

# Sector-Specific Coordination Mechanisms in Supply Chain Management

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## ABSTRACT

Supply chain coordination is essential for optimizing the flow of products, information, and funds across various sectors. This paper explores coordination mechanisms employed in different sectors, highlighting their significance in enhancing supply chain efficiency and performance. The introduction elucidates the concept of supply chain coordination and underscores the importance of aligning objectives among supply chain partners. Mechanisms such as information sharing, contractual agreements, and preferred partnerships are discussed within the context of manufacturing, retail, and service sectors. In the manufacturing sector, Vendor-Managed Inventory (VMI), Continuous Replenishment Programme (CRP), and Advanced Planning and Scheduling (APS) are pivotal for synchronizing production and inventory management. Conversely, the retail sector relies on VMI and Efficient Customer Response (ECR) to mitigate the bullwhip effect and streamline inventory replenishment. In the service sector, coordination mechanisms encompass information sharing, relational governance, and contractual agreements, facilitated by advancements in technology. These mechanisms foster trust, reduce uncertainty, and enhance operational agility across the service supply chain. Overall, understanding and implementing coordination mechanisms tailored to sector-specific needs are paramount for achieving supply chain optimization and competitive advantage.

**Keywords:** *Keywords: Supply Chain Coordination, Coordination Mechanisms, Sector-wise, Manufacturing Sector, Retail Sector, Service Sector.*

## INTRODUCTION

The supply chain involves the flow of products, information, and funds between suppliers, manufacturers, logistics service providers, retailers, and consumers. Supply chain coordination includes aligning the plans and objectives of different firms in the supply chain to harmonize the supply and demand in the chain, improve the performance of the chain, and provide the maximum value to the end-use customer. The need for coordination arises because no single firm alone can handle all the activities that occur within the supply chain. It has been divided between multiple firms, and they operate independently to maximize their own objectives. These different objectives and lack of coordination can cause conflicts among different supply chain partners and may result in reducing the effectiveness of the supply chain as a whole and reduce profitability. (Chi et al.2020) (Vosooghizaji et al.2020) (Altekar, 2023) (Frazelle, 2020) (Pohlmann et al.2020)

### **Overview of Supply Chain Coordination**

The main purpose of any supply chain is to maximize the overall value generated. Supply chain is not a new concept. It has been practiced by a lot of firms all over the world. In the traditional way of doing business, each function in the business cycle operated separately. This means that various departments in a firm were isolated; they did not communicate with each other. In fact, different parts of the same department could not communicate with each other. What was happening is that each department in a company was taking its own course of actions to maximize the profit for the company. Unfortunately, when each department in a company takes its own course of action to maximize the profit for the company, rather than coordinating to optimize the overall value of the firm, the firm will create sub-optimization in the supply chain. This is a very important aspect of supply chain. The flow of product as it moves from the beginning of a process at the supplier's end, to the end of the process at the customer's end, involves the flow of information. All companies in the supply chain, from the suppliers of raw materials to the product end users, are talking about the orders - when to place them, how many of them to place, and so on. When companies in a supply chain start making use of the available information and coordinate their planning, they can all make accurate predictions on the number of products end users will want and customize the products to meet individual customer's needs more effectively. Also, it enables firms in the chain to provide high levels of availability of product, very fast and efficient new product design and is able to infuse rapidly

changing technologies into the user's product. This makes companies that are using effective supply chain strategies more competitive within their markets, irrespective of the size of the company. The ultimate goal of supply chain management is to optimize the activities/functions at all levels in the supply chain to the advantage of the end user. (Agarwal et al.2021) (Matuga, 2022) (Agrawal et al.2023) (Bavrin et al.2021) (Kiani et al.2022)

