



STRATEGIC MINDSET CHANGE IN AUTOMOTIVE SUPPLY CHAIN MANAGEMENT

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Abstract

Supply Chain Management (SCM) has evolved from a linear, fragmented approach to a complex, interconnected system that spans the global landscape. As businesses grapple with the challenges of an increasingly volatile and uncertain world, a paradigm shift in SCM becomes imperative. This article explores the transformative power of Wholeness Systems Thinking (WST) as the strategic mindset change required to navigate the modern supply chain landscape. Traditionally, SCM has focused on individual components and linear processes, often leading to inefficiencies, bottlenecks, and vulnerabilities. However, WST supports the perspective of Wholeness, which is directly focused on emphasizing the critical role of the relevant external environment, economic, environmental, and social stakeholders with its significant impact on the performance of the interdependencies of the supply chain and all its parts. This approach recognizes that disruptions or changes in the relevant external environment can have far-reaching consequences throughout the entire chain. Considering systematically relevant external environment (doing right things) is responsible for consuming significantly fewer resources in the performance of supply chain parts and interactions (doing things right). Such an approach requires a change in strategic management of the entire supply chain. A concrete application of strategic mindset change is proposed and tested within the automotive supply chain from the perspective of a 1st tier supplier's procurement department.

Keywords: Systems thinking, Supply Chain Management, Mindset change, Automotive Supply Chain, Procurement

1. INTRODUCTION

Supply Chain Management (SCM) has undergone a remarkable evolution, transitioning from a traditional, linear model to a complex, interconnected system with global reach. As the contemporary business environment becomes increasingly unpredictable and turbulent, there is an urgent need for a paradigm shift in managing supply chains [1]. This article delves into the transformative potential of Wholeness Systems Thinking (WST) as a fundamental shift in mindset necessary to navigate the challenges of modern supply chain management [2]. Historically, SCM has often been confined to addressing individual components and linear processes, frequently resulting in inefficiencies, bottlenecks, and susceptibility to disruptions [3].

WST introduces a novel perspective that emphasizes the paramount role of the external environment, encompassing economic, environmental, and social stakeholders, and its profound influence on the performance of the interwoven elements within the supply chain. This approach acknowledges that alterations or disturbances in the external environment can have far-reaching repercussions throughout the entire supply chain network. By systematically considering the relevant external environment (doing the right things), supply chain parts and interactions can operate with significantly reduced resource consumption (doing things right). Implementing such a strategic shift necessitates transforming how supply chains are strategically managed. This article presents a concrete application of this mindset change, examining its impact within the procurement department of a 1st tier supplier in the automotive supply chain.



2. STRATEGIC MINDSET CHANGE IN SUPPLY CHAIN MANAGEMENT

The current worldwide market conditions demand a strategic supply chain management mindset change to address the challenges of globalization, market volatility, technological advancements, sustainability concerns, complexity, resilience, and changing customer expectations [4]. To pick the most relevant one, firstly, the volatility and uncertainty of market conditions must be stressed. Secondly, environmental sustainability is now a major concern for businesses and consumers. A change in a strategic supply chain management mindset is crucial to integrate eco-friendly practices, reduce waste, and address sustainability goals. Rapid changes in consumer demand, economic conditions, and geopolitical factors can disrupt supply chains. A new mindset is required to be agile and responsive to these fluctuations. Embracing a more wholistic and systems-oriented approach is crucial to adapt to the evolving landscape of global supply chains. Wholistic, not holistic, is used here in the sense of better understanding and relation of the phenomenon rather to the Whole than the hole [5].

