In my opinion, cloud computing is playing a key role in our company to manage the supply chain network. This is because it not only encourages the connectivity but also handles the supply logistics for booming the business with agility.

Me: What cloud-based application do you think is the best suited for your company?

Executive: I think, the cloud computing, which I can use the most for my job is in making the infrastructure to host the services. This ensures the efficacy of internal components, which are associated with the supply chain network and implementing the operations.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executives: Though I believe, that data security is the primary concern of cloud-based application, I also look at the price consideration of these applications. As I am an executive, I would check how far these are ensuring profit to my company.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: I believe that the security ensured by the private cloud is far better than that of the public one. This is the main reason, why I prefer private cloud to the public one. It offers better encryption and user authentication.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: Forecasting and planning for business are highly required to remain connected and coordinated with the supply chain partners. I must say, that this work can be done by communicating them directly and collecting their feedbacks and responses from each operating end.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: I mainly consider the capacity to update the information automatically in this cloud computing. This helps me largely in my business, as I became able to get access to data, which is required to me, and even, at the updated version.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: I think the cloud computing risk can come from multiple sectors. The potential risks in this operation are the security defects and unauthorized leaking of data. The business viability of providers is making another risk to the company.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executives: The ERP is mainly helping me in managing the supply chain activities, because, these are helping me in keeping coordination in between demand generation and its fulfilling. Thus, I think, it ensures the production policies, to maintain consistency in business.

Me: With the Covid-19 outbreak, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: I became able to provide the working condition to employees, during this Covid-19 outbreak, and for this reason, they work under this pandemic situation. I made this with the help of cloud computing, as it helps in data accessibility from home.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: As my company is performing work under this pandemic condition, and my employees maintain the continuity of work, I can be able to state that this condition, rarely made any important impact on the performance level of my organisation and cash flow.

Me: Thank you so much madam, for your cooperation. Have a good day.

Executive: My pleasure.

Interview 4:

Me: Good morning sir. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning. Ask me whatever you want.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: In my concern, I believe that I can use cloud computing in supply chain management within my company. This is due to its cost-effectiveness, and scalability of the services. It offers a suitable, reliable, and faster service with a collaborative approach.

Me: What cloud-based application do you think is the best suited for your company?

Executive: Cloud-based anti-spam and anti-virus services are the most important applications, which I mainly utilize. For being an executive, it is the most important responsibility for me, to check the information hosted by the company, so that we can comfortably use this.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executive: The data storage location is the main feature, which I mainly look at while identifying the efficacy of the cloud-based application. I previously followed this approach and benefitted from that. I look at the physical location of it, to identify its strength.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: I think that with the private cloud, I remain far able to manage my work cost-effectively. Though I believe that private cloud is costly than the public one, I have known that it offers a two-layer security system to users.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: I strongly agree with the fact that there is a huge demand for forecasting in business and making proper planning to improve supply chain logistics. I mainly rely on supply chain management, through which data accessibility is ensured properly.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: The cloud computing, for which I usually use it in my business is the capability to update the IT infrastructure easily. Thus, depending on this service provider, I can update my system regularly, and use the latest version of the technology.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: Though cloud computing provides security to the data; I find that there is a risk of losing data. The malware infection and legal compliance issues are also coming as another set of risks, which are making issues in supply chain management.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executive: In think, ERP automatically generates the demand, and thus it is working at the supply chain management. It ensures streamlined management, through which I handle this supply chain logistic with better planning to handle real-time resources of the company.

Me: With the Covid-19 outbreak, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: Yes, I believe that cloud computing is helping me in managing my work under this pandemic condition. In this case, the scalability and flexibility of the system come in work, because, our employees can be able to perform work even at remote places.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: I think that continuation of business activities is the only factor, through which one business can ensure cash inflow in the organisation. Therefore, as my employees are working under this condition, and their continuity is not disturbed, I think it works.

Me: Thank you so much, sir, for your cooperation. Have a good day.

Executive: Mention not. Have a good day.

Interview 5:

Me: Good morning sir. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning. I am ready for it.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: Being an executive of the company, I believe that I must ensure accountability in supply chain logistics. For this reason, I select cloud computing, because this acts as a key driver in this entire management process, by adding better value.

Me: What cloud-based application do you think is the best suited for your company?