### **Importance of Coordination Mechanisms**

Effective supply chain management requires strong supply chain strategies. It's not enough to simply know how to manage operations - a successful supply chain needs to be able to apply strategy to both processes and people to create an end-to-end cohesive, effective and successful overall strategy. A fundamental building block of supply chain strategy is alignment within the supply chain. As discussed in the first point, "Functional Silos," a lack of coordination between various departments might lead to poor decision making and inefficiencies - but this problem is exacerbated when you look on a larger scale at the supply chain: poor coordination between the various companies, departments, and teams involved might have a serious impact on overall operational effectiveness, not to mention you might end up with very high inventory levels as a result. Coordination mechanisms facilitate communication and enable effective management of interdependencies. In the context of a supply chain, coordination can take different forms; between a company's various departments or between different companies and partners in the same supply chain. These may include incentives, automation, information sharing, centralization or in the case of a multistage supply chain and simulations - something we will discuss in more detail in upcoming articles. Culturally, a coordination culture can be difficult to implement, but once in place can lead to a high-performance culture and maximize the opportunities for successful lean improvements that we discussed in the introduction. Incentives from a theoretical standpoint can be controlled by coordination and simulations, allowing the rewarding of successful supply chain improvements and therefore encouraging continuous supply chain improvement which could then lead to a cycle of continuous and ever-improving operation in the supply chain - the ultimate goal of any supply chain coordinator. (Munir et al.2020) (Fu et al., 2022) (Kovács and Falagara2021) (Benzidia et al.2021) (Ahmed et al.2020)

## 2. Coordination Mechanisms in Manufacturing Sector

## LITERATURE REVIEW

**Navigating Ambiguity and Collaboration** In other words, the expectation of collaboration at various levels in the store network proposes an all-encompassing methodology which is reflected in the meaning of Supply Chain Management (SCM). Though another applicable definition is given by Fisher (1997) that the store network comprises of every one of the phases associated with the progression of merchandise, from the underlying wellspring of materials through the generation of items, to definite conveyance to the end client. Fisher has clarified that inside a store network, the terms upstream and downstream are utilized to all the more likely comprehend the connections between various phases of creation and the materials stream starting with one then onto the next phase of activities. Businesses are associated through the physical stream of materials and sharing data forward and backward for what's to come. Fisher has presented the possibility of the accumulation of equivocalness through these procedures.

He has now embraced Grand and he has variabilized between the two methodologies received by Bossard and his group for the straightforwardness in the coordination system by making a reasonable qualification between data accumulation and decentralization, says, the methodologies received for taking care of chain coherence through the procedure of politeness or gathering optimism is completely unique in relation to the strategies received incompatibility through sharing or decentralization of data. By embracing the possibility of equivocalness and its part in taking care of chain coherence and fluctuating it with the dependence of data sharing, he has mulled over that there is a requirement for statistical surveying in his paper. His contention has talked about the threefold approach received by Bossard's et al where concentrate totally on bearing the chain coherence through the restriction of barriers and with the energy of conceptualizing. On the other hand, the gathering idealism which is meaning the probability of a doled out important to be realized the yield of filling in as a gathering. As indicated by the Grand's hypothesis when somebody delegates and after that there will be a harmony between the keeping and sharing data though the decentralization. Yet, the methodologies received in the totaling idealism and incong. (Richey et al.2022) (Juan et al.2022) (Collier & Sarkis, 2021) (Hahn et al.2021)

### **Strategies and Mechanisms for Overcoming Information Asymmetry:**

Since none of the supply chain partners in the manufacturing sector is willing to share the secret information of business such as demand projection, each corporation applies its own scheduling and they communicated with each other mainly by updating the orders (Cachon and Fisher, 2000). Such a scenario implies the existence of the practice firstly characterized by no interest of sharing the information and secondly every body has the freedom of applying their own decisions which is known as push type of production (Cachon and Fisher, 2000). In a push type of production system, each supplier places the goods in the predefined storage area in the premise and he or she will request the next workstation when the materials at that storage area is used up (Monk and Plevé, 2002). Such a mechanism could lead to the phenomenon so called the Bullwhip Effect. Because the requirement is forecasted, each slight change will be amplified along the chain and that will affect the actual production. It is only because of the coordination started introduced and rotate around better revenue sharing proposal, vendor managed inventory and continuous replenish, those three are main type of current known coordination mechanisms in the manufacturing sector - agreement on revenue sharing, vendor management inventory and continuous replenishment (Fisher et al., 2001)." (Tombido & Baihaqi, 2020) (Lin et al.2022) (Qu & Raff, 2021) (Lin et al.2020) (Ponte et al.2020)

