


Supply chain resilience in supplier management in the Finnish energy industry

9th January 2023

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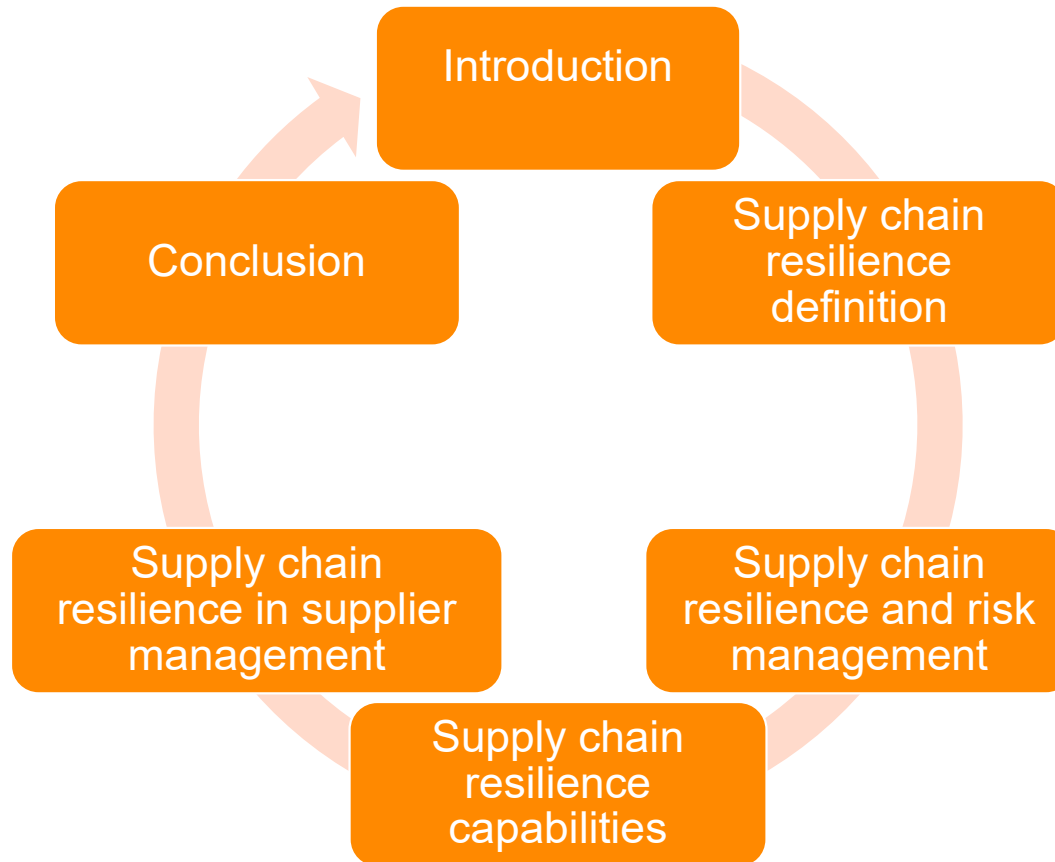
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Introduction

- Doctoral student, Industrial Engineering and Management, University of Oulu, 2021-
- Education
 - Master of Science (MSc), Industrial Engineering and Management, University of Oulu, 2021
 - Master of Engineering (MEng.), Logistics, Jyväskylä University of Applied Sciences, 2017
 - Bachelor's degree, Logistics Engineering (BSc.) Jyväskylä University of Applied Sciences, 2006
- Work experience
 - Supply Chain management and development, 10 years
 - Manager and specialist positions in ICT industry, 6 years (Nokia Siemens Networks)
 - In addition experience from procurement lecturer tasks, strategic procurement and customer relationship management in different companies.
 - Key Account Manager responsible for corporate customers, 5 years (OP Suursavo)



Content of the lecture





Learning objectives

- Understand the definition of supply chain resilience (SCRes) and its role in risk management
- Understand what kinds of capabilities develop supply chain resilience (SCRes)
- Understand how supply chain resilience is promoted in supplier relationship management (SRM).





