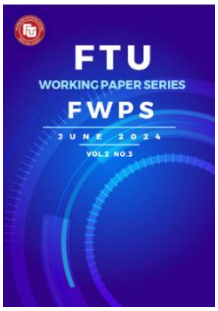

Working Paper 2024.2.3.15
- Vol 2, No 3

PHÂN TÍCH CHUYỂN ĐỔI CHUỖI CUNG ỨNG CỦA AGCO: BÀI HỌC ĐỐI VỚI NGÀNH SẢN XUẤT MÁY MÓC NÔNG NGHIỆP

Phạm Hương Ly[1], Bùi Thị Ngọc Bích, Trịnh Minh Anh, Bùi Duy Bách

Sinh viên K60 – CLC Kinh tế đối ngoại - Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại Thương, Hà Nội, Việt Nam

Trần Duy Khang, Bùi Nam Khánh

Sinh viên K60 – CLC Kinh doanh quốc tế - Viện Kinh tế & Kinh doanh quốc tế

Trường Đại học Ngoại Thương, Hà Nội, Việt Nam

Nguyễn Thị Yến

Giảng viên Viện Kinh tế và Kinh doanh quốc tế

Trường Đại học Ngoại thương, Hà Nội, Việt Nam

Tóm tắt

Bài nghiên cứu này tập trung phân tích quy trình chuyển đổi chuỗi cung ứng của AGCO - một công ty hàng đầu trong lĩnh vực sản xuất máy móc nông nghiệp, với mục đích xác định các sáng kiến chiến lược và quá trình ứng dụng công nghệ của họ trong việc tái định hình cơ cấu chuỗi cung ứng. Bên cạnh đó, nghiên cứu cũng chỉ ra những tác động nhiều mặt trong việc chuyển đổi chuỗi cung ứng của AGCO, tập trung vào các tác động trực tiếp của quá trình này trong việc nâng cao hiệu quả hoạt động của chuỗi cung ứng, tối ưu hóa việc sử dụng tài nguyên và nâng cao khả năng cạnh tranh của doanh nghiệp. Bằng phương pháp nghiên cứu định tính, bao gồm việc thu thập dữ liệu thứ cấp từ các nghiên cứu trước đó về quy trình chuyển đổi chuỗi cung ứng, kết hợp với đặc điểm chuỗi cung ứng của ngành, nhóm nghiên cứu đã đưa ra một số bài học từ trường hợp của AGCO cho những người hành nghề trong ngành, các nhà hoạch định chính sách và các học giả, để cải thiện quá trình chuyển đổi cũng như tăng cường hiệu suất bền vững của chuỗi cung ứng trong ngành sản xuất máy móc nông nghiệp.

Từ khóa: Tập đoàn AGCO, Ngành sản xuất máy móc nông nghiệp, Chuyển đổi chuỗi cung ứng

[1] Corresponding Author, Email: k60.2112150103@ftu.edu.vn

ANALYZING AGCO'S SUPPLY CHAIN TRANSFORMATION: IMPLICATIONS FOR THE AGRICULTURAL MACHINERY SECTOR

Abstract

This paper focuses on analyzing the supply chain transformation process of AGCO - a leading company in the agricultural machinery sector, with the purpose of identifying strategic initiatives and technology intervention in reshaping its supply chain dynamics. Besides, the study investigates the multifaceted implications of AGCO's supply chain transformation, focusing on its direct impacts on advancing supply chain efficiency, optimizing resource utilization, and enhancing overall competitiveness. By using qualitative research design including collecting secondary data from previous studies and combining with the characteristics of the industry's supply chain, this paper seeks to provide valuable insights for industry practitioners, policymakers, and academics to improve the supply chain transformation process and enhance the sustainable performance of the supply chain in the dynamic landscape of the agricultural machinery sector.

Keywords: AGCO Corporation, Agricultural machinery sector, Supply chain transformation

1. Introduction

The agricultural machinery sector plays a pivotal role in global food production, with companies constantly seeking innovative strategies to enhance supply chain efficiency. AGCO, a leading manufacturer of agricultural equipment and solutions serving farmers worldwide, has embarked on a transformative journey to revolutionize its supply chain. As a key contributor to the industry, AGCO has encountered various challenges within its supply chain, ranging from complexities in procurement to distribution inefficiencies. These challenges have necessitated a strategic reassessment of the company's supply chain processes to remain competitive in the rapidly evolving agricultural machinery sector.