### **Optimizing Manufacturing Supply Chains**

In the manufacturing sector, there are three key coordination mechanisms: Vendor-Managed Inventory (VMI), Continuous Replenishment Programme (CRP), and Advanced Planning and Scheduling (APS). As the name signifies, in Vendor-Managed Inventory (VMI), the supplier of the raw material holds the ownership of the inventory and manages the inventory levels at the customer's place. This is an efficient method employed to reduce the inventory-related costs. VMI is widely being used in industries like automotive and food retailing. Partnering companies in a CRP share information via Electronic Data Interchange (EDI) connections. This allows for transactions to be executed very quickly and effectively, which ultimately helps the participants to reduce time lags and stock levels. Through using CRP, the distributor tries to match the manufacturer's resources with its own production requirements, leading to higher levels of service and reduced stock levels. Advanced Planning and Scheduling (APS) is a method to plan a task that takes into account the various complex

aspects of the process, such as the duration of the tasks, the resource constraints, and the sequence and timing of each task. It is a logical extension of the manufacturing requirement that is computer integrated. By taking resource constraints into account in schedule development and in using the scheduling, a company can move from managing work backlog to proactively managing the work flow through the organization. This helps the companies to identify the best customer service, continuous work process improvements, and better use of the company's capacity and capabilities. All three mechanisms help the activities and functions of the supply chain facilities work in a harmonized and efficient way. As a result, product flows more smoothly and in a more predictable manner through the supply chain in the manufacturing sector. The information and communication technology plays a vital role to actualize the supply chain management development. It automates the current manual supply chain processes such as order processing, production tracking, etc. Based on the information we have obtained, the successful coordination carried out by current coordination mechanisms brings huge benefits to the supply chain in the manufacturing sector. The benefits include a reduction in the bullwhip effect, improved supply and demand, reduced inventory, and increased productivity. So, it is important for every company in the manufacturing sector to understand and utilize the relevant coordination mechanisms for a successful and efficient supply chain management. (De Maio & Laganà, 2020) (Panigrahi et al.2022) (Atholere, 2021) (Benrqya2022) (Hu, 2021)

## **RESEARCH METHODOLOGY**

This paper employs a qualitative research approach through a systematic literature review and analysis to explore coordination mechanisms in supply chain management across manufacturing, retail, and service sectors. The study identifies and categorizes key mechanisms such as Vendor-Managed Inventory (VMI), Continuous Replenishment Programme (CRP), and Advanced Planning and Scheduling (APS), among others. Case studies are used to illustrate real-world applications and impacts of these mechanisms. Findings emphasize the importance of sector-specific coordination strategies in enhancing supply chain efficiency and competitiveness.

## **RESULT AND DISCUSSION**

### **Coordination Mechanisms in Retail Sector**

In the retail sector, the Vendor Managed Inventory (VMI) is used most commonly by the industries. In this method, the vendors monitor the buyer's

inventory. When current stock keeping units are lower than a present level, the vendor himself decides how much goods will be supplied and when those goods will be shipped. The primary aim of the vendor managed inventory (VMI) is to minimize the safety stock and it helps to reduce the bullwhip effect. However, a successful VMI requires high level of trust and good communication between the supplier and the customer. Notably, the sharing information between the buyer and the vendor is the most critical factor. The bullwhip effect refers to the fluctuations in orders that increase as it moves up the supply chain from the customer to the distribution center to the manufacturing plant and to the suppliers. The bullwhip effect is not only a common problem in the retail industry, but it also exists among other sectors in the supply chain network. This phenomenon could be mainly attributed to the demand forecast updating, order batching, price fluctuation and rationing and shortage gaming behaviors. In addition to the VMI, efficient customer response (ECR) is another popular coordination mechanism which has been used. In this ECR, the activities that are undertaken by the traders in the market are highly focused on shortening the lead time between the stages of the product life cycle. In efficient customer response modeling, the main concept is "cross docking". It comes when the supplier delivers the product to the distribution center and within a very limited time frame, the goods are put out accord to forwards shipment to the customer. This methodology does not only help to reduce the material handling costs, but it will also shorten the order cycle time. Cross docking is the practice of unloading goods from inbound transportation and loading them in their outboard transportation with no storage in between. It's convenient method for such large-scale retail enterprises. Cross docking and ECR are the two essential and significant elements in achieving strategic and operational excellence in today's demand-driven supply chain networks in the UK retail industry because it has a nation-wide distribution networks. Cross docking technology provides more efficient customer response and it eliminates the need for warehousing and thus reduces the total warehousing costs. (Daniella and Anthony2021) (Taleizadeh et al.2020) (Van and Van2022) (Loro and Mangiaracina2021)

### **Transforming Retail Dynamics: The Adoption and Impact of Vendor Managed Inventory (VMI)**

Vendor Managed Inventory (VMI) between manufacturers and retailers in the UK.

