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An overview of Supply Chain Management Automation: Benefits, Drawbacks, and Implementation Challenges

Submitted by:
Sai Eswar Boda

Submitted to:
Dr. Murat Ozer

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Abstract:

Supply chain management (SCM) automation has become increasingly important for firms looking to improve their efficiency and competitiveness in today's global market. However, the implementation of SCM automation presents both benefits and drawbacks and requires careful consideration of the challenges and considerations involved. This paper reviews the literature on SCM automation, focusing on three key research questions: the potential benefits and drawbacks of implementing SCM automation in a large multinational corporation, how emerging technologies such as artificial intelligence and blockchain can be integrated into existing SCM automation systems, and the key challenges and considerations involved in implementing SCM automation in small-sized startups and industries and medium-sized industries. The literature review provides some insights on the implementation of SCM automation in large multinational corporations can result in significant benefits, such as improved efficiency, cost reduction, and enhanced customer satisfaction. However, it also presents certain drawbacks, including the need for significant investment in technology and infrastructure, the potential for disruption to existing workflows, and the risk of job displacement. Effective change management strategies and communication plans are necessary to ensure the successful adoption and integration of SCM automation in large firms. The integration of emerging technologies such as artificial intelligence (AI) and blockchain into existing SCM automation systems has the potential to significantly improve supply chain visibility, efficiency, and responsiveness. AI can be used for demand forecasting, inventory management, and transportation optimization, while blockchain can enhance transparency, traceability, and security. However, the implementation of these technologies requires careful consideration of the organizational and technical challenges involved, including data quality, standardization, and interoperability. Small and medium-sized enterprises (SMEs) have particular difficulties and issues when implementing SCM automation, such as a lack of resources, a lack of knowledge, and resistance to change. To overcome these challenges, it is important to develop tailored strategies that take into account the specific needs and constraints of SMEs, such as modular solutions and cloud-based systems. Additionally, fostering a culture of innovation and collaboration can help SMEs to embrace the benefits of SCM automation and overcome resistance to change.

Introduction:

Supply chain management (SCM) automation has become increasingly important for firms looking to improve their efficiency and competitiveness in today's global market. However, the implementation of SCM automation presents both benefits and drawbacks and requires careful consideration of the challenges and considerations involved. Supply chain management (SCM) automation also become a critical tool for organizations seeking to enhance their supply chain processes, improve operational efficiency, and gain a competitive advantage. However, implementing SCM automation is not without its challenges, especially for Small and medium-sized enterprises (SMEs). The obstacles that arise include a deficiency in resources, knowledge, and experience related to SCM automation, along with the expensive implementation and upkeep costs. One of the key challenges involved in implementing SCM automation in SMEs is the lack of resources, including financial and human resources. According to Erol et al. (2010), SMEs often lack the financial resources to invest in SCM automation technology and the human resources to operate and maintain it. This lack of resources can make it difficult for SMEs to adopt and integrate SCM automation into their existing supply chain processes. Another challenge associated with SCM automation in SMEs is the lack of knowledge and experience in the area. According to Othman and Ghani (2012), SMEs often lack the knowledge and experience required to understand and implement SCM automation successfully. This lack of knowledge and experience can lead to mistakes during implementation, which can result in delays, cost overruns, and even project failure. High implementation and maintenance costs are another significant challenge associated with SCM automation in SMEs. According to Al-Mashari and Zairi (2000), the cost of implementing SCM automation can be high, especially for SMEs with limited financial resources. Moreover, the cost of maintaining SCM automation systems can also be high, as it requires regular upgrades and maintenance to ensure that the system remains up-to-date and functional. To overcome these challenges, SMEs must take a strategic approach to implementing SCM automation. According to Kumar et al. (2016), SMEs can overcome the lack of resources by adopting a phased implementation approach, starting with a pilot project to test the technology, and gradually scaling up as resources become available. SMEs can also overcome the lack of knowledge and experience by investing in training and development programs for their employees. In terms of cost management, SMEs can explore different cost- effective SCM automation solutions, such as cloud-based systems, which do not require large upfront investments in hardware and software. Additionally, SMEs can leverage partnerships with suppliers and service providers to share the cost of SCM

automation implementation and maintenance. This paper reviews the literature on SCM automation, focusing on five key research questions: the potential benefits and drawbacks of implementing SCM automation in a large multinational corporation, how emerging technologies such as artificial intelligence and blockchain can be integrated into existing SCM automation systems, the key challenges and considerations involved in implementing SCM automation in SMEs, how can organizations ensure the ethical use of SCM automation, particularly with regards to data privacy and security, and the potential long-term effects of SCM automation on the workforce, and how can organizations manage this transition to ensure a smooth integration of automated systems with human labor.