What is supply chain risk?

- “There are risks in the supply chain when unexpected events might disrupt the flow of materials on their journey from initial suppliers through to final customers.”
- Internal risks
 - Manufacturing risks
 - Business risks
 - Planning and control risks
 - Mitigation and contingency risks
- External risks
 - Demand
 - Supply risks
 - Environmental risks
 - Business risks

References:

<https://www.mckinsey.com/capabilities/operations/our-insights/a-practical-approach-to-supply-chain-risk-management>

<https://global.hitachi-solutions.com/blog/supply-chain-risk-management/>

Isopoussu, A. 2020. Supply chain resilience: capability factors and analysis of case companies [online]. Thesis. University of Oulu



Known risk and unknown risks

- Known risks: can be identified, measured and managed e.g supplier financial crisis
 - Risk identification and documentation
 - Management framework
 - Risk monitoring
 - Setting up a governance
 - Regular reviews
- Unknown risks: difficult to predict e.g earthquakes, volcanic eruptions
 - Commit organization to identify and prevent risks
 - Risk aware culture including e.g. acknowledgement, transparency and responsiveness

References:

<https://www.mckinsey.com/capabilities/operations/our-insights/a-practical-approach-to-supply-chain-risk-management>



What kinds of risks are related to suppliers and supplier management? Examples

- Long delivery times
- Product quality problems
- Lack of employee competence
- Resource availability problems
- Material availability problems
- Logistics problems
- Global disruptions: volcanic eruptions, tsunamis, earthquakes etc.
- Financial risks
- Problems with information flow
- Poor supplier management and lack of systematic management model
- Poor risk preparedness and lack of Business Continuity Plan (BCP)



Topical news about disruptions affecting supply chains

Even Small Volcanic Eruptions Could Create Global Chaos

Relatively minor meltdowns might destroy underwater cables and disrupt vital industries, scientists say, creating a cascade of economic misery.



Photo: The Associated Press. Updated photo from 10/20/21. It is part of a series. A volcano, surrounded by the ash and a plume of smoke from an eruption, is seen from a distance. PHOTOGRAPHY: JELLY DRAKES

How COVID-19 is Impacting Global Supply Chains & How Companies Can Cope

Thursday, October 21, 2021

Despite the positive impacts of ongoing safety measures and the development of effective vaccines, global supply chains are continuing to face unprecedented logistical challenges because of the COVID-19 pandemic. Since the emergence of the coronavirus in early 2020, supply chains across the world drastically slowed down for a variety of reasons, including but not limited to disrupted shipping lanes, labor and material shortages and fluctuating demand. **Every sector of the economy is affected** to some degree, most notably the automotive, tech and medical supply industries.

Global markets face many unknowns as the supply chain returns to normal. The impacts of COVID-19 are **far reaching**, and it is difficult to determine precisely how long the disruptions will last. Further, late deliveries or no supplies of materials or labor presents a number of legal implications, and many companies affected by the disruptions are looking for guidance on how to proceed.

How Has COVID-19 Impacted the Global Supply Chain?

Supply Chain Management

Global Supply Chains in a Post-Pandemic World

Companies need to make their networks more resilient. Here's how, by Willy C. Shih

From the Magazine (September–October 2020)

SUPPLY CHAIN MANAGEMENT

Fukushima earthquake hits automotive and semiconductor supply chains

By Marcus Williams | 16 February 2021

An earthquake has struck the the north-east coast of Japan, near Fukushima Prefecture, almost ten years since the area was devastated by a much stronger earthquake and tsunami that took 19,000 lives and led to global supply chain disruption.