This research "Analyzing AGCO's supply chain transformation: Implications for the agricultural machinery sector" aims to explore the key drivers and catalysts that led AGCO to initiate a supply chain transformation, analyze the specific changes implemented by AGCO throughout its supply chain, assess their impact on operational efficiency, cost reduction, transparency, and cross-brand cooperation, and examine how they align with broader trends in the agricultural machinery sector, offering valuable insights for companies in the agricultural machinery sector. The report contains five main sections:

- Literature review
- Methodology
- AGCO's supply chain transformation process
- Results and achievements
- Implications of supply chain transformation for the agriculture machinery sector

2. Literature Review

2.1. Theoretical framework

2.1.1. Concept of Supply Chain Transformation

The digital transformation brought about by Industry 4.0 is a subject that has been frequently studied scientifically in recent years. It has been noted that there have been significant developments in this field in the last five years. Menon and Shah (2019) emphasized the significance of intelligent production, one of the products of Industry 4.0, for the digital supply chain. According to the research results, the expected benefits of knowledge and technology are very significant in applying Industry 4.0 technologies, and companies with a high level of process automation are more likely to apply Industry 4.0 technologies (Yu and Schweisfurth, 2020).

Supply chain transformation is the comprehensive overhaul and modernization of a business's supply chain network, designed to gain a competitive advantage by improving operational efficiency and boosting customer satisfaction (Jenkins, 2023). It involves reviewing existing processes and implementing systems for managing supply chain demand to align a firm's supply chain with its business goals. This includes planning, implementation, digitization and analytics. How well a company manages its supply chain — all the steps required to produce finished goods, from obtaining raw materials to distributing products to partners and delivering them to customers - is also a key driver of business success.

In the 20th century, companies began to invest in infusing more efficiencies into their supply chains. As technology advanced over the years, businesses were able to explore new optimization opportunities. Today, companies increasingly recognize that a reimagined and well-managed supply chain can be a critical driver of business value. Now, armed with more accurate and available data - plus powerful capabilities like artificial intelligence (AI), machine learning, robotics, autonomous vehicles, connected devices and next-generation networking - many businesses are seizing the opportunity to take a digital approach and are fundamentally transforming their supply chain processes.

In summary, the digital transformation decision for companies in the supply chain is a decision that must be weighed on a scale, the difficulties to be experienced in this process, and the benefits to be gained as a result of the process. While the specific goals of a company may vary, depending on the industry, the overarching aim is the same: to optimize the supply chain in ways that align with a company's strategic goals. In many cases, a supply chain transformation involves not only implementing new software and tools, but creating a mindset shift that calls for developing new processes, staff roles and organizational models.

2.1.2. Necessity of SC Transformation in achieving Supply Chain Efficiency

Supply Chain Transformation is crucial for organisations to achieve supply chain excellency. For supply chain operations, excellence means achieving the highest level of efficiency and effectiveness in the management of resources, processes, and systems to deliver products and services to customers at the lowest possible cost while meeting their quality and delivery requirements. Goldfarb and Tucker (2019) state that supply chain transformation involves integrating digital technology into all business areas, fundamentally changing how organisations operate, and creating value for their customers. Failure to adopt digital technologies can leave an organisation vulnerable, while adoption can contribute to exponential growth, leading to national development and societal transformation.

Supply chain transformation can bring various benefits to businesses. Firstly, it can improve operational efficiency by automating routine tasks and providing real-time data to respond quickly to changes in demand and supply. Secondly, it can enhance customer experience by providing better visibility and communication throughout the supply chain. It allows customers to track their orders and receive notifications on delivery times, leading to greater satisfaction and loyalty (Westerman, Bonnet and Mcafee, 2014). Finally, digital technologies can help companies innovate and create new business models by leveraging data and analytics. For instance, companies can use data analytics to identify recent market trends and customer needs to develop new products and services accordingly (Berghaus and Back, 2016).

In summary, supply chain transformation can have a profound impact on supply chain excellency and as such, it is important for organizations to embrace digital transformation as part of their supply chain excellency journey.