In conclusion, implementing SCM automation in SMEs presents unique challenges, including the lack of resources, knowledge, and experience, as well as high implementation and maintenance costs. However, with a strategic approach and careful consideration of these challenges, SMEs can successfully adopt and integrate SCM automation into their supply chain processes, leading to improved operational efficiency, enhanced supply chain visibility, and a competitive advantage.

Problem Statement

Supply chain management (SCM) automation is an increasingly popular solution for improving supply chain operations, as it can bring significant benefits to organizations such as increased efficiency, reduced costs, and improved customer satisfaction. However, the adoption of SCM automation is not without its challenges and risks.

One of the main challenges associated with SCM automation is the potential for technical glitches, system downtime, or cyberattacks, which can disrupt supply chain operations and lead to significant losses for the organization. Another challenge is the need for effective management and training of staff who are responsible for overseeing the automated system, to ensure that they can handle any issues that may arise.

Moreover, the integration of emerging technologies such as artificial intelligence (AI) and blockchain into existing SCM automation systems can bring about further complexities. AI, for instance, can be used to optimize supply chain operations by identifying patterns and making predictions, but its implementation requires significant resources and expertise. Similarly, blockchain can enhance supply chain transparency and accountability, but its integration into existing systems requires careful planning and coordination.

Furthermore, small, and medium-sized organizations or Enterprise (SMEs) face particular difficulties and challenges in implementing SCM automation due to

their limited resources and capabilities. Unlike large multinational corporations, SMEs may lack the financial resources and technological expertise required to successfully implement SCM automation and may also struggle to attract and retain qualified staff who are familiar with these technologies.

Therefore, it is essential to explore the potential benefits and drawbacks of SCM automation, and to identify strategies to effectively manage and mitigate the potential risks associated with its implementation, particularly in the context of SMEs. By doing so, organizations can optimize their supply chain operations, improve their competitive advantage, and achieve long-term success in an increasingly competitive market.

Research Question:

1. What are the benefits and drawbacks of implementing SCM automation in a large multinational corporation, and how can these be effectively managed and mitigated?
2. How can emerging technologies such as artificial intelligence and blockchain be integrated into existing SCM automation systems to improve supply chain visibility, efficiency, and responsiveness?
3. What are the key challenges and considerations involved in implementing SCM automation in small, and medium-sized organizations or Enterprise (SMEs), and how these be overcome to ensure successful adoption and integration?
4. How can organizations ensure the ethical use of SCM automation, particularly with regards to data privacy and security?
5. What are the potential long-term consequences might SCM automation have on the workforce, and how can organizations manage this transition to ensure a smooth integration of automated systems with human labor?

Literature Review:

The implementation of Supply Chain Management (SCM) automation has the potential to significantly impact the workforce of organizations. While SCM automation can increase efficiency, reduce costs, and improve customer satisfaction, it also poses a risk to jobs that may become automated. As such, it is essential to examine the potential long-term effects of SCM automation on the workforce and how organizations can manage this transition to ensure a smooth integration of automated systems with human labor. One of the key concerns with SCM automation is the displacement of workers. According to research, automation may result in job losses in specific industries and professions, especially in jobs that need repetitive and routine labor (Autor, 2015). However, it is important to note that the overall effect of automation on employment is complex and context-dependent and may vary based on factors such as the type of technology being implemented and the industry in question (Brynjolfsson & McAfee, 2014). Furthermore, while some jobs may become automated, new jobs may be created because of technological advancements (Bessen, 2019). To manage the transition to SCM automation, organizations must consider several factors. First, they need to determine which tasks and processes can be automated and which require human intervention. This can involve evaluating the skills and knowledge of the workforce and identifying areas where automation can enhance efficiency without compromising quality. Organizations must also communicate openly and transparently with their employees about the implementation of SCM automation and the potential impact on their roles (Muro & Maxim, 2017). This can help to alleviate concerns and increase employee engagement and participation in the automation process. Organizations can also invest in training and upskilling programs to prepare employees for new roles that may emerge because of SCM automation. For instance, employees can be trained to use and maintain automated systems, analyze data generated by these systems, and engage in more strategic and creative tasks that are less likely to be automated (OECD, 2019). This can not only help to mitigate the risk of job displacement but also improve employee productivity and satisfaction. Another important consideration is the need for policies and regulations that protect the rights and well-being of workers in the context of SCM automation. For instance, policies could be developed to ensure that workers are adequately compensated for the increased productivity resulting from SCM automation (Brynjolfsson & McAfee, 2014). Additionally, regulations can be put in place to ensure that workers are not subject to unsafe working conditions or unreasonable expectations because of increased automation. In conclusion, the implementation of SCM automation has the potential to significantly impact the workforce of organizations. While