2.1 The fundamental Mindset Change – Wholeness Systems Thinking (WST)

Two approaches to systems thinking will be explained further. **Reductionist Systems Thinking (RST)** departs from the traditional reductionist perspective, which regards the whole as nothing more than the sum of its individual parts. Instead, RST defines the performance of the system's components and their connections, as seen in the supply chain (comprising production and logistics value-added components), as the sum of the highest achievable individual part performance, along with the contributions of their interactions (such as the maximum potential performance of production and logistics processes in supply chain management). The techniques for assessing the efficiency of the fundamental system components and their connections are examined and integrated, as depicted in **Figure 1**, as RST pyramids. The prevalent approach to systems thinking in economics is called Reductionist Systems Thinking. It involves integrating the interactions of individual components into the overall perception of the system. In this framework, the system's purpose is derived from the collective contribution of its individual components and the relationships between them. The analysis of such a system is closely tied to synthesizing its parts and interactions to optimize the system's performance as a whole [2].

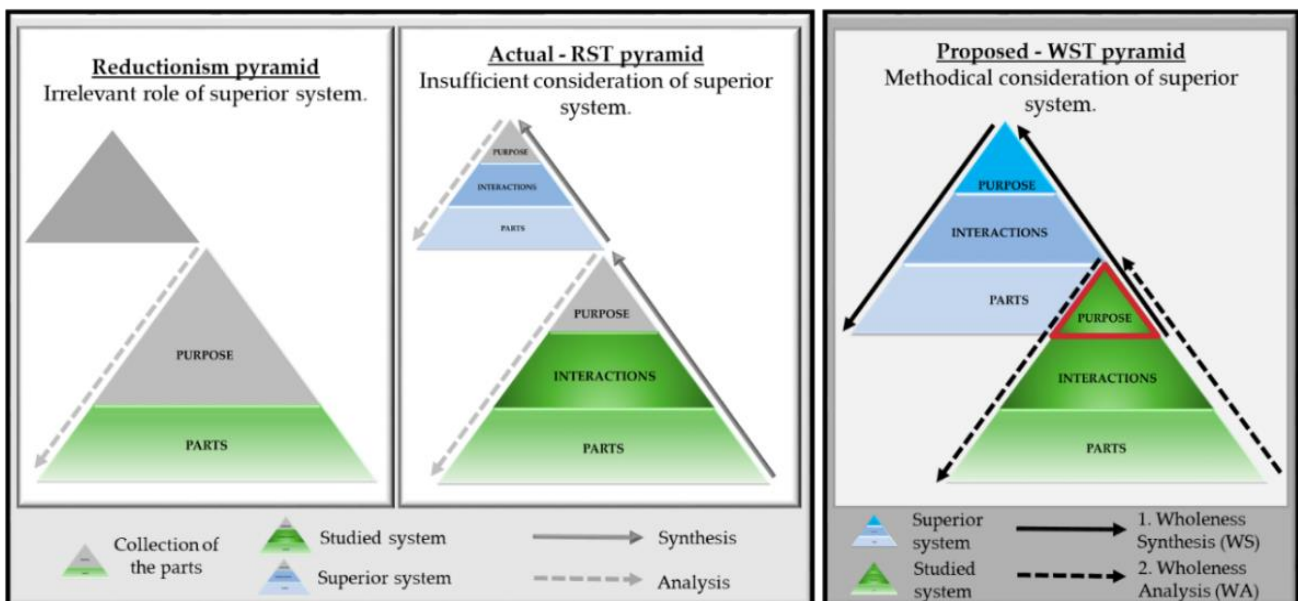


Figure 1 RST Reductionism Systems Thinking, WST Wholeness Systems Thinking [2]



Wholeness System Thinking (WST) establishes the purpose of the system by looking to a superior system that encompasses the system under examination. Consequently, the system's aim under scrutiny, whether it's a company or its supply chain, isn't solely about achieving maximum individual part performance and their connections (maximizing profit or minimizing cost). Instead, it revolves around attaining the level of performance required by the higher-level system within supply chain management, which consists of end customers or customers in the subsequent stages of production and supply. This higher system seeks maximum satisfaction. Therefore, the objective for the individual parts and their interactions is not merely to minimize cost but to achieve an optimal and meaningful cost. This meaningful cost is defined by the higher-level system that sets the purpose, aiming for the ideal efficiency and performance of the components and their interactions. To investigate the purposefulness of the system under study, the Wholeness Synthesis (WS) method is employed. This systematically derived purpose is then realized through the Wholeness Analysis (WA) method, optimizing the efficiency of the components and interactions within the studied system, as depicted in **Figure 1**. Therefore, WST encompasses two key components: Wholeness Synthesis (WS) and Wholeness Analysis (WA) [2].