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MARKETS

The ship that blocked the Suez Canal may be free, but experts warn the supply chain impact could last months

PUBLISHED MON, MAR 29 2021 4:00 PM EDT | UPDATED MON, MAR 29 2021 4:28 PM EDT

Peter Rivera

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KEY POINTS

- The Ever Given, the massive container ship that was horizontally wedged in the Suez Canal blocking off all traffic for nearly a week, was freed on Monday.
- Experts warn that the impacts from the shutdown of one of the world's busiest waterways will reverberate through supply chains.
- In 2020, more than 50 ships per day on average passed through the 120-mile long waterway, accounting for around 12% of global trade.



Details **Subscribe**

10:07 AM EDT | Updated March 29, 2021

For professional clients only. Quoted as of:

LYXOR

The race to Net Zero: How to navigate a new world of climate commitments

As tens of millions of voters around Europe and the world tuned into the Euro 2020 football competition this summer, their eyes may have been told to look closer on the pitch-side billboards.

Learn more

ECONOMY

Supply chain chaos is already hitting global growth. And it's about to get worse

PUBLISHED MON, OCT 19 2021 4:28 AM EDT | UPDATED TUE, OCT 19 2021 3:18 PM EDT

Willy Shih

SHARE f t in

KEY POINTS

- Thanks to the rollout of coronavirus vaccines, the global economy is slowly starting to emerge from the Covid-19 pandemic.
- But the pandemic has left one very destructive issue in its wake: disruption to global supply chains.
- The rapid spread of the virus in 2020 prompted shutdowns of industries around the world.

TV **Squawk on the Street**

UP NEXT: TechCrunch 10:50 AM ET

VIIMEINEN TILAISUUS SÄÄ 50% PYSYVÄ TÄRJOUKSEN PALATTUMIS 00:07:12 HIBOMAX

Oulun yliopisto



Links to articles in previous slide:

<https://www.wired.com/story/even-smaller-volcanic-eruptions-could-create-global-chaos>

<https://www.cnbc.com/2021/03/29/suez-canal-is-moving-but-the-supply-chain-impact-could-last-months.html>

<https://www.automotivelogistics.media/supply-chain-management/fukushima-earthquake-hits-automotive-and-semiconductor-supply-chains/41598.article>

<https://www.cnbc.com/2021/10/18/supply-chain-chaos-is-hitting-global-growth-and-could-get-worse.html>

<https://hbr.org/2020/09/global-supply-chains-in-a-post-pandemic-world>

<https://www.natlawreview.com/article/how-covid-19-impacting-global-supply-chains-how-companies-can-cope>



All the crisis can't be predicted or mitigated → supply chain resilience is required in whole supply chain.





Supply Chain Resilience (SCRes)

- Ability to tolerate and recover fast from crisis and disruptions
- Ability to adapt to new normal after crisis, disruptions or changed circumstances
- Ability to react changes
- Ability to identify potential problems proactively, monitor them and learn from experienced problems

References:

Jesse, B.J., Heinrichs, H.U. & Kuckshinrichs, W. 2019. Adapting the theory of resilience to energy systems: a review and outlook [online]. *Energy, Sustainability and Society*, 9 (27), pp. 1-19.

Bento, F., Garotti, L. & Mercano, M.P. 2021. Organizational resilience in the oil and gas industry: A scoping view [online]. *Safety Science*, <https://doi.org/10.1016/j.ssci.2020.105036>



Importance of supply chain resilience (SCRes)

- Supply chain resilience (SCRes) is essential capability to keep up the performance in case of disruptions, crisis or problems in supply chain.
- All crisis or disruptions are not preventable or predictable
 - Different capabilities in buyer companies and suppliers are needed to enable fast recovery from crisis.
- There is a wide variation between companies in Finland how prepared or resilient they are in crisis situations → supply chain resilience need to be developed!

References:

Christopher, M. & Peck, H. 2004. Building the Resilient Supply Chain [online]. The International Journal of Logistics Management, 15 (2), pp. 1–14.

Scholten, K., Stevenson, M. and Donk, D.P. 2019. Dealing with the unpredictable: supply chain resilience. International Journal of Operations & Production Management, 40 (1), pp. 1-10.