automation can lead to job losses, it can also create new opportunities for employment and enhance the efficiency and productivity of organizations. To manage the transition to SCM automation successfully, organizations must consider several factors, including the skills and knowledge of the workforce, the need for training and upskilling programs, and the development of policies and regulations that protect the rights and well-being of workers. By addressing these factors, organizations can ensure a smooth integration of automated systems with human labor and maximize the potential benefits of SCM automation.

Methodology:

The coordination of various stakeholders, such as suppliers, manufacturers, distributors, and customers, is necessary in the intricate process of supply chain management (SCM). Organizations that want to enhance their operational efficiency, lower expenses, and improve customer satisfaction are now focusing on researching SCM automation as a crucial area. This literature review explores the potential benefits and drawbacks of SCM automation, the integration of emerging technologies such as artificial intelligence (AI) and blockchain, and the key challenges and considerations involved in implementing SCM automation in SMEs.

- Benefits and Drawbacks of SCM Automation: Several studies have identified the potential benefits of SCM automation, including improved efficiency, cost reduction, and enhanced customer satisfaction. Rajeev et al. (2019) found that SCM automation can help reduce lead times, improve inventory accuracy, and increase the speed of delivery. Huang et al. (2018) identified additional benefits, such as better forecasting accuracy, improved supplier management, and increased flexibility in managing supply chain disruptions. However, there are also potential drawbacks to SCM automation. For instance, Arntzen et al. (2018) found that automation can lead to a loss of flexibility and adaptability in the supply chain, which can be problematic in an environment where customer demands, and market conditions are constantly changing. Additionally, automation can lead to a lack of human interaction, which can be detrimental to the development of relationships between suppliers and customers.
- Integration of Emerging Technologies: AI and blockchain are two emerging technologies that have the potential to improve SCM automation. AI can be used to enhance supply chain visibility, improve forecasting accuracy, and optimize inventory levels (Zhang et al., 2019). Utilizing blockchain technology, supply chain partners can establish a transparent and secure transaction record that lessens the chances of fraud and enhances accountability(Li et al., 2019). However, integrating these technologies into existing SCM automation systems

can be challenging. For instance, AI requires large amounts of data to be effective, and organizations may not have the necessary data infrastructure to support it (Zhang et al., 2019). Blockchain also requires a significant investment in technology and resources to implement and maintain (Li et al., 2019).

- Challenges and Considerations for SMEs: Implementing SCM automation in SMEs can be particularly challenging due to their limited resources and capabilities. Several studies have identified key challenges, such as a lack of
- funding and expertise, resistance to change among employees, and difficulties in integrating with existing systems (Sweeney et al., 2020; Chang et al., 2019). To overcome these challenges, SMEs may need to adopt a gradual and incremental approach to automation, focusing on smaller projects that can deliver quick wins and build momentum (Chang et al., 2019).

Inclusion criteria:

- The requirement is to find research studies or academic articles that have been published in English, in peer-reviewed journals, conference proceedings, or books from 2010 to the current year.

- Studies focused on the application of supply chain management automation in various industries, such as manufacturing, healthcare, retail, and logistics.

- Studies that investigated the use of emerging technologies, such as artificial intelligence and blockchain, in supply chain management automation.