2.2. Overview of Supply Chain in Agriculture Machinery Sector

2.2.1. Agriculture Machinery Sector

The agricultural machinery sector encompasses the design, manufacture, distribution, and sale of machinery and equipment specifically used for agricultural activities. It plays a vital role in modern agriculture by enabling increased productivity, efficiency, and sustainability. Key components include tractors, combine harvesters, irrigation systems, planting and seeding equipment, harvesting machinery, post-harvest machinery, and livestock machinery.

Tractor and agricultural machinery manufacturing area includes both Agricultural Sector and Industrial Sector, which are very important components of overall economics. For that reason it is under the influence of advantages and disadvantages of each sector, not only during the normal circumstances but especially in crisis periods.

The world agricultural machinery sector, like in the automotive sector, advances in a high integration and globalization level. This integration provides global companies important advantages with regard to price competition and meeting large-scale demands.

2.2.2. The Significance of Supply Chain in the Agriculture Machinery Sector

The agriculture machinery sector's supply chain is a complex network involving manufacturers, importers, dealers, hire service providers, and repairers. Logistics plays a crucial role in all stages of agricultural production, including cultivation, processing, and manufacturing. Overcoming challenges in the farm equipment supply chain has led to remarkable innovations in modern farming machinery, addressing key issues. Research on agriculture supply chain management provides valuable insights into different aspects, aiding the formulation of effective strategies for development and management. Moreover, the construction of an intelligent supply chain system involves institutions controlling the manufacturing and distribution of agriculture machinery.

3. Methodology

In this study, we adopted a qualitative research approach to examine AGCO's successful supply chain transformation and explore its potential as a model for improving supply chain efficiency in the agriculture machinery sector. We chose a qualitative method to gain a deeper and more dependable understanding of the context, processes, and outcomes of the transformation, along with insights from key stakeholders' experiences. Our data collection involved various sources, including case studies from reputable supply chain papers, an analysis of ARGO's performance during its transformation by several reviewers, and information from reports and research assessing the sectoral impact of supply chain transformation.

Having gathered a comprehensive set of data, our focus turned to synthesizing and extracting the most widely agreed-upon insights from previous analyses into practical lessons, especially concerning the agriculture machinery sector. Our objective is to present generally successful practices for entities within the sector to compare, implement, and adapt into their supply chain processes.

4. Research Result

4.1. AGCO's Supply Chain Transformation Process

4.1.1. SCOR supply chain benchmarking exercise

An initial finding suggested that inbound material logistics and freight management should be consolidated rather than be run as separate operations. There were synergies that could be yielded by combining these operations together on a globally integrated basis. AGCO aimed at establishing a global transportation strategy that would be fully implemented across all regions by 2018. To shape this strategy and envision a future state, regional teams convened for discussions. The company decided to undertake SCOR transportation benchmarking to provide an objective view of their regional and global capabilities.

SCOR is a supply chain process reference model developed and endorsed by the Supply Chain Council, containing over 200 process elements, 550 metrics, and 500 best practices including risk and environmental management. SCOR is organized around the five primary management processes of Plan, Source, Make, Deliver and Return (Banker, 2010).