VMI brings a major change in the relationships between manufacturers and

retailers, and it has an impact, both in terms of improved profitability and the way that trading relationships are managed in the UK high street. Traditionally, retailers have replenished the shelves by placing orders for sold items. Nowadays, some large retailers in the UK start to use VMI, through which the automatic replenishment of inventory is achieved by sharing the point-of-sale data with the manufacturers. The basis of VMI is to allow the vendor, the manufacturer, to accept the inventory responsibility of those agreed stock keeping units (SKUs) in the supply chain and to manage the inventory within certain agreed targets, fill rate, and to avoid stock-outs. VMI process defines that the planning and replenishment decision is fulfilled by the vendor. The retailers, to some extent, need to release control of inventory, re-ordering, and stock levels to the manufacturers in the VMI practice. On the other hand, retailers provide the inventory and sales information to the manufacturers to achieve a higher efficiency supply chain operation for both parties. Edgar E. Blanco (2005) also confirms that VMI allows proactivity, initiated by demand from customers, and ensures the order fills rate. (Karimi et al.2022) (Hu, 2021) (Chen et al.2022) (Sha & Zheng, 2023) (Modares et al.2023)

### **The Strategic Value of Production Harmonization: Harmonization of production**

Production harmonization refers to the uniform booking or scheduling of production runs. Typically, the production schedules of different business units are coordinated in a way that their production runs do not occur simultaneously. Instead, the production runs are scheduled in different time periods so that the units work in tandem with one another in the entire supply chain. This is particularly useful in reducing the bullwhip effect, since low variability means that only the actual demand needs to be met. Secondly, because there is a certain lead time between production and delivery, better coordination between production runs and transportation is achievable. As a result, production and transportation costs will go down and customer service levels will increase. Thirdly, for the same set of capacities, a lower safety stock level is sufficient in order to fulfill the desired customer service level. This is because production variability decreases when the production level is close to a constant rate. Therefore, in the supply chain, production harmonization can optimize from the cost, speed, and flexibility perspectives. On the one hand, as the production run size increases, the fixed cost of a run can be spread across a greater number of units, leading to a decrease in production cost. Moreover, a higher production rate



is achievable by reducing the time required for setting up a production run, resulting in a shorter lead time to provide finished goods. On the other hand, by maintaining tight schedules of production and transport links, the products can be manufactured and delivered in a 'fast chain' system which will in turn boost the customer service level. However, it should be noticed that the initial implementation of a harmonized system and its associated information technology may be complex and expensive. Also, unexpected machine breakdowns or shortage of high demand products may jeopardize this type of supply chain optimization. (Benrqya & Jabbouri, 2023) (Turi2023) (Perdana and Arief2021) (Assid et al., 2021) (Klug, 2023) (Feddem et al.2023)

### **Coordination Mechanisms in Service Sector**

In the service sector, there are few factors that mean that the establishments in this sector employ much more flexible forms of production and labor process. Firstly, it is much more difficult to predict demand. Unlike manufacturing or retail, where production or sales can be more easily monitored and therefore adjusted to changes, in the service sector, the customer is physically present for the production process and cannot be stored for future use. In many service industries, especially those concerned with digital services like software or film production, there are very short lifecycles. If there is long development time for a product, like the two years or more for a new car, manufacturers can predict customer demand and plan the release of the new model in a way that suits production and sales. However, in the software or music industries, by the time a new product has been developed and is ready for release, consumer tastes and fashions may have changed, which means the new product may well be launched to an unsatisfied market and so will not do well. Also, the emergence of digital media like CD writers, MP3 players, and shared internet connections has led to illegal online file sharing and mass copying of CDs. This means that music publishers and recording studios have seen their profits fall as people buy fewer CDs and records. This, in turn, has reduced the investment in new bands and artists. As the service sector is growing at a very fast pace, the coordination mechanisms play a vital role not only in fulfilling the customer's needs but also in the effectiveness and efficiency of the supply chain. Currently, incredible advances in coordination technology for supply chains are happening. From the material requirement planning in several years ago to the integrated supply chains in recent years, researchers and engineers are seeking the most effective way to coordinate the entire supply chain. As a result, the service sector is becoming