- Studies that identified potential benefits, drawbacks, and challenges of implementing supply chain management automation, and strategies to manage and mitigate these risks.

- Studies that specifically addressed the issues and challenges of implementing supply chain management automation in SMEs.

Exclusion criteria:

- Studies that did not specifically focus on supply chain management automation.

- Non-English language articles, book chapters, and conference proceedings.

- Studies that were published before 2010.

- Studies that were not published in peer-reviewed journals or academic publications.

- Studies that were not related to the application of SCM automation in various industries or did not identify potential benefits, drawbacks, or challenges associated with SCM automation.

Solution to the research questions

1. What are the benefits and draw backs of implementing SCM automation in a large multinational corporation, and how can these be effectively managed and mitigated?

In recent years, many companies have turned to Supply Chain Management (SCM) automation as a means of enhancing efficiency and decreasing expenses within their supply chain operations. The implementation of automation technologies such as robotics, artificial intelligence, and blockchain can lead to significant benefits for large multinational corporations, but it is also important to be aware of the potential drawbacks and challenges associated with these technologies. This literature review will examine the benefits and drawbacks of implementing SCM automation in large multinational corporations and explore strategies for managing and mitigating these risks. One of the key benefits of SCM automation is improved efficiency and productivity in supply chain operations. Wang et al. (2018) found that the use of SCM automation in the automotive industry led to a 30% reduction in inventory and a 20% improvement in on-time delivery. Similarly, Li et al. (2021) reported that the implementation of automated warehouse systems in a Chinese retail company reduced the error rate by 85% and increased productivity by 20%. This improved efficiency can lead to significant cost savings for companies and help them remain competitive in the global marketplace. However, there are also several potential drawbacks associated with SCM automation. One major concern is the risk of cybersecurity threats, which can compromise the integrity and security of supply chain data. Rahman et al. (2020) noted that the use of cloud based SCM systems can increase the risk of data breaches and cyber-attacks. Companies must invest in cybersecurity measures such as encryption and secure authentication protocols to protect against these threats.

Another potential drawback is the loss of jobs due to automation. As noted by Stank et al. (2015), the adoption of automation in supply chain management can lead to the displacement of human workers, particularly in low-skilled jobs. This can

create social and economic challenges for communities and can have a negative impact on employee morale and job satisfaction. Companies must develop strategies for managing the impact of job losses and fostering a positive organizational culture. To effectively manage and mitigate these risks, several strategies have been proposed in the literature. A tactic to consider is investing in cybersecurity measures like secure authentication protocols, encryption, and regular security audits (Rahman et al., 2020). Decreasing the possibility of data breaches and cyber-attacks, which can cause significant harm in global supply chain operations, can be achieved through this. Additionally, investing in training programs to prepare employees for new roles resulting from automation is another approach. Stank et al. (2015). suggest that companies should invest in education and training programs that focus on technology, communication, and problem-solving skills. This can help employees to adapt to new technologies and take on more complex roles that require higher-level skills.

Finally, companies can establish clear communication channels and transparency with their workforce to mitigate the impact of job losses and foster a positive organizational culture. Li et al. (2021) note that companies should communicate openly with their employees about the reasons for automation and the impact it may have on jobs. They suggest that companies should also provide support to affected employees, such as training programs, career counselling, and job placement services.

In conclusion, the implementation of SCM automation can bring many benefits to large multinational corporations, but it is important to be aware of the potential drawbacks and risks associated with automation. By effectively managing and mitigating these risks, companies can reap the benefits of automation while also ensuring a smooth transition for their workforce. This requires a careful balance between efficiency and productivity on the one hand and social and economic concerns on the other. Companies must invest in cybersecurity measures, education and training programs, and clear communication channels to ensure the successful adoption of SCM automation in their supply chain operations.

2. How can emerging technologies such as artificial intelligence and blockchain be integrated into existing SCM automation systems to improve supply chain visibility, efficiency, and responsiveness?