2.2 SCM in Automotive – the actual situation

2.2.1 Company Introduction

The researched company has a 140+ years history of operating in the global automotive business. It serves as a TIER 1 supplier of products and services to all major OEM car manufacturers in all relevant markets globally. It has on average 7 billion € yearly turnover and 25 thousand employees. The company communicates its purpose through its vision, mission, and corporate values. A common message coming out is how the company makes tomorrow's mobility lighter, safer, and more sustainable. Vision formulates where the company wants to go until the year 2025. It is defined as follows: "Having overcome the challenges from COVID-19, the semiconductor shortage, and inflation, the company will emerge as a financially sound, highly competitive, and agile Metal Processing Specialist. We will have an order book which provides profitable and sustainable growth above market. Our financial performance provides us with the basis for being in control of our future. Together, we develop solutions that make the difference – for our customers, employees, and society" [6]. The company's mission completes the organization's purpose by describing what drives the company. It says: "The company is passionate about making a difference by providing first-class expertise and solutions in metal forming and processing for the automotive, industrial, and energy sector" [6]. Corporate values are defined by Courage, Ambition, and Respect. Courage is meant to be able to break new ground with curiosity and take responsibility for making decisions. Ambition indicates striving for excellence daily, while Respect is about working together appreciatively and communicating openly and honestly.

2.2.2 Methods for Actual Status Analysis

Semi-structured interviews have been chosen as the method of the research. To evaluate the results of semi-structured interviews, a qualitative empirical search based on participants' observations and measurements directly experienced was chosen [7].

All interviews have been held in person or through video call via Microsoft Teams, took between 30 to 45 minutes, and have been recorded to ensure the accuracy in transcribing the answers. In one case, an interview with the VP of operations took 60 minutes. The main purpose of the interview was explained to each person before the interview started. Interviews were recorded. After transcribing the interviews, the most relevant codes were defined – according to the frequency of actual factors and the relevance of the information in relation to the subject and goal of the research 12 codes were discovered, according to which the interviews were subsequently transcribed and analyzed. The following codes were chosen: Supplier delivery security, Best cost, Meeting quality standards, Strategic supplier panel optimization, Internal alignment, Risk management, Supplier management (including escalations), Operational cooperation (daily business including



escalations), Strategic Cooperation, Communication, Understanding of Procurement responsibilities & contacts, Directed buy. Interview questions were supported with ad-hoc complementary questions that appeared as relevant during the interview process. The list of questions contained four defined fields: Main tasks of procurement, Cooperation with procurement, Cooperation improvement possibilities, and Further comments.

2.2.3 Qualitative analysis results

The existing company processes lean toward a mindset where each department operates in isolation. Each department sets its own Key Performance Indicators (KPIs) and goals, which are closely tracked independently, see **Figure 2**. This setup does not allow for the flexibility to shift focus if external factors change, and it's concerning because in today's volatile, uncertain, complex, and ambiguous VUCA [7] world, change is the only certainty. Often, the KPIs of different departments contradict each other. Departments are narrowly focused on their functions, prioritizing their individual KPIs, sometimes even having their own financial reporting structures. This results in different numbers being presented for the same critical topics. Agreement on the fundamental aspects of these topics takes time, which should ideally be automatic. Consequently, internal audits are necessary, but these could be minimized through better alignment.