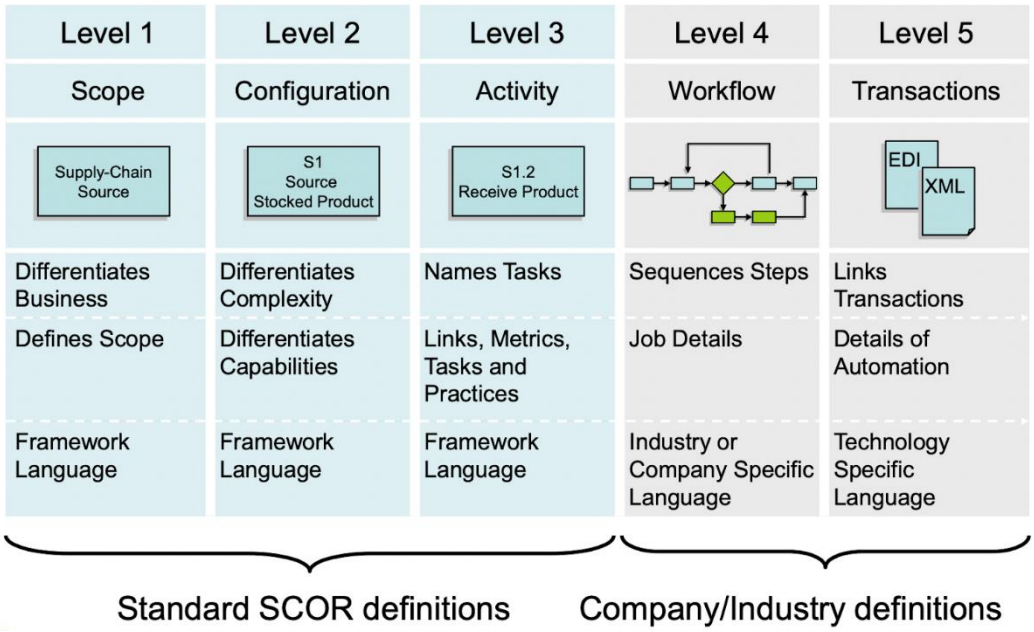

Figure 1: SCOR Processes

Source: Supply Chain Council, Inc.

The Supply Chain Operations Reference (SCOR) model is at the core of everything. It stands out as the sole all-encompassing, universally accepted and openly accessible supply chain standard employed by businesses, regardless of their size. SCOR gives AGCO the ability to assess and improve their company's supply chain, directly resulting in improved overall business performance.

This process pairs AGCO's organization with a professional from Association for Supply Chain Management (ASCM) collaborating with AGCO's team to assess and compare their supply chain performance against global industry standards. This collaborative effort identifies opportunities to enhance reliability, resilience, and responsiveness. By combining elements of business process engineering, leading practices, benchmarking, interpersonal skills and various metrics into a concise framework, SCOR facilitates AGCO's ability to pinpoint and improve core process areas.

4.1.2. Implementation of an integrated transportation management system (iTMS)

ITMS Definition

ITMS (Integrated Transportation Management Systems) is a concept whereby the users of the transportation system benefit by integration of various component sub-systems which have largely evolved due to the institutional structure of the transportation system (Urbanik II, 1997). The transportation system is in fact fragmented due to multiple agencies, multiple jurisdictions, multiple modes, and multiple disciplines being responsible for various aspects. This specialization, while improving the efficiency of various components, is a detriment to a global view of system management. ITMS is a step towards a more global view of the transportation system.

Reason for ITMS implementation

AGCO aimed to move towards a more integrated, proactive supply chain with more emphasis on sustainable long-term strategy while considering regional needs. The Global Director of Material Logistics and Freight at AGCO emphasized the necessity for company-wide participation in this endeavor. Following a SCOR supply chain benchmarking exercise, AGCO opted to approach its cost reduction, efficiency enhancement and transparency goals by blending new technology. This took the form of a globally integrated transport management system (iTMS) designed to operate seamlessly across all regions worldwide. Concurrently, AGCO committed to establishing a partnership with a capable fourth-party logistics (4PL) provider to centralize shipments within a unified network.

Upon evaluating their regional capacities, they realized a blended solution would fit them best. The North American and Latin American operations had worked with TMS and preferred their planners to continue utilizing the new TMS; the leader team also decided to introduce the blended approach in Europe, with commitments to replicate the model in other operating regions, such as Europe and Asia, if proven successful. These regions were less acquainted with the technology, and it was believed that Managed Transportation Services (MTS) would better suit their requirements.

iTMS implementation in outbound & inbound transport

According to the AGCO Global Director, an iTMS includes both inbound and outbound transport, whether by road, water or air. Optimizing these processes starts with strategic considerations such as network design, location of hubs and selection of transport partners. Subsequently, tactical aspects such as the frequency of connections between the hubs are addressed. Within the scope of its Smart Logistics initiative dedicated to the digitalization and optimization of their global material flow, AGCO set ambitious objectives to digitize their inbound logistics. A key metric was the implementation of a global TMS. Using one platform for all modes of transports, and involving all stakeholders resulted in a globally standardized operating model that significantly heightened transparency and efficiency. Plus, it provided a high degree of flexibility. A logistics control tower was developed to integrate and coordinate all daily inbound supply activities within Europe. This includes tasks ranging from negotiating carrier freight rates to optimizing inbound shipment schedules and facilitating self-billing for carrier payments.