Executive: According to my opinion, the best application, which I can perform with cloud computing is the Big Data projects. It helps me in getting information from multiple ends and processes these. In this case, I mainly prefer using public clouds.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executives: I mainly look at the service legal agreement of the cloud-based application, because I consider this as a key factor in this operation. I think that it must remain as the primary responsibility of an executive to check the feasibility of services.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: The main difference, for which, I prefer private cloud over the public one is the better scalability of the operating system. With the private cloud, I can manage my work with better flexibility, and maximum security, which is my prime concern.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: I believe in the forecasting of services and data management, through which I can produce the business demands. This is helping me in remaining updated in the business activities, and knowing the operating environment, to achieve competitive advantages in the market.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: I think, the main positive factor, which makes me influenced by using cloud computing is business continuity planning. With this, I can perform my operation, even without losing the important documents and facing any kind of interruption in the action.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: I do believe that as the customer has less information regarding the vendor it can come as a risk. The other risk is the compliance and legal framework, because of security regulation. The unauthorized access of data is making another risk.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executive: In my concern, ERP ensures that production policies are consistent with demand, replenishment is done at the right time, and inventory is lean. Even, the management of the value chain is also found effective by using this tool, like procurement and production.

Me: With the Covid-19 outbreak, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: In my view, Cloud computing is helping me in managing the business under this pandemic Covid-19 outbreak. Being an executive, I must ensure that my employees can perform work under this particular condition, which is made easier with the help of cloud computing.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: Obviously, this cloud computing and its applications are helping me in managing ours under this condition. We can continue these actions, even not meeting with the employees regularly, because of these applications, and so it helps in cash inflow.

Me: Thank you so much, sir, for your cooperation. Have a good day.

Executive: Thank you. Bye.

Interview 6:

Me: Good morning madam. I call you to ask a few questions regarding the impact of cloud-based application in supply chain management

Executive: Good morning and thank you for including me in your research. Please carry on.

Me: Do you think that cloud computing is a key driver in supply chain management? Why do you think so?

Executive: I think, cloud computing can be utilized for managing the supply chain logistics, because, presently, we are undergoing multiple innovations. The primary focus of our company is to expand the business, and we take help from a technical end like cloud computing.

Me: What cloud-based application do you think is the best suited for your company?

Executive: In my opinion, I can use the DropBox, as a cloud-based application, because through it, it can interact with the supply chain individuals in a web browser. This is a faster and safer way to interact with these people and process data.

Me: What features can you identify as the best possible option for public cloud associated with the supply chain in data security and scalability in business? Have you benefitted from any of the features in your organisation?

Executives: In my concern, tech support should be the primary factor, which I must look at while selecting the cloud-based application for my company. It helps me in managing a clear and concise connection with the clients and stakeholders in supply chain networks.

Me: Other than the public cloud, what is the case of a private cloud according to your view? Can you give some examples, which can help me in my research?

Executive: For me, the main feature, which is exclusively found in the private cloud, is better scalability. I can use this for higher-level activities, like through virtualization and the size and maturity of data centers, which I should focus on to implement this.

Me: Do you think there is a huge need for forecasting and planning to improve service levels while coordinating with supply chain partners? How could you get direct coordination with suppliers, retailers, and distributors?

Executive: The direct coordination with the supply chain managers and partners is highly required for forecasting the business and the operating market. I must say, that I believe in its efficacy, which helped me in making my company successful in the operating market.

Me: What positives can you cite the efficiency put by cloud computing today on supply chain management?

Executive: I mainly look after the IT expenditure, which is reduced by using this cloud computing. Even, I would also like to state its effectiveness in ensuring data security, with its double-layered encryption system. I consider these as important factors for me.

Me: In your opinion, can you please define three potentials risks, which you encounter in supply chain management.

Executive: In my opinion, I would suggest the main security risk in cloud computing, which is coming from the unauthorized access of customers to the business data. The next risk is coming from the vendor site, and lack of control.

Me: Do you think ERP can help in supply chain management? If yes, then how?

Executive: I think the ERP is helping me in getting competitive benefits in business, and mainly in handling the supply chain management. The modern ERP solution is adding values across each part of the supply chain and in multiple disciplines of key stakeholders.

Me: With the Covid-19 outbreak, how the capacity of cloud technology is responding to the demands of key customers in the supply chain system?

Executive: I found that the Covid-19 has made a tremendous effect on business activities, and it is going downward continuously. As most of the employees of our company are performing work from their home, I must ensure technological features for work.

Me: How cloud computing can increase the cash flow in your company during this pandemic condition?

Executive: As my employees are working from their home, they utilize cloud computing for accessing data, and perform their required actions. Thus, I realize that with the help of cloud computing, and its related application is helping me in managing a business.

Me: Thank you so much madam, for your cooperation. Have a good day.

Executive: It's okay. I wish you all the best in your research.