Individual department goals don't align with the company's mission, vision, and values in several cases. Research has shown a lack of awareness of systemic thinking within the company. During interviews, respondents often fail to consider the perspectives of other departments. When asked how cooperation between their department and the procurement department could be improved, more than 50% of responses were given from a single department's point of view. The reactions focused on what procurement should change or do better. While the company's mission, vision, and values are defined and accessible to employees, their familiarity with them is limited. Even when departments know these, their understanding and integration into daily work are not readily apparent.

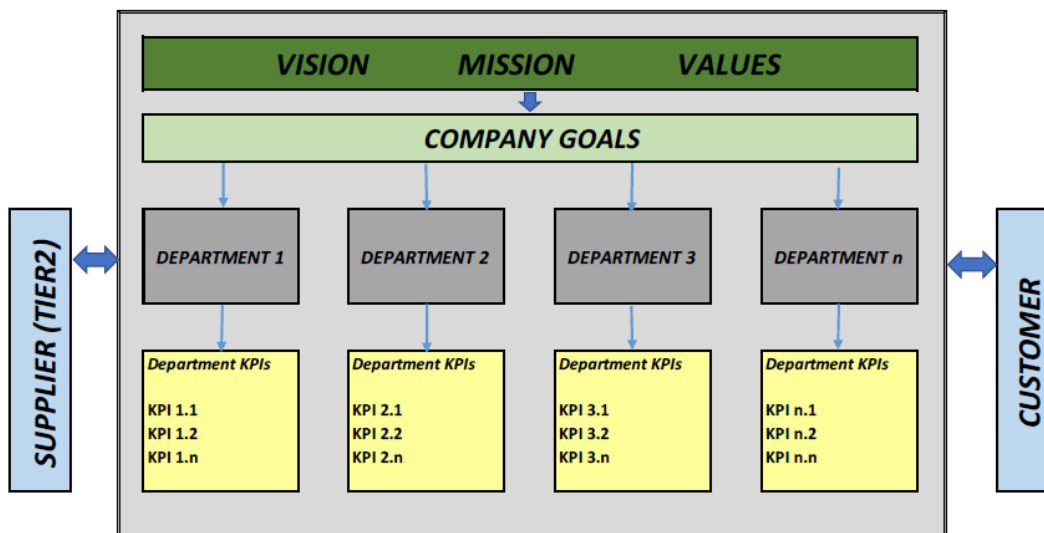


Figure 2 Current system design in the company [6]

The company places strict adherence to financial budgets and rule-following as its top priority. Decisions are often made with a short-term perspective, influenced by the company's financial structure. It's common to see that if an item wasn't budgeted, it's unlikely to get approval for spending. This "I do not have it in the budget" mindset restricts flexible collaboration and innovative ideas. The department that stays within its budget is often hailed as successful. Questions like, "Was the budget accurately prepared?" or "Did it consider all



necessary aspects?" or "Would it be better to react differently because the market has changed since we planned?" are not asked frequently.

2.3 WST providing PURPOSEFUL Mindset Change of automotive SCM

WST has the transformative power to cultivate a Purposeful mindset change within an organization. This approach encourages a wholistic view of the company's mission, vision, and values, shifting the focus from isolated departmental objectives to a collective understanding of the organization's broader purpose. It prompts individuals at all levels to ponder fundamental questions, such as "Why does the company exist?" and "What is necessary to ensure its long-term sustainability?" This exploration leads to a deeper connection with the company's mission and values, fostering a sense of shared purpose among employees. It ensures that the company's objectives are not just profit-driven but encompasses its societal and environmental impact, instilling a sense of responsibility and meaning in daily work [2].