AGCO's partnership with 4flow in iTMS implementation

After searching for a suitable partner, AGCO selected 4flow. As an independent fourth-party logistics service provider (4PL), 4flow's comprehensive approach to reducing costs and enhancing performance without requiring IT investments appealed to AGCO. 4flow also assured swift iTMS implementation. The rapid implementation initiative included an entirely new process, a fresh organizational structure and the implementation of an iTMS covering all of Europe.

In 2013, AGCO business case to work with 4flow in Europe was approved. Remarkably, within 18 months, the solution was successfully implemented across the entire continent. The iTMS, established during this rapid rollout, now links over 1,500 suppliers and the central spare parts center within a unified global network to schedule shipments to AGCO factories or warehouses supporting inbound shipments to the factory lines and aftermarket distribution centers. The suppliers submit their transportation orders, including load details and destinations, into the 4flow system by 2pm each day. Once the 4flow Control Tower team receives the necessary transportation data, they optimize the transportation plan for the following day's pick-ups. Carriers then receive load tenders and confirm back to the TMS. Suppliers are notified by the TMS of the designated pickup time that prompts them to have goods prepared and staged for loading onto a trailer or to ensure that drop and hook trailers are ready for the following day. The integration of SAP's Supplier Network Collaboration (SNC) solution into the TMS aims to enhance optimization for future inbound material flows, inventory levels, and overall costs. AGCO and 4flow seamlessly integrated sea transportation services for their manufacturing facilities in both North and South America. AGCO is currently benefiting from the synergies within the global manufacturing network, particularly in road transportation, and is poised for a global rollout.

4.1.3. Globalization, vertical and horizontal cooperation

Prepared for a worldwide implementation of the strategy developed in Europe, AGCO plans to incorporate sea and air freight components to fuse regional networks into a single global network. AGCO and 4floware actively pinpointing crucial suppliers and potential partners from parallel industries in order to establish cross-company synergies in tendering and the operation of networks.

Together with 4flow, AGCO not only achieved their targets but also exceeded them greatly. The success was largely attributed to the collaborative efforts of the central logistics team in Switzerland, the manufacturing facilities, and 4flow, as stated by the Director of Transportation & Logistics, EAME, who is chiefly responsible for this initiative at AGCO. Thanks to its comprehensive strategy and partnership with 4flow, AGCO is positioned to manage complex networks, enhance overall efficiency and reap the advantages of consolidation.

4.1.4. Streamlining procurement process through e-sourcing

According to AGCO on their e-sourcing platform, which was introduced alongside the iTMS implementation, operates on a dual front, addressing both talent management and procurement efficiency. While iTMS oversees human resource allocation, the e-sourcing platform is dedicated to streamlining and enhancing procurement processes. This initiative not only expands AGCO's global supplier base but also fosters healthy competition, allowing suppliers to vie for business across AGCO's diverse brands and sites. The platform facilitates supplier comparison, empowering both suppliers and AGCO to make informed decisions and cultivate a mutually advantageous environment.

An integral aspect of this platform is its contribution to cost reduction. Through the automation of the sourcing process, AGCO mitigates administrative costs linked to manual tasks. Furthermore, the platform's emphasis on competitive bidding and negotiation results in improved pricing, fostering additional cost savings. To ensure fairness and transparency,

AGCO's e-sourcing platform employs standardized templates, promoting seamless collaboration with suppliers and enhancing overall efficiency and transparency throughout the sourcing process. The platform's automation, spanning from RFx (Request for Proposal/Quotation) to purchase orders, diminishes manual tasks, expedites decision-making, and optimizes procurement procedures. This aligns with AGCO's overarching strategy to evolve into a globally integrated purchasing organization and position itself as the preferred customer for its suppliers.

4.1.5. Strategic extraction of large shipment volumes

AGCO's strategic shift towards collaborating with local logistics providers, known as "local heroes," represents a departure from conventional 3PLs. This approach involves forging partnerships with providers who possess an in-depth understanding of the regional landscape, enabling AGCO to benefit from lower operational costs compared to larger multinational 3PLs. By engaging directly with these local partners, AGCO can negotiate competitive rates and bypass unnecessary bureaucratic layers, streamlining its supply chain operations.