Modern business operations have begun to prioritize supply chain management (SCM) automation as a crucial element, and innovative technologies like artificial intelligence (AI) and blockchain can enhance the efficacy and efficiency of these systems even more. The integration of these technologies into existing SCM automation systems has been a topic of interest for researchers and

practitioners alike. This literature review aims to explore the potential benefits and challenges associated with integrating AI and blockchain into SCM automation systems, and to identify best practices for successfully implementing these technologies. Artificial intelligence has been widely recognized as a powerful tool for improving supply chain visibility, efficiency, and responsiveness. Research has shown that AI can help to optimize inventory management, reduce lead times, and improve demand forecasting accuracy (Budak et al., 2020; Rahimi et al., 2018). Additionally, AI-powered systems can enable real-time monitoring and analysis of supply chain data, allowing for more proactive decision-making and rapid response to changes in demand or supply (Ghazanfari et al., 2021; Rahimi et al., 2018). However, the implementation of AI in SCM automation systems can also present challenges, such as the need for significant investment in technology and infrastructure, as well as concerns related to data privacy and security (Budak et al., 2020; Ghazanfari et al., 2021). Similarly, blockchain has been recognized as a potential solution to some of the challenges associated with traditional SCM systems. Blockchain technology can provide a decentralized and transparent ledger of supply chain transactions, allowing for increased visibility and traceability (Aazam & Khan, 2018; Ivanov et al., 2019). Additionally, blockchain can help to mitigate risks related to fraud and counterfeiting, as well as improve supply. Chain resilience and sustainability (Ivanov et al., 2019; Kim et al., 2020). However, the adoption of blockchain in SCM automation systems can also present challenges, such as the need for standardized protocols and collaboration among supply chain partners, as well as the potential for scalability issues (Aazam & Khan, 2018; Kim et al., 2020). Integrating AI and blockchain into SCM automation systems requires careful consideration and planning. Best practices for successful implementation include conducting a thorough assessment of current supply chain processes and identifying areas where AI and blockchain can provide the most value (Ghazanfari et al., 2021; Kim et al., 2020). Additionally, organizations should prioritize data quality and security, as well as invest in the necessary technology and infrastructure to support these technologies (Budak et al., 2020; Rahimi et al., 2018). Collaboration and communication among supply chain partners is also essential for effective integration of these technologies (Aazam & Khan, 2018; Ivanov et al., 2019).

In conclusion, the integration of emerging technologies such as AI and blockchain into SCM automation systems has the potential to significantly improve supply chain visibility, efficiency, and responsiveness. However, the adoption of these technologies also presents challenges related to investment, data privacy and security, and collaboration among supply chain partners. Successful implementation requires careful planning and consideration of best practices for integrating these technologies into existing SCM automation systems.

3. What are the key challenges and considerations involved in implementing SCM automation in small, and medium-sized organizations or Enterprise (SMEs), and how these be overcome to ensure successful adoption and integration?

Supply Chain Management (SCM) automation is becoming increasingly popular among businesses of all sizes as it offers various benefits, such as improved efficiency, reduced costs, and enhanced supply chain visibility. However, implementing SCM automation in SMEs can be challenging, and there are several considerations and challenges that must be considered to ensure successful adoption and integration. One of the key challenges that SMEs face when implementing SCM automation is the lack of resources, both in terms of finance and personnel. Unlike larger corporations that have the financial and personnel resources to invest in sophisticated SCM automation systems, SMEs may have limited resources that must be allocated efficiently. As a result, SMEs may have to make trade-offs between the cost and the level of automation that can be implemented. Another challenge that SMEs face is the need to ensure compatibility between their existing technology infrastructure and the SCM automation system they plan to implement. This can be particularly challenging since many SMEs use outdated or legacy systems that may not be compatible with modern SCM automation systems. Additionally, SMEs may have limited IT personnel with the necessary expertise to implement and integrate the new system, further complicating the process. Furthermore, SMEs may face resistance from their employees during the implementation of SCM automation. The introduction of new technologies and processes can be disruptive and may require employees to learn new skills and adapt to new ways of working. This can result in resistance to change, which can undermine the adoption and integration of the new system. To overcome these challenges, SMEs can take various steps. For instance, they can start by conducting a thorough needs assessment to determine the level of automation that is required and the resources that are available. This can help them identify the most cost-effective and efficient automation solutions that are compatible with their existing infrastructure.

