

## Секція 3. ЛОГІСТИЧНИЙ ТА МАРКЕТИНГОВИЙ МЕНЕДЖМЕНТ

### SUPPLY CHAIN RESILIENCE

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Each day people deal with risk and its outcomes. Some of the issues have personal effects, others can involve whole industries. Disruptions in supply chains have a negative impact not only on the company but also on other stakeholders.

That is, the circle of stakeholders directly or indirectly related to one or another supply chain is at risk of the occurrence of certain events that may have negative consequences. It follows that it is possible to provide protection for supply systems against predictable events, but not everything is so simple. Today in our life we have more uncertainty than certainty. The lack of information and unpredictability leads to higher possibility for the onset of uncertainties.

To deal with uncertainty managers use different strategies and techniques of strategic risk management. Nevertheless, each uncertainty needs its own strategy to solve it, but traditional methods can not deal with modern issues so society needs to find out new solutions. Today in the literature and practice the concept of supply chain resilience has become popular and seems to be effective tool to overcome challenges in supply chain. This concept involves not only managing uncertainty but also improving the efficiency of supply chain networks and competitive advantage for companies.

The first mentions of the concept of supply chain resilience can be found in the works of the early 2000s. Nevertheless, the concept of "resilience" was used earlier in other sciences, such as psychology, ecology, sociology, and others.

The concept of resilience has Latin origin and means "bounce back". In the Middle Ages, it had more negative meaning, in Middle French

(résiler) it meant “to retract” or “to cancel” [1].

Due to Djalate the concept of resilience was originally developed in the field of ecology. Djalate was partially right as for the first time this concept gained popularity in the work of Holing “Resilience and Stability of Ecological Systems” (1973), where it was considered precisely from the point of view of the ecological system. The author claimed that resilience is a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variable [2]. However, the work also mentions the term stability, which represents the ability of a system to return to an equilibrium state after a temporary disturbance. Demarcation of these concepts was important for ecological science, however, in later works, some scientists denied the need for demarcation because they believed that the terms are identical.

Economic resilience encompasses the ability to minimise potential vulnerabilities, to promote more robust and inclusive growth, to enhance the capacity of the macro-economy to withstand shocks and reallocate resources to harness new growth opportunities.

A country’s resilience to economic shocks is influenced by its overall exposure to global economic developments and the nature, magnitude and direction of these links, including the level of diversification in the scope and geography of its trade and the extent of its external imbalances [3]

In management sphere, scientist pointed out organisation’s resilience. Stephanie Duchek wrote that organizational resilience should be considered as an organisation’s ability to anticipate potential threats, to cope effectively with adverse events, and to adapt to changing conditions.[4] She argued that in management scientific literature organisation’s resilience is defined by using 3 different approaches or combination of 2 of them. Stephanie Duchek mentioned such perspectives:

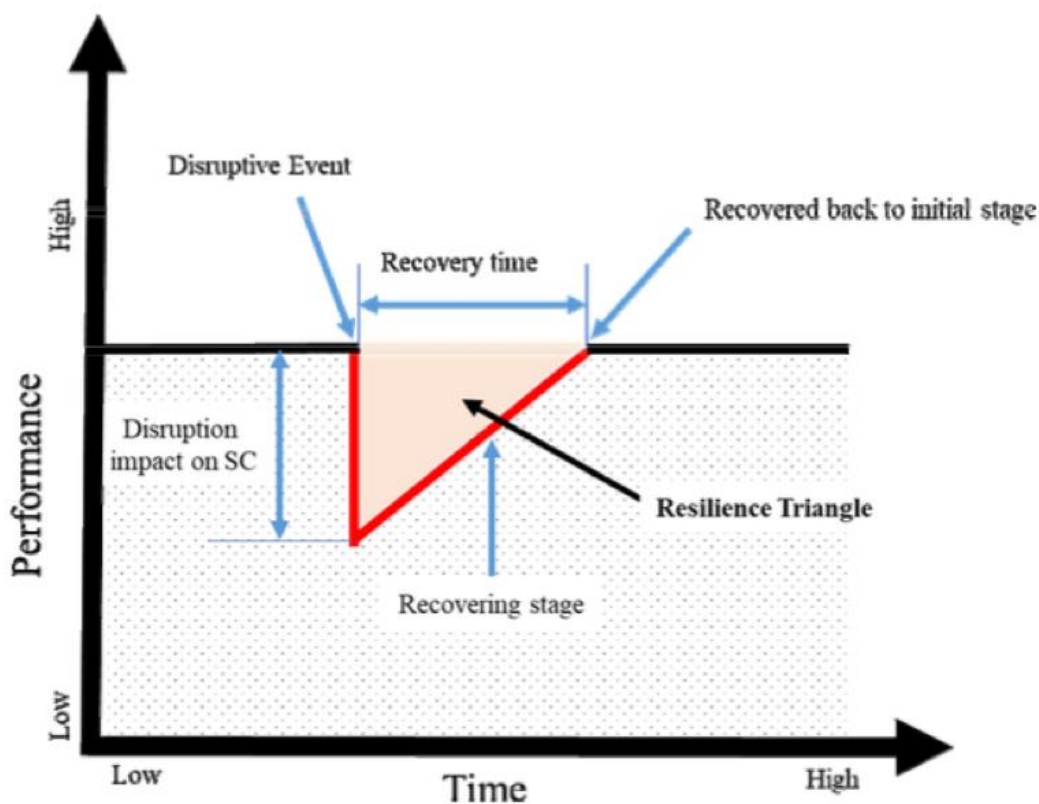
- defensive, from this point of view resilience is ability to resist adverse situations and/or the ability to recover after disturbances and return to a normal state
- improving, focused on the need to make adjustments to any changes to come out of the crisis stronger than before.
- anticipation (notion), resilience involves activities of identifying possible risks and taking prevention steps.

Supply chain resilience refers to the supply chain's ability to withstand disruptions and other issues and recover from them, while maintaining its core functions and meeting customer needs. This involves the ability to

anticipate, adapt and effectively respond to various changes that may affect the flow of goods, services and information in the supply chain. [5]

According to Hohenstein supply chain resilience is the supply chain's ability to be prepared for unexpected risk events, responding and recovering quickly to potential disruptions to return to its original situation or grow by moving to a new, more desirable state. [6]

For better understanding, we offer to look at Resilience triangle firstly mentioned by Tierney and Bruneau and later developed by Falasca, Zobel and Cook. (Fig. 1) Scientists took 2 criteria (time and performance) to illustrate fluctuation of performance after disruption and time period which is needed to recover to previous state. When a crash event occurs, you may see a dramatic drop in performance and after that it takes time for supply chain to restore its profit or other performance indicators. The main aim of supply chain managers is to reduce the area of R-triangle to minimum. [7] The larger the area of this figure, the lower the resilience ability of the enterprise or system. Different resilience mechanisms can adjust the dimensions of the figure to the optimal and help to maintain performance indicators.



**Figure 1 - Resilience triangle [8]**

As a result of this work, the conclusion can be made that the supply chain resilience is ability of supply chain to resist the disruption and recover after the collapse, while maintaining core functions and satisfying customers' needs.

Three core aspects of supply chain resilience (defence, recovery and improvement, anticipation) should be taken today into consideration while building or improving supply chain network. The supply chain resilience can be described as process of recovery after the failure which is measured by performance and time indicators.

### References.

1. Alexander D.E. Resilience and disaster risk reduction: an etymological journey. 2013. URL: <https://nhess.copernicus.org/articles/13/2707/2013/nhess-13-2707-2013.pdf>
2. Holing C.S