Business Finland 2021



SCRes and risk management

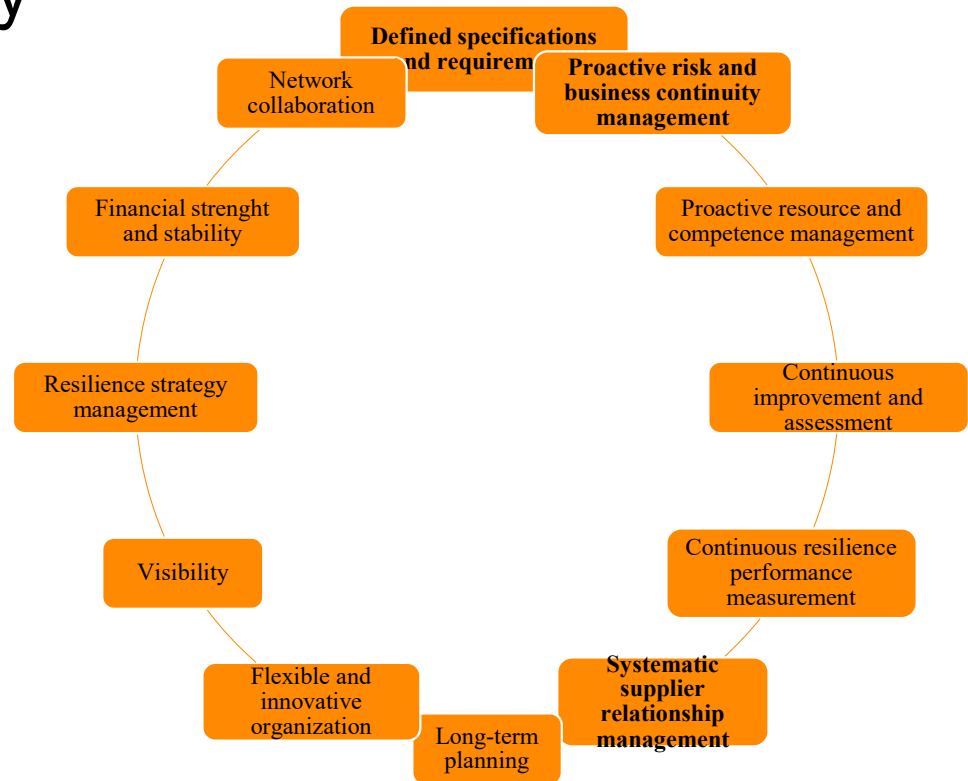
- Supply chain resilience (SCRes) is a tool for supply chain (SC) risk management.
- Supply chain resilience (SCRes) requires systematic, proactive risk management in collaboration with suppliers and other stakeholders
- When risks are better identified and prepared, supply chain resilience (SCRes) is improved.

Reference: Adobor, H. 2020. Supply Chain resilience: and adaptive cycle approach [online]. The Internal Journal of Logistics Management, 31 (3), pp. 443-463.



Supply chain resilience (SCRes) capabilities in the Finnish energy industry

- Capabilities are developed and managed in buyer company and in supplier companies through whole supply chain.





Defined requirements and specifications

- Defines what suppliers need to fulfill → base for the high quality procurement process
- E.g technical requirements, competence and qualification requirements, requirements from laws, requirements for business continuity plans, future needs
- Internal collaboration is important → Requirements defined based on the needs
- Requirements are defined to agreements





Proactive risk and business continuity management (BCM)

- BCM is a proactive, continuous process to manage operational disruptions in the whole SC.
 - Identify business threats, disruptions and dependencies, evaluate the threat effects in the whole SC.
 - Prepare and organize procedures in case of crisis.
 - Ensures that critical partners have abilities to operate in crisis and protects business.
 - Increases employees' abilities to operate in crisis and to minimize the costs and damages caused by disruption.
- Business continuity management need to be done proactively in collaboration with suppliers.