AGCO's focus on local logistics providers offers streamlined transportation routes and increased efficiency. These providers have intimate knowledge of local roads, traffic patterns, and optimal delivery routes, minimizing detours and delays. This knowledge reduces fuel consumption, vehicle wear and tear, and overall cost savings. AGCO can receive customized solutions tailored to its specific needs, ensuring only essential services are paid without unnecessary fees. Direct collaboration with local partners reduces administrative overhead, allowing AGCO to allocate more time and resources to core business operations. This approach also brings community support and contributes positively to its reputation. AGCO's commitment to local businesses fosters positive relationships within the community, positioning it as a responsible corporate citizen. This community-centric approach not only enhances AGCO's brand image but also has the potential to influence customer loyalty through positive community sentiment.

4.2. Results of AGCO's Supply Chain Transformation

4.2.1. Enhancement in AGCO's Supply chain efficiency

AGCO's supply chain efficiency underwent notable enhancements following several strategic changes. Banker (2017) conducted an analysis revealing significant improvements. Within eighteen months of launching their European logistics system, AGCO managed to slash freight costs by approximately 18%. Moreover, they have sustained annual freight savings ranging from three to five percent since then. With the implementation of a new operating model in China and North America, the company achieved remarkable results, including a 28% reduction in inbound logistics expenses, a 25% increase in network performance, and a notable 25% decrease in inventory levels

In accordance with our research (4flow, n.d.), these are the results following the iTMS implementation:

- Integrated 1,500+ suppliers and 70+ logistics service providers
- 28% reduction of costs in the entire inbound supply chain
- 10% increase in on-time delivery performance

- 15% increase in process compliance.

The e-sourcing platform has been a potent source of savings, responsible for perhaps 25 to 30 percent of the reduction in freight costs. In contrast to their global platform strategy in manufacturing andpurchasing, which is resulting in fewer suppliers holding larger market shares for AGCO, this was not the transportation case. Approximately 80% of our freight expenditure was taken up by three large carriers before the implementation of controlled transportation. “There are currently 70 carriers across Europe”, according to Mr. Toornman. "The complexity can be efficiently managed by the TMS. It maximizes our expenses and lets us pick and choose which lanes to use” (Banker, 2017).

As a result, AGCO’s Smart Logistics initiative won the 2017 ‘European Gold Medal in Logistics and Supply Chain’ from The European Logistics Association (ELA).

4.2.2. Enhancement in AGCO revenue and profit

Supply chain optimization can significantly impact a company's revenue and profit by effectively reducing costs, enhancing operational efficiency, boosting customer satisfaction, and seizing market opportunities. Such optimization enables businesses to adapt more swiftly, respond promptly, and maintain competitiveness within the ever-evolving business landscape. This assertion holds true in the case of AGCO and are reflected in their recent year's income statement

Table 1: AGCO's income statement from 2018 to 2022

	2022	**2021**	**2020**	**2019**	**2018**
Sales/Revenue	12,651	11,138	9,150	9,041	9,352
Sales Growth	13.58%	21.73%	1.20%	-3.32%	-
SG&A Expense	1,634	1,495	1,395	1,390	1,417
Research & Development	444	406	343	343	355
Other SG&A	1,190	1,089	1,016	1,046	1,062
SGA Growth	9,31%	10.00%	-2.22%	-1.95%	-
Pretax Income	1,107	944	562	261	360
Pretax Income Growth	17.25%	68.02%	115.24%	-27.53%	-

Source: The Wall Street Journal

The recent years have witnessed significant surges in both Sales Revenue and Pretax Income for AGCO, following the challenges posed by the COVID-19 pandemic in 2019. Sales escalated from 9,352 million USD to 12,651 million USD, accompanied by a remarkable three-fold increase in Pretax Income, reaching 1,107 million USD.

The notable rise in these financial metrics can be attributed, in part, to the effective implementation of supply chain optimization strategies. Analysis indicates that the consistent

growth in Selling, General, and Administrative Expenses (SG&A Expenses) primarily reflects increased investments in Research and Development (R&D). Interestingly, despite the upward trajectory of Sales, Other SG&A Expenses, which encompass supply chain costs, have remained relatively stable.