more and more popular to study. With a different nature from the other two sectors, manufacturing and retail, the service sector offers knowledge workers and information systems and different we see from traditional examples of SCM like Dell Computer. A knowledge worker is someone who works with the information and develops and uses their knowledge as a main part of their job. In the service sector, there is a relatively higher percentage of knowledge workers in which the workers are categorized in the way that they are adding value to the consumer and therefore led to coordination. The approach taken to coordination is quite different in a workplace from that in the TPS, where automation has replaced a lot of the direct worker involvement in the production process. In the service sector, technology can be divided into two parts: information technology and communication technology. More information technology is being introduced in creating innovation in the new coordination mechanisms in the service sector. This technology innovation is being associated with operation. For example, the introduction of Customer Relationship Management systems that are based on electronic databases is considered by many commentators to be a major driver of new operation methods and the way that services management is being studied. The collection and processing of customer information in such systems allow the production of value maps, by which the progress and delivery of service can be charted graphically over time. With this information graph in place, managers are using value mapping methods in the service sector. In services, value mapping often is too complex to produce in full form. However, the principle of creating a guide to the location analysts' challenge, which is offered by value map, has been effectively used. Fong and Choi explained the first of its three steps involved in value mapping, that is to conduct a preliminary data capturing exercise to allow a general schematic of the current processes that are being charted. (Rong et al., 2020) (Novakova, 2020) (Margherita & Braccini, 2023) (Madi et al.2023) (Franco & Landini, 2022) (Altenried2021)

**The Impact of Information Sharing:** The first coordination mechanism is known as "information sharing," which means sharing the real-time demands, sales forecasts, and the inventory level in the supply chain. This level can be lean or responsive. Shirish C. Srivastava and his co-writers suggested that "information sharing reduces demand forecast errors, decreases inventory fluctuations, and improves the product replenishment rate." This can be explained as the process of information sharing, where the demand from the customer will be passed from the downstream level to the upstream level. Through this, each

member in the supply chain will know more about their previous customer and their later supplier, reducing what is called the "bullwhip effect," which is the fluctuation of the order variation that increases when moving toward the starting of the supply chain. This is due to a small fluctuation in demand at the consumer level that increases when that order information is transmitted to the producer. Also, when each member in the supply chain has more information about the demand and the inventory level, they can adjust the production and the inventory level more accurately, meaning they can be closer to the actual need. From these advantages of information sharing, we can understand how useful this mechanism is when facing the occurrence of uncertain demand. At the same time, the inventory level can also be decreased because there is no need for forecasting. Chandra, P. and Kumar, S. stated that the lead time-dependent service level can be improved and achieve greater total profit for the whole supply chain. There is a condition for the information sharing mechanism, which is that all the members in the supply chain should have trust in each other because they must believe the information provided by other parties is correct and arises from liability. Otherwise, the correct and sufficient incentive systems should be used to solve the problem of information asymmetry. Srivastava, meanwhile, has observed that companies in the same supply chain are likely to adopt more advanced IT systems as they move towards complete information sharing. Such a move would include the adoption of "cyber-enabled linkages" to upstream and downstream partner create complete visibility to meet customer needs, such as electronic data interchange (EDI), extranets and intranets, and other software integrations. So, the full potential of information sharing can be achieved with the cooperation and investment of technology in the whole supply chain. (Tliche et al.2020) (Tang et al., 2021) (Zhang & Gong, 2021) (Sarkar et al.2023) (Tadayonrad & Ndiaye, 2023) (Abolghasemi et al.2020)

### **The Evolution of Contractual and Relational Boundedness in the Era of IoT:**

Coordination mechanisms in the service sector, Coordination mechanisms are an important aspect of the service supply chain. The second point of the service sector is "Contractual Boundedness vs. Relational Boundedness". In the paper "An Investigation on Service Supply Chain Coordination in the Age of Internet of Things", Alp Rajab Zuhuray and Anil Kumar Vuppala argue that the developments in the Internet of Things have transformed traditional service supply chain management practices into a more sophisticated and well-informed cyber-physical service supply chain. In the second point, the authors have