Moreover, SMEs can seek assistance from third-party consultants or technology providers who have experience in implementing SCM automation in similar-sized companies. These experts can provide guidance on the most suitable technology solutions, as well as help with implementation and integration. Another effective approach to ensure successful adoption and integration of SCM automation is to involve employees in the process. This can include providing training and development opportunities to enhance their skills and knowledge. Additionally, SMEs can communicate the benefits of the new system to employees and involve them in the decision-making process to reduce resistance to change.

In conclusion, implementing SCM automation in SMEs can be challenging due to various factors such as limited resources, technology infrastructure compatibility, and resistance to change from employees. However, by taking a strategic approach, seeking expert assistance, and involving employees in the process, SMEs can overcome these challenges and successfully adopt and integrate SCM automation systems.

4. How can organizations ensure the ethical use of SCM automation, particularly with regards to data privacy and security?

The rise of Supply Chain Management (SCM) automation has brought many benefits to organizations, including improved efficiency, cost reduction, and enhanced customer satisfaction. However, this technological advancement has also raised concerns regarding the ethical use of data, especially in relation to data privacy and security. As organizations increasingly implement SCM automation, it is vital to contemplate the ethical consequences and guarantee that data is collected, retained, and employed in a conscientious and ethical way. A critical difficulty in ensuring ethical use of SCM automation is data privacy. Since organizations obtain and preserve sensitive data about their customers and suppliers, they need to make sure that the data is safeguarded from unauthorized access and utilization. This can be achieved through the implementation of robust data security protocols and the use of encryption technologies to safeguard sensitive data. Moreover, organizations need to adhere to pertinent data privacy regulations, such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), to guarantee that data collection and utilization align with legal requisites.

Another key consideration is the potential for bias in automated decision-making processes. Machine learning algorithms used in SCM automation can be biased due to the data used to train them, leading to unfair or discriminatory outcomes. To address this, organizations can implement measures such as algorithm transparency, regular auditing of automated decision-making systems, and the use of diverse data sets to minimize bias. Additionally, organizations must consider the ethical implications of using SCM automation to replace human labor. Automation has the potential to displace workers, and organizations must ensure that they have mechanisms in place to support employees who may be affected by automation. This can include retraining programs, redeployment opportunities, and support for transitioning to new roles or industries. Finally, it is important for organizations to engage in open and transparent communication with stakeholders, including customers, suppliers, and employees, about their use of SCM automation and the ethical considerations involved. This can help to build trust and ensure that all parties are aware of the potential benefits and risks of using automated systems in supply

chain management. To overcome these ethical challenges, organizations must adopt a proactive approach to ensure that their SCM automation systems are designed and implemented with ethical considerations in mind. This can be achieved through the development and implementation of robust data privacy and security policies, the use of ethical decision-making frameworks, and regular monitoring and evaluation of SCM automation systems to identify and address any potential ethical concerns. In addition, organizations must provide training and support to employees to ensure they understand the ethical implications of SCM automation and can effectively manage these issues.

In conclusion, while SCM automation offers many benefits to organizations, it is crucial to consider the ethical implications of its use, particularly with regards to data privacy and security, bias in decision-making, and potential job displacement. By implementing measures to address these challenges and engaging in open communication with stakeholders, organizations can ensure that their use of SCM automation is ethical and responsible.

5. What are the potential long-term consequences might SCM automation have on the workforce, and how can organizations manage this transition to ensure a smooth integration of automated systems with human labor?

The potential long-term effects of SCM automation on the workforce are a growing concern for organizations. As automation becomes more prevalent in supply chain management, there are fears that it could lead to significant job losses and negatively impact the livelihoods of workers. However, there is also evidence to suggest that automation can lead to increased productivity and efficiency, which could ultimately benefit both organizations and workers. One study by Kariuki and Muthoka (2020) found that supply chain automation can improve firm performance by reducing costs, increasing efficiency, and enhancing customer satisfaction. However, they also noted that there could be potential job losses due to the automation of certain tasks. Similarly, a review by Sodhi and Tang (2020) highlighted that the use of artificial intelligence in supply chain management could lead to increased automation and potentially reduce the need for human labour in certain areas. Caniato et al. (2019) examined the implications of Industry 4.0 technologies on SMEs and noted that there could be a shift towards a more flexible and skilled workforce that can adapt to changing technological advancements. The authors suggested that organizations should focus on reskilling and upskilling their employees to prepare them for the changing job market. In terms of managing the transition to automated systems, Shang, Yang, and Liu (2019) suggested that organizations should consider involving employees in the implementation process and providing them with training to prepare them for their new roles. This approach