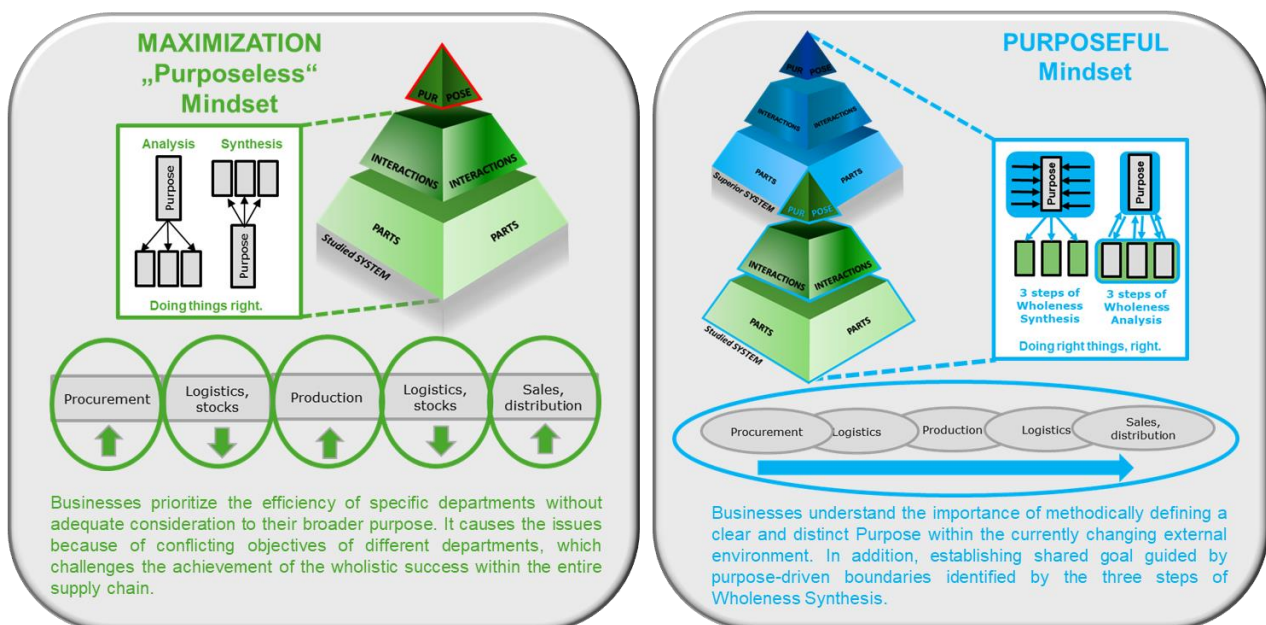


Figure 3 MAXIMIZATION vs. PURPOSEFUL Mindset in Strategic SCM decision making

WST also encourages collaborative alignment across departments, breaking down silos and promoting a systems approach to problem-solving [2]. By integrating various functions and fostering effective communication, the organization can respond more flexibly to changing external factors and disruptions. This, in turn, empowers employees to see the interconnectedness of their actions and understand how they contribute to the company's broader goals. The result is a Purposeful mindset that prioritizes value creation for both internal and external stakeholders, ultimately enhancing the company's ability to navigate the complexities of the modern business landscape with a clear sense of Purpose and unifying goals, as seen in **Figure 3**.

When further exploring systems thinking to define the company's new system design, there are advantages in merging two or more departments to enhance communication efficiency, alignment on priorities, and the translation of value generation at supplier facilities. Notably, the Supplier Quality Engineering (SQE) department could be integrated with the procurement department, and this merging potential extends further [8]. For instance, the logistics department, which significantly influences procurement processes by controlling material flow from suppliers through the company to end customers, could also be merged with procurement.

