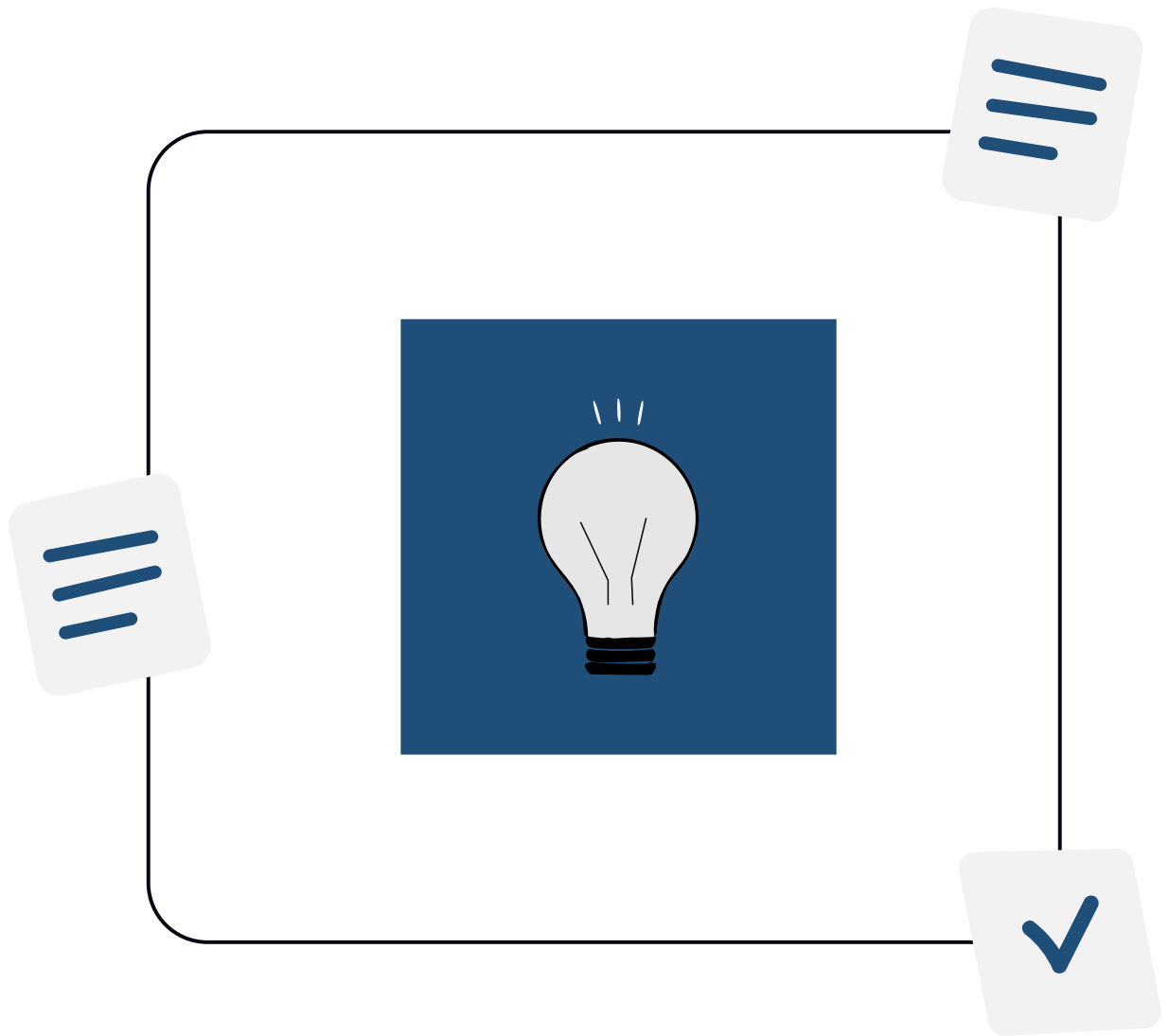




Strengthening the Perspectives on Supply Chain Viability

Report 0

Supply Chain Management in Three Economic Cycles

For decades, global supply chains have been driven by cost efficiency¹. Many companies optimized their resources and processes to deliver products and services at the lowest possible cost, often by outsourcing production to low-cost regions and minimizing inventory levels through lean management practices. This approach is effective in reducing costs and ensuring short-term profitability under stable and predictable operating conditions. However, it has also led to increased complexity and vulnerability within supply chains.