could help to alleviate concerns and fears about job loss and improve employee buy-in. Aktas et al. (2020) proposed a research agenda for digital transformation in supply chain management, highlighting the need for more research on the impact of automation on the workforce and strategies for managing the transition to automated systems. They also suggested that organizations should consider a human-centric approach to digital transformation, which involves prioritizing the needs and well-being of workers. In conclusion, the potential long- term effects of SCM automation on the workforce are a complex issue that requires careful consideration and management by organizations. While automation can bring significant benefits in terms of increased efficiency and productivity, it can also lead to job losses and negatively impact workers' livelihoods. To ensure a smooth integration of automated systems with human labour, organizations should focus on reskilling and upskilling their employees, involving them in the implementation process, and taking a human-centric approach to digital transformation. Further research is needed to fully understand the impact of automation on the workforce and to develop effective strategies for managing the transition to automated systems.

Results

In recent years, organizations have been focusing on the subject of supply chain management (SCM) automation as a significant matter. The aim is to enhance the efficiency, responsiveness, and visibility of their supply chain operations. This has led to a growing body of research on the benefits and drawbacks of SCM automation, as well as the challenges and considerations involved in its implementation. In this review paper, we analyze the results of five research papers on SCM automation and compare their findings to identify common themes and insights.

One of the key benefits of SCM automation identified by the research is improved efficiency. By automating various aspects of the supply chain process, organizations can reduce the time and resources required for manual tasks, such as data entry, inventory management, and order processing. This, in turn, can result in reduced expenses, easier and faster order fulfillment, and more client satisfaction (Zhang et al., 2019; Li et al., 2020). Additionally, SCM automation can improve supply chain visibility, allowing organizations to track the movement of goods and identify potential bottlenecks or issues in real-time (Zhang et al., 2019; Shao et al., 2020). However, the implementation of SCM automation also poses several challenges and drawbacks. One of the most significant challenges identified by the research is the high cost of implementation and maintenance, particularly for SMEs (Li et al., 2020; Manerba et al., 2021). Additionally, organizations must ensure the ethical use of SCM automation, particularly with regards to data privacy and security

(Shao et al., 2020). Other challenges include the need for training and re- skilling of employees to work with new technologies, the potential for technology failures or system errors, and the risk of losing the human touch in customer interactions (Zhang et al., 2019; Manerba et al., 2021).

To ensure successful adoption and integration of SCM automation, organizations must carefully consider these challenges and develop strategies to mitigate their impact. One strategy is to start with a pilot project and gradually scale up, rather than attempting to implement SCM automation across the entire organization at once (Manerba et al., 2021). This allows organizations to test the technology and identify any issues or areas for improvement before investing in a larger-scale implementation. Additionally, organizations can work to address concerns around data privacy and security by implementing strong cybersecurity measures, such as data encryption and access controls (Shao et al., 2020). The integration of emerging technologies, such as artificial intelligence (AI) and blockchain, also presents opportunities for organizations to improve the effectiveness of SCM automation. One instance of AI's utilization in supply chain management (SCM) is to scrutinize the data to identify patterns or irregularities that may suggest forthcoming issues. On the other hand, blockchain technology can boost supply chain visibility and transparency by producing a permanent record of all actions and transactions(Chen et al., 2020; Xu et al., 2021). However, the integration of these technologies also requires careful consideration of their potential benefits and drawbacks, as well as the resources required for their implementation and maintenance. Overall, the research suggests that while SCM automation can provide significant benefits in terms of efficiency, visibility, and responsiveness, its implementation also poses several challenges and considerations that organizations must carefully navigate. By developing a comprehensive strategy that addresses these challenges, organizations can ensure successful adoption and integration of SCM automation and realize its full potential to transform supply chain operations. In conclusion, our review of the five research papers highlights the importance of carefully considering the benefits, drawbacks, challenges, and considerations involved in implementing SCM automation. By identifying common themes and insights across the research, we have provided a comprehensive overview of the current state of knowledge on the Overview of Supply Chain Management Automation and its Benefits, Drawbacks, and Implementation Challenges. Ultimately, organizations that can effectively navigate these challenges and leverage the opportunities.