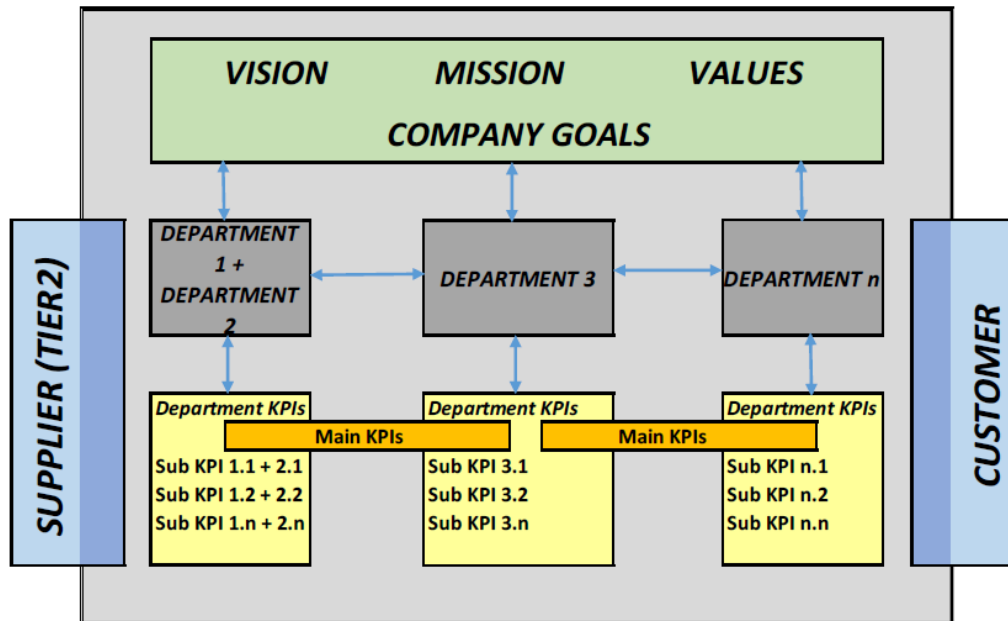


Figure 4 Proposed system design in the company [6]

The logic behind the KPI definition should be challenged to further develop this proposed design. Two types of KPIs are suggested. Main KPIs are mandatory to achieve and pass through two or potentially more departments, visualized in **Figure 4**. This minimizes disputes among departments regarding KPI priorities. Sub-KPIs, on the other hand, are unique to each department due to their distinct tasks. Importantly, Sub KPIs can be adjusted when the situation demands flexibility to respond to a changing environment. Main KPIs remain unchanged, ensuring sustainable commitment based on common alignment.

Improving information exchange with suppliers and customers is another crucial aspect of applying systems thinking in the new model. Unlike the current approach, it is strongly recommended to communicate not just single procurement department-driven strategies or commitments to suppliers but those that must have been confirmed with customers beforehand. While this might appear less flexible, aligning information among the supplier, customer, and the company enhances its quality and reduces repetition or correction, ultimately conserving resources.

Another significant point is to ensure two-way communication throughout the design [9]. Employees at all levels, from entry-level to top management, communicate in both directions and consider inputs when making decisions. KPIs are defined based on departmental agreements, departments maintain mutual communication, company goals are determined with inputs from both top-down and bottom-up directions, and the company's vision incorporates inputs from departments and customers.

3. CONCLUSION

The need for WST is unmistakable and pressing in automotive supply chain management. The automotive industry operates in a dynamic, ever-changing landscape of volatility, uncertainty, and multifaceted challenges. Traditional linear, department-centric approaches have proven inadequate in the face of this complexity. WST offers a promising solution by emphasizing a wholistic view of the supply chain ecosystem. It promotes a mindset shift that recognizes the interconnectedness of all components, from suppliers, logistics services providers, procurement to logistics, to manufacturing, distribution, and more.

Strategic decision-making within automotive SCM is far more effective when driven by a unified Purpose. WST encourages all departments to align their objectives with the company's stakeholder's requirements described



in companies' statements such as Mission, Vision, and Values. This alignment fosters collaboration, enabling departments to function seamlessly and cohesively in pursuit of shared goals. Furthermore, this approach ensures that key performance indicators (KPIs) are interrelated, reducing conflicts and enhancing synergy among various functions. The practical benefits of WST are evident in its ability to adapt swiftly to changing market conditions, reduce the risk of misalignment and silo thinking, and enhance communication between departments, suppliers, and customers.

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