The vulnerabilities of cost-efficient supply chains became clear in recent years during global disruptions like the COVID-19 pandemic. For example, the semiconductor shortage affected various industries, from automotive to electronics, revealing how over-reliance on cost-efficient but fragile supply chains leads to significant operational risks. This crisis, along with other disruptive events like the Suez Canal blockage and the Russia-Ukraine conflict, highlighted the need for resilience in supply chains.

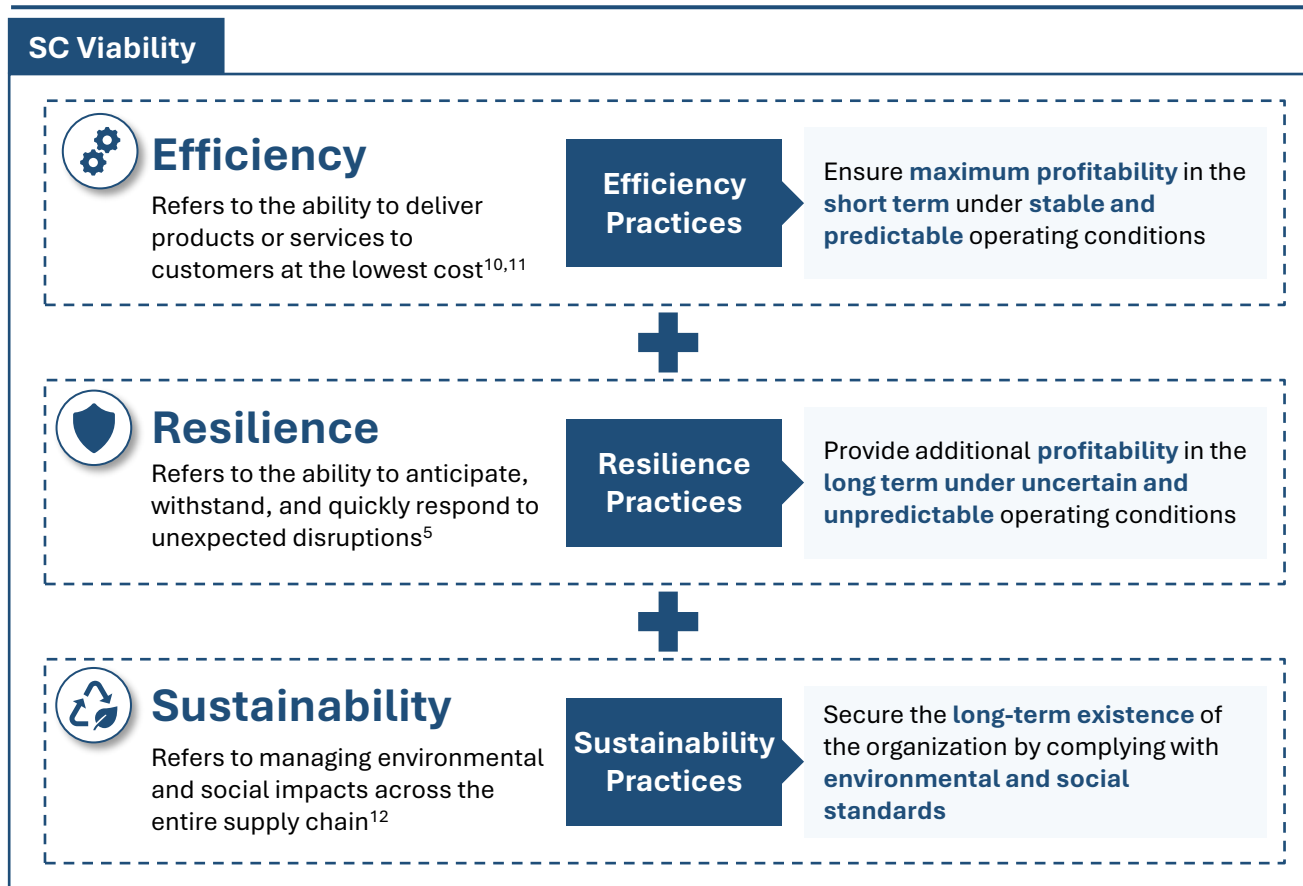
As a result, supply chain resilience has gained prominence, with organizations striving to build more robust systems capable of withstanding disruptions. Strategies like diversifying suppliers, increasing inventory levels, and adopting more flexible logistics operations became popular to safeguard operations against unforeseen events. Consequently, responsible organizations should build supply chain resilience complementing efficiency to ensure profitability in the long term and under uncertain and unpredictable operating conditions¹. However, as crises eased and the economic downturn worsened, a noticeable shift back towards prioritizing cost efficiency emerged².