These findings underscore the substantial positive outcomes achievable through enhanced supply chain operations. The subsequent section will delve into how actors within the same industry can glean insights from AGCO's experience

4.3. Implications of Supply Chain Transformation for the Agriculture Machinery Sector

4.3.1. Assessment of inherent challenges to the supply chain of the agriculture machinery sector

AGCO's successful transformation of their supply chain can be attributed to being simply compliant with the demands of the industry, which begs the question: What can actors within the agriculture machinery sector learn from the case of AGCO? To do this, we must understand the inherent problems of the supply chain that all companies in the same industry have faced and that AGCO has been able to resolve.

First of all, businesses that manufacture agricultural machinery often have the same challenges: dependence on raw materials and, as a result, a heavy reliance on supplier relationships. Issues such as quality control, supplier capacity, and geopolitical factors, and without transparency in information, a wrong assessment can drastically affect the reliability of the supply chain. On top of that, the companies have to think of a way to cut costs due to 'the seasonal nature' of the business, with peak periods during planting and harvest seasons. Companies have to adjust to meet demand during peak seasons and cut down inventory during off-peak times. Finally, the demand for technological advancement is an inherent barrier to every machinery industry, both in operation and product development. That's why focusing on integrating technology into the business operations is crucial.

To sum up, actors within the agriculture machinery sector often face challenges in the supply chain such as management of supplier relationships, management of cost efficiency, and a focus on technological development, all of which AGCO has tackled by transforming their supply chain and presenting it as a template for learning by other companies.

4.3.2. Implications for Actors in the Agriculture Machinery Sector

Identifying Competency and Obstacles to Supply Chain Improvement

Similar to AGCO's approach of undertaking SCOR transportation benchmarking to provide an objective view of their regional and global capabilities and challenges, companies in the agriculture machinery sector should adopt a similar approach to assess their capabilities as well as challenges to overcome. By first pinpointing inefficient factors, they can then prioritize these issues based on their significance by urgency and cost effectiveness. Then they should gradually work toward creating an agenda on which assets to enable and which platform to integrate into their supply chain to resolve these problems. This step-by-step approach is especially effective in the agriculture machinery sector because every company has different demands and issues and, therefore, different prioritization. This is due to the 'seasonal nature' of the industry, which made geography a deciding factor. Companies in different regions might have different frequency of demand, proximity to suppliers and different engagement with

modern technology. As a result, the process of identification of individual capabilities as well as challenges is generally a more strategic and effective approach to supply chain proficiency.

Establishing an integrated network within the supply chain

To ensure the transparency and abundance of information, AGCO's have created a roadmap to create an integrated network of supplier management by utilizing the e-sourcing platform in connection with the coordination of inbound and outbound transportation through the iTMS platform. Actors within the same industry can learn from AGCO by integrating their supply chain into a streamlined platform. Firstly, they must place a fundamental focus on fortifying supplier relationships. This can be enabled through open communication channels, mutual understanding, and collaborative efforts to establish a foundation of trust. This is crucial due to the turbulence in demand of the industry. Once these relationships are solidified, the subsequent step involves the initiation of a form of management platform. Which should serve as a centralized hub for overseeing various aspects of the supply chain from procurement to in-outbound logistics. This will enable smooth coordination and information availability. Furthermore, companies must be mindful to adopt a tailored approach to the integration process that aligns with the unique needs of each operation, so as to cultivate a more resilient and responsive supply chain. The strategic integration of the management platform not only streamlines internal processes but also positions these actors to effectively navigate the supplier relationship complexity, subsequently offering a more promising path toward enhanced supply chain efficiency within the Agriculture Machinery Sector.

Investing in Research and Development for Technological Integration into the Supply Chain

Acknowledging the pivotal role of technology in propelling supply chain excellence, AGCO has demonstrated remarkable success by strategically leveraging technological advancements to outpace competitors. Furthermore, by fostering a collaborative approach between R&D initiatives and operational teams, companies can harness the collective expertise of their workforce to identify innovative solutions tailored to their unique challenges. This proactive engagement ensures that technological integration is not just a one-time investment but an ongoing, adaptive process. Additionally, industry peers can proactively monitor emerging technologies, staying agile in their adoption to swiftly respond to market shifts and maintain a resilient stance in the competitive terrain. In essence, a strategic and continuous commitment to technological evolution becomes a cornerstone for long-term success and relevance to meet the turbulent demands of the supply chain of the Agriculture Machinery Sector.