Future Scope:

The five research papers on Supply Chain Management (SCM) automation provide a comprehensive understanding of the benefits, challenges, and considerations involved in implementing SCM automation in large multinational corporations and SMEs. They also highlight the potential of emerging technologies such as artificial intelligence and blockchain to enhance supply chain visibility, efficiency, and responsiveness. Furthermore, the papers examine the ethical implications of SCM automation and provide strategies for addressing data privacy and security concerns. However, there is still a need for further research in several areas related to SCM automation. One area for future research is the impact of SCM automation on the workforce. While automation can improve efficiency and reduce costs, it may also lead to job losses or changes in job requirements. Future research could examine the extent to which automation leads to displacement or reskilling of workers, and what strategies organizations can use to mitigate negative impacts on their employees. Future studies could focus on the integration of advanced technologies such as machine learning and the Internet of Things (IoT) into SCM automation. While the existing research has highlighted the potential benefits of these technologies, their integration into SCM automation systems is still in its early stages. Future research could examine the challenges and opportunities associated with the adoption of these technologies and how they can be leveraged to improve supply chain performance. In addition, there is a need for research on the impact of SCM automation on sustainability. While automation can lead to reduced waste and increased efficiency, it may also lead to increased energy consumption and environmental degradation. Future research could examine the environmental impacts of SCM automation and how organizations can use automation to improve their sustainability performance. Moreover, there is a need for research on the impact of SCM automation on supply chain resilience. While automation can improve supply chain efficiency, it may also lead to increased risk in the event of disruptions such as natural disasters or cyber- attacks. Future research could examine the impact of SCM automation on supply chain resilience and how organizations can use automation to improve their ability to respond to disruptions.

Finally, there is a need for research on the ethical implications of SCM automation in the context of globalization. As supply chains become increasingly complex and globalized, there is a need for ethical considerations to be considered when implementing SCM automation. Future research could examine the ethical implications of SCM automation on global supply chains, including issues related to labor standards, human rights, and environmental sustainability.

In conclusion, while the existing research has provided valuable insights into the benefits, challenges, and considerations involved in implementing SCM

automation, there is still a need for further research in several areas. Future research could examine the impact of SCM automation on the workforce, the use of emerging technologies in SCM automation, the impact of SCM automation on sustainability and supply chain resilience, and the ethical implications of SCM automation in the context of globalization. This research will be valuable in guiding organizations as they seek to adopt and integrate SCM automation in their supply chain operations.

Conclusion:

In conclusion, this review paper examined the potential benefits, drawbacks, and challenges of implementing Supply Chain Management (SCM) automation in organizations. The analysis was based on a comprehensive review of five research papers that addressed various aspects of SCM automation, including its impact on organizational performance, supply chain visibility, efficiency, and responsiveness. The findings indicate that SCM automation has significant potential to improve supply chain performance, enhance efficiency, and reduce costs for organizations. However, the implementation of SCM automation is not without its challenges, particularly with regards to the ethical use of data, cybersecurity, and the potential displacement of human labor. Furthermore, the research shows that the benefits and drawbacks of implementing SCM automation in large multinational corporations are different from those in SMEs. Large corporations tend to have more resources and capabilities to implement and manage SCM automation, but they also face more complex organizational structures and supply chains that require careful planning and management. On the other hand, SMEs face resource constraints and may struggle to adopt and integrate SCM automation into their operations. The review also highlights the importance of integrating emerging technologies, such as artificial intelligence and blockchain, into existing SCM automation systems to enhance supply chain visibility, efficiency, and responsiveness. However, this integration requires careful consideration of data privacy and security concerns and the need for effective change management strategies. Considering the challenges and opportunities associated with SCM automation, there are several areas for future research. One potential avenue is to explore the role of government policies and regulations in promoting the ethical use of SCM automation and protecting the interests of workers affected by automation. Another area for future research is to investigate the impact of SCM automation on sustainability and environmental performance in supply chains. Overall, this review paper provides valuable insights into the potential benefits and challenges of SCM automation and highlights the need for organizations to carefully consider the implications of automation on their supply chain operations. As the pace of technological change continues to accelerate, it is

increasingly important for organizations to develop effective strategies for integrating.

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