The current challenge is to balance between cost and resilience while considering the growing importance of sustainability. This third dimension complements the other two and ensures the long-term existence of the supply chain by adhering to environmental and social standards (see Figure 1).

The Factors to be Considered

Many factors create both opportunities and risks for supply chains. In purposeful supply chain management, companies can employ strategies to take advantage of opportunities while mitigating negative risks. These strategies focus on improving efficiency, resilience, and sustainability at the same time.

Figure 1
Elements of Supply Chain Viability



Supply Chain Efficiency

In supply chain management, efficiency refers to the ability of a company to optimize its resources and processes to deliver products or services cost-effectively^{10,11}. The top strategic priority for most procurement departments in 2022 was – and still is – cost reduction³, thus increasing the level of supply chain efficiency. This includes minimizing waste, reducing lead times, and streamlining operations to maximize profitability under stable and predictable conditions. However, focusing too much on efficiency can create rigidity, making the supply chain vulnerable to disruptions.

Supply Chain Resilience

Resilience is the ability of a supply chain to prevent, respond to, and recover from unexpected disruptions⁴. According to a recent study by McKinsey⁵, on average, a supply chain disruption lasting at least one month occurs every 3.7 years. The average losses due to disruptions correspond to 4.2% of annual EBITDA. As a result, 93% of all managers plan to increase their supply chain resilience.

This includes proactive risk avoidance, synchronous responses to manage ongoing crises, and reactive strategies to return to normal operations swiftly⁴. Resilience ensures that a company can maintain operations and meet customer demands even under adverse conditions.

Supply Chain Sustainability

The purchasing behavior and decisions of 71% of consumers worldwide have shifted towards buying more sustainable products over the past five years⁶. Legislations are also catching up with supply chain laws such as the approved directive on corporate sustainability due diligence (CSDDD) by the European Union. Furthermore, with the increasing pressure of climate change, nations have committed to becoming carbon neutral to achieve net-zero greenhouse gas targets. The big levers are therefore in the business sector and thus in corresponding supply chains, as the impact of end-to-end supply chains on emissions is more than five times greater than that of a company's own activities⁷.