5. Conclusion

In conclusion, AGCO's supply chain transformation stands out as a strategic response to the challenges inherent in the agricultural machinery sector. The integration of advanced technologies, the SCOR supply chain benchmarking exercise, the integrated transportation management system, and the cooperation network have significantly improved sustainable cost

reduction, transparency, and cross-brand cooperation. AGCO's success underscores the importance of adaptability and innovation in navigating the evolving landscape of the industry.

The implications of AGCO's transformation extend beyond the company, offering valuable lessons for industry stakeholders. The findings highlight the need to embrace technology and innovative approaches to enhance competitiveness and resilience in the agricultural machinery sector. AGCO's journey is a roadmap for companies seeking to navigate challenges and drive supply chain efficiency. Looking ahead, the report's recommendations emphasize the importance of continuous innovation, collaboration, and strategic alignment with industry trends to foster sustained supply chain efficiency and competitiveness.

In essence, AGCO's supply chain transformation serves as a beacon for the industry, signaling that proactive and strategic initiatives can lead to not only overcoming challenges but also driving meaningful advancements in supply chain efficiency within the agricultural machinery sector.

References

4flow (n.d.). "Success Story AGCO - 4floo", *www.4flow.com.* Available at: https://www.4flow.com/industries-references/automotive-manufacturers/success-story-agco.html.

AGCO (n.d.). "E-Sourcing | Streamlined Strategic Sourcing | AGCo", *Agcocprp,* Available at: https://www.agcocorp.com/suppliers/e-sourcing.html.

Banker, S. (2017). "Keeping SCOR of Your Supply Chaio", *Logistics Viewpoints,* Available at: https://logisticsviewpoints.com/2010/09/29/keeping-scor-of-your-supply-chain/ [Accessed 25 Feb. 2024].

Banker, S. (2017). "AGCO Drives an 18 Percent Reduction in Freight Costs while Maintaining Service Levelon", *Logistics Viewpoints*. Available at: https://logisticsviewpoints.com/2017/08/21/large-reduction-freight-costs/.

Berghaus, S. & Back, A. (2016). "Stages in Digital Business Transformation: Results of an Empirical Maturity Study. In: MCIS 2010", *Tenth Mediterranean Conference on Information Systems*. Available at: https://www.researchgate.net/publication/310477531_Stages_in_Digital_Business_Transformation_Results_of_an_Empirical_Maturity_Study.

Goldfarb, A. & Tucker, C. (2019). "Digital Economics. Journal of Economic Literature", Vol. 57 No. 1, pp.3–43.

Jenkins, A. (2023). "What Is Supply Chain Transformation?", *Oracle NetSuite,* Available at: https://www.netsuite.com/portal/resource/articles/erp/supply-chain-transformation.shtml [Accessed 3 Feb. 2024].

Menon, S. & Shah, S. (2019). "An Overview of Digitalisation in Conventional Supply Chain Management. In: MATEC Web of Conferences", University of Bolton. Available at: https://www.researchgate.net/publication/336009590_An_Overview_of_Digitalisation_in_Conventional_Supply_Chain_Management.

The Wall Street Journal (n.d.). “AGCO | AGCO Corp. Annual Income Statement - WSJ”, *www.wsj.com.* Available at: https://www.wsj.com/market-data/quotes/AGCO/financials/annual/income-statement [Accessed 25 Mar. 2024].

Urbanik II, T. (1997). “INTEGRATED TRANSPORTATION MANAGEMENT SYSTEMS DEFINITION OF THE CONCEPT”, *trid.trb.org*. Available at: https://trid.trb.org/View/475236#:~:text=ITMS%20is%20a%20concept%20whereby [Accessed 25 Feb. 2024].

Westerman, G., Bonnet, D. & Mcafee, A. (2014). *Leading digital: turning technology into business transformation*. Boston: Harvard Business Review Press.

Yu, F. & Schweisfurth, T. (2020). “Industry 4.0 technology implementation in SMEs – A survey in the Danish-German border regiIn”, *International Journal of Innovation Studies*, Vol. 4 No. 3, pp.76–84.