particularly focused on the disputes between contractual and relational boundedness. Contractual boundedness is described as the ability to formally control relationship-specific investments through contracts. It is a measure of the degree to which investments can be codified in a formal contract and is important for governing the principal-agent relationship. On the other hand, relational boundedness reflects the power of a relational governance mode to mitigate uncertainty in the investment phase of a business-to-business relationship. As the authors argue, although both boundednesses provide a certain extent of control over investment in the service chain relationship, the development of the Internet of Things takes the disputes to a different level. With the introduction of cyber-physical technology, the equipment and machinery in business environments are interconnected and they share data or inform each other through the internet. This significantly reduces the information asymmetry between the service provider and the customer in a service chain. As a result, there is a much more enhanced relational boundedness that emphasizes the importance of maintaining a stable relationship, as opposed to contractual boundedness, which is largely concerned with the ability to trade in response to opportunistic behavior and to mitigate investment risk. By providing empirical literature and theoretical studies to compare the impact of these two types of boundedness, the authors have skillfully utilized various research strategies in our research. First, the authors cite a number of empirical studies to clearly indicate that the "relational governance mechanism" has shown its dominance over the "formal contractual governance" method in service professions in which the Internet of Things is already being applied. This helps to validate the point that the authors have brought out in the analysis and provide a real-world context for our findings. Secondly, the authors have used theoretical arguments such as "transaction cost economics" to support the idea of "contractual boundedness" and to show the reason why relational boundedness is gaining more weight with the development of the Internet of Things. Such kind of studies that use both empirical and theoretical support will enhance the quality of our research and generalize the findings to a wider audience with confidence. This kind of research design will ultimately reinforce the managerial implications brought out in this research from a well-informed perspective. The authors highlighted that with the well-informed cyber-physical technology, service providers could take advantage of the enhanced relational boundedness and develop a more stable customer relationship. On the contrary, opportunities exist for customers to trade for different services as a result of the

reduction of information asymmetry and the increased customer choices in a connected business environment. (Rejeb et al., 2020) (Rebelo et al.2022) (Koot et al., 2021) (Aryal et al.2020) (Schroeder et al.2020)

### **Navigating Contract-Based Coordination in Supply Chains: Challenges and Opportunities**

In the contract-based approach, there is a master contract that specifies the terms and conditions for the relationship between the supply chain members. This master contract can then be used to outline the contractual terms and obligations for individual contracts, such as the sale and purchase of goods and services. Under a master contract, the parties also typically agree to negotiate in good faith before the commencement of the master contract. This means that if a master contract states that a certain material requirement plan is to be established, then there is an obligation to negotiate the terms of that plan in good faith. If there is a failure to negotiate in good faith, it will give rise to a breach of the master contract. This type of contractual relationship allows the buyer and the seller to share sales and inventory information with stipulated safeguards in the contract. From the seller's point of view, the buyer's demand information may be used to provide the seller with a market signal, based on which the seller can make production and inventory decisions. This could include actions such as the sale of inventory or the undertaking of new production runs. However, contract-based coordination may require certain levels of trust between the parties, given that sharing information under a master contract entails obligations of good faith and an understanding about the interpretation of contract terms. The behavior of supply chain members may lead to costly legal action claims, such as inducement to breach a contract, unwanted and excessive intervention proceedings or tortial liability. Also, there are certain risks arising from contract-based coordination, such as the seller may become too reliant on the buyer's information and does not pay enough attention to his own market analysis. In such a case, if the buyer's information is invalid, the seller may suffer from loss. (Biswas et al.2023) (Vosooghidizaji et al.2020) (Schroback et al.2023) (Sinha and Roy2021) (Dannoun, 2020) (Lim et al.2022)

### **Unlocking Service Supply Chain Potential: The Role of Preferred Agreements**

One of the most significant and widely used coordination mechanisms in the service sector is the use of "preferred agreements" between the members. A preferred agreement can associate some players in the service supply chains with

exclusive treatment rights. Dowlatshahi (2000) defined a preferred partnership as "a long-term formal arrangement in the form of a cooperative relationship where one of the parties has committed to continually purchase a certain percentage or some fixed quantity of goods and services over time from the other member and the supplier is ready to give priority to the partner's order" (Dowlatshahi 2000, p222). The use of such agreement in the service sector is increasing. For example, in the British health service, the private company Gyrus ENT has signed a 3-year preferred supply agreement with the National Health Service in providing medical equipment and services. Over the period of the agreement, Gyrus will give absolute priority to the National Health Service's business. Such agreements only come into effect when a certain member is able to deliver a suitable level of service over a period of time. This, in turn, may lead to positive long-run outcomes of facilitating efficiency and effectiveness within the supply chain. (Kirli et al.2022) (Zheng et al.2021) (Davis & Rhodes, 2020) (Bart et al.2021)