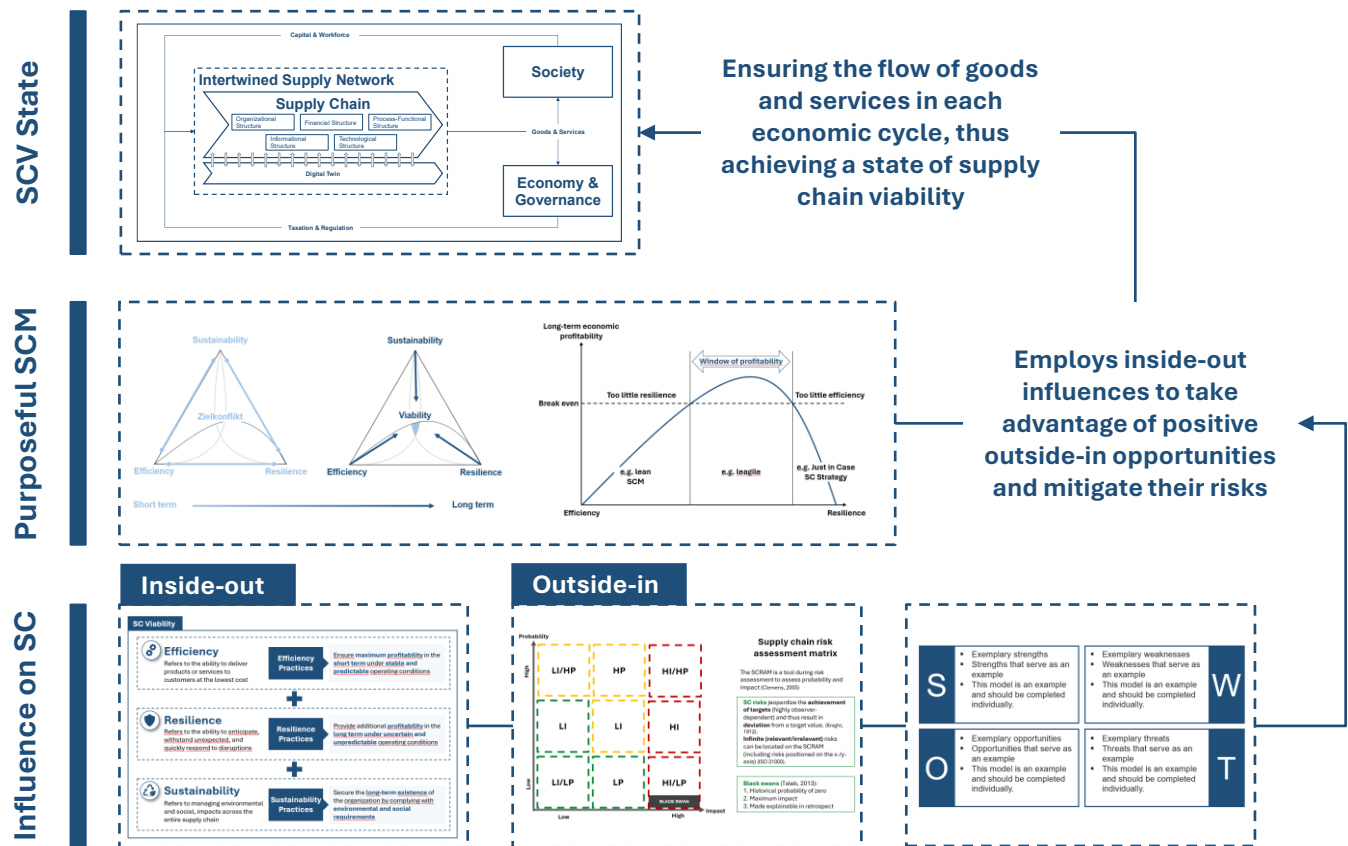
As the general focus on environmental and social issues intensifies, sustainability must become a key consideration in supply chain management. Sustainable supply chains are consequently designed and managed with a focus on minimizing environmental impact and upholding social responsibility¹². This involves reducing carbon emissions, ensuring fair labor practices, and sourcing materials responsibly. Sustainable practices not only help to protect the environment but also contribute to the long-term viability of the supply chain by meeting the increasing demands of consumers and regulators for ethical operations.