Reference: Huoltovarmuuskeskus, 2021.

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Proactive risk and business continuity management (BCM)

- Business Continuity Plan (BCP) is base for risk management
 - Created in collaboration with internal stakeholders from different organizational levels
 - Required from suppliers from the beginning of value chain to ensure uniform preparedness level
 - Company-specific long-term business continuity plans
 - Includes e.g risk identification and mitigation plans, disaster recovery plans (DRP), employee trainings, common risk preparedness trainings with suppliers
- Business continuity management need to be done proactively in collaboration with suppliers
- Network collaboration is important e.g HSEQ cluster, National Emergency Supply Agency

Reference:

Hatton, T., Grimshaw, E., Vargo, J. & Seville, E. 2016. Lessons from disaster: Creating business continuity plan that really works [online]. *Journal of Business Continuity & Emergency Planning*, 10 (1), pp. 84-92.



How supply chain resilience (SCRes) is promoted in supplier relationship management (SRM)?



Systematic supplier relationship management (SRM)

- Supplier relationship management (SRM) enables better risk management.
 - Risk management is important to do in collaboration with suppliers
 - Increased transparency between supplier and buyer company (knowledge sharing)
- Collaboration and partnership-thinking are needed as they promote the development of supply chain resilience (SCRes)
- For example, supply chain resilience (SCRes) in the energy industry is strongly based on proactive risk and business continuity management implemented in collaboration with internal and external partners.

Reference: Ruuskanen, M. 2021. The role of effective supplier relationship management in value creation [online]. Thesis. Lappeenranta-Lahti University of Technology.



Systematic supplier relationship management (SRM)

- Systematic and proactive supplier relationship management (SRM) promotes capability development and collaboration with suppliers
- Well-structured and organized sourcing management is essential
 - Identification of critical suppliers
 - Systematical supplier management models
 - Written agreement and requirements communicated to suppliers
 - Continuous collaboration and interaction, partnerships
 - Common targets





Conclusion

- The key in supply chain resilience (SCRes) is to proactively ensure business continuity, risk tolerance, adaptability and fast recovery in case of crisis, disruptions and changed situations.
- Supply chain resilience (SCRes) development is promoted by systematic Supplier Relationship Management (SRM)
- Suppliers need to develop different capabilities to develop supply chain resilience (SCRes).
- Buyer company need to identify and define requirements for suppliers, what suppliers need to fulfill.
- Proactive risk preparedness and business continuity planning are essential capabilities in supply chain resilience (SCRes) development to minimize disruption effects to supply chain.
- Continuous collaboration with critical suppliers is important to keep up continuous discussion, how to improve supply chain resilience (SCRes).



Questions

What kinds of risks are related to suppliers and supplier management?
What kind of capabilities are needed to develop supply chain resilience?
- based on the article or your earlier knowledge?

<https://www.mckinsey.com/business-functions/operations/our-insights/is-your-supply-chain-risk-blind-or-risk-resilient>

What do you think?



THANK YOU!

Any questions?



More information available

- Leinonen, S. 2021. Resilience in supplier management in energy industry.
<http://jultika.oulu.fi/files/nbnfioulu-202106178326.pdf>
- Presentation in HSEQ virtual seminar 18th May 2021.
<https://www.kiwa.com/fi/fi/ajankohtaista/asiakastapahtumat/todenna-toimituskykysi-kehita-kumppanuutta-paranna-mahdollisuuksiasi/>
- Presentation in HSEQ virtual seminar 18th May 2022
<https://www.kiwa.com/fi/fi/ajankohtaista/asiakastapahtumat/todenna-toimituskykysi-kiwa-live/>
- University of Oulu <https://www.oulu.fi/en>
- Industrial Engineering and Management unit:
<https://www.oulu.fi/en/university/faculties-and-units/faculty-technology/tuotantotalous>
- If you have any questions, please feel free to contact me suvi.leinonen@oulu.fi