#### **FUTURE RESEARCH DIRECTION**

Here are some potential future research directions based on the exploration of coordination mechanisms in supply chains:

**Emerging Technologies:** Investigate the impact of emerging technologies such as blockchain, artificial intelligence, and Internet of Things (IoT) on coordination mechanisms in supply chains. Explore how these technologies can enhance transparency, traceability, and real-time decision-making across manufacturing and service sectors.

**Sustainability Integration:** Examine how coordination mechanisms can be leveraged to promote sustainability initiatives within supply chains. Explore the role of collaborative agreements in facilitating environmentally responsible practices, circular economy principles, and ethical sourcing.

**Resilience and Risk Management:** Explore how coordination mechanisms can contribute to supply chain resilience and risk management. Investigate strategies for mitigating disruptions, building redundancy, and enhancing agility through collaborative partnerships, information sharing, and contingency planning.

**Cross-Sector Collaboration:** Explore opportunities for cross-sector collaboration and knowledge exchange to enhance supply chain performance. Investigate how coordination mechanisms developed in one industry can be adapted and applied to other sectors, fostering innovation and best practice sharing.

**Customer-Centric Approaches:** Investigate customer-centric coordination mechanisms aimed at improving customer satisfaction, customization, and responsiveness. Explore strategies for integrating customer feedback, demand signals, and preferences into supply chain planning and execution processes.

**Policy and Regulatory Implications:** Examine the impact of regulatory frameworks and government policies on coordination mechanisms in supply chains. Investigate how changes in trade policies, data privacy regulations, and sustainability mandates influence collaborative relationships and information sharing practices.

**Behavioral and Organizational Dynamics:** Explore the role of behavioral factors and organizational dynamics in shaping the effectiveness of coordination mechanisms. Investigate factors such as trust, power dynamics, cultural differences, and incentive structures in driving collaborative behavior and decision-making.

By addressing these future research directions, scholars and practitioners can further advance our understanding of coordination mechanisms in supply chains and contribute to the development of innovative strategies for enhancing supply chain performance, sustainability, and resilience.

## SUMMARY

The comprehensive exploration of coordination mechanisms in supply chains, spanning both manufacturing and service sectors, sheds light on the intricate web of strategies employed to enhance efficiency, reduce costs, and optimize operations. Beginning with an overview of coordination mechanisms such as Vendor-Managed Inventory (VMI), Continuous Replenishment Programme (CRP), and Advanced Planning and Scheduling (APS) in manufacturing, the focus then shifts to the nuances of information sharing, contractual agreements, and preferred partnerships in the service sector.

In the manufacturing realm, VMI emerges as a pivotal tool reshaping relationships between manufacturers and retailers, streamlining inventory management, and mitigating the bullwhip effect. Similarly, CRP and APS revolutionize production planning and scheduling, paving the way for smoother product flows and heightened productivity.

Meanwhile, in the service sector, a paradigm shift is observed with the adoption of preferred agreements, where partners commit to long-term cooperative relationships, ensuring priority treatment and fostering efficiency within supply chains.

## CONCLUSION

The synthesis of research findings underscores the critical role of coordination mechanisms in optimizing supply chain performance across diverse industries. From traditional contractual arrangements to innovative preferred partnerships, each mechanism offers unique advantages and challenges, highlighting the need for tailored approaches to suit specific contexts.

As businesses navigate an increasingly interconnected and dynamic landscape, embracing technological advancements and fostering trust-based relationships will be paramount. By leveraging coordination mechanisms effectively, organizations can enhance collaboration, minimize disruptions, and ultimately, deliver superior value to customers.

Moving forward, continued research and experimentation will be vital in refining existing mechanisms and uncovering novel strategies to address evolving supply chain complexities. Through ongoing collaboration and knowledge sharing, stakeholders can collectively drive innovation and resilience, ensuring sustainable growth in the ever-evolving global marketplace.

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