Towards the Concept of Supply Chain Viability

Purposeful supply chain management focuses on long-term goals. While short-term conflicts between internal strategies may arise, a balance must be struck in the long term. The balance ensures the flow of goods and services through all economic cycles, leading to Supply Chain Viability (SCV)¹.

SCV is the concept that integrates efficiency, resilience, and sustainability within supply chain management. It represents the next logical and inevitable step in the evolution of supply chain strategy, moving beyond cost-focused approaches to a balanced model for the complexities and challenges of today's global environment.

Figure 2
Reference model of Supply Chain Viability



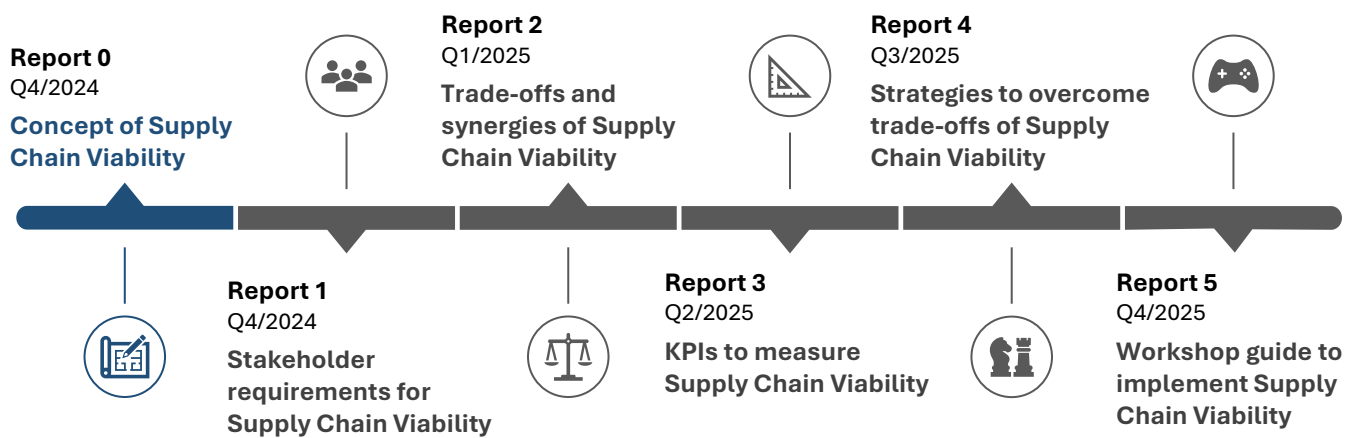
The reference model of SCV (see Figure 2) is based on the idea that a viable supply chain must achieve a dynamic balance between efficiency, resilience, and sustainability. This balance constantly adapts to external changes, such as economic conditions, technological advancements, and regulatory pressures.

A Series of Reports to Solving the Conundrum

The University of St.Gallen and the Bern University of Applied Sciences are investigating future strategies for achieving SCV together with the implementation partners Oracle and Kearney and other companies and organizations. Funded by Innosuisse (Swiss Innovation Agency)⁹, selected results will be published in a series of reports (see Figure 3):

Report 1: Strengthening the focus on SCV starts with understanding the different requirements and expectations of internal and external stakeholders regarding efficiency, resilience and sustainability in supply chains. By mapping these stakeholder needs, organizations can begin to align their SCV efforts with the expectations of partners, suppliers, regulators, and customers.

Figure 3
Roadmap of the report series



Report 2: The second report shows tangible synergies and trade-offs in the implementation of SCV. Various groups of synergies and trade-offs are placed in the context of planning, sourcing, manufacturing and delivery.

Report 3: In the third report, measurable Key Performance Indicators (KPIs) for SCV are presented. These KPIs help to assess how effectively an organization is balancing efficiency, resilience, and sustainability. By establishing metrics, companies can track their progress and make data-driven decisions to improve supply chain operations over time.

Report 4: As organizations progress in their SCV journey, they must manage the trade-offs between efficiency, resilience, and sustainability. The fourth report focuses on strategies for effectively harmonizing these tradeoffs to ensure that no single aspect is prioritized at the expense of others.

Report 5: The final report focuses on the implementation of SCV strategies through workshops. It provides organizations with tools and workflows to train their teams. Workshops allow teams to test their strategies, explore potential outcomes, and refine practices in a dynamic, interactive setting.

The report series will be published on the project website:

<https://www.sc-evolution.ch/>

References

- [1] Ivanov, D. (2022). Viable supply chain model: integrating agility, resilience and sustainability perspectives—lessons from and thinking beyond the COVID-19 pandemic”, *Annals of Operations Research*, Vol. 318, pp. 1411–1431, DOI: 10.1007/s10479-020-03640-6.
- [2] Zemmrch, L., Buchhauser, M., Stickler, N., von Grünigen, B. (2023). The Procurement Initiative. Pulse Check Q1/2023. The Procurement Initiative.
- [3] Fischer, N., Roux, A., Haas, F., Platsch, A., Carradine, I., Tué, F., Schäfer, L., Meintrup, J. (2022). PwC Global Digital Procurement Survey. PwC.
<https://www.pwc.com/gx/en/services/consulting/digital-procurement/pdf/PwC-digital-procurement-survey-4th-edition-2022.pdf>
- [4] Ali, A., Mahfouz, A., & Arisha, A. (2017). Analysing supply chain resilience: integrating the constructs in a concept mapping framework via a systematic literature review. *Supply Chain Management: An International Journal*, 22(1), 16–39.
<https://doi.org/10.1108/SCM-06-2016-0197>
- [5] Lund, S., Manyika, J., Woetzel, J., Barribal, E., Krishnan, M., Alicke, K., Birshan, M., George, K., Smit, S., Swan, D., Hutzler, K. (2020). Risk, resilience, and rebalancing in global value chains. McKinsey Global Institute.
<https://www.mckinsey.com/capabilities/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains#/>
- [6] Jain, S., Hagenbeek, O. (2022). 2022 Global Sustainability Study: The Growth Potential Of Environmental Change. Simon-Kucher & Partners. <https://www.simon-kucher.com/en/insights/2022-global-sustainability-study-growth-potential-environmental-change>
- [7] Walter, G., Knizek, C., von Koeller, E., O’Brien, C., Hardin, E., Young, D., Orimo, M., Cordes, F. (2020). *Your Supply Chain Needs a Sustainability Strategy*. Boston Consulting Group.
<https://www.bcg.com/publications/2020/supply-chain-needs-sustainability-strategy>
- [8] Henrich, J., Li, J., Mazuera, C., Perez, F. (2022). Future-proofing the supply chain. McKinsey & Company.
<https://www.mckinsey.com/~media/mckinsey/business%20functions/operations/our%20insights/future%20proofing%20the%20supply%20chain/future-proofing-the-supply-chain.pdf?shouldIndex=false>
- [9] Innosuisse. Swiss Innovation Agency (2024). Retrieved on October 9, 2024.
<https://www.innosuisse.admin.ch/en>
- [10] Negi, S. (2020). Supply chain efficiency framework to improve business performance in a competitive era. *Management Research Review*, 44(3), 477–508.
<https://doi.org/10.1108/MRR-05-2020-0272>
- [11] Mooney, S. (2019), “5 Tips for efficient supply chain management”. Inbound logistics.
<https://www.inboundlogistics.com/cms/article/5-tips-for-an-efficient-supply-chain-management/>
- [12] Martins, C.L., Pato, M.V. (2019). Supply chain sustainability: A tertiary literature review. *Journal of Cleaner Production*, 225, 995–1016.DOI: 10.1016/j.jclepro.2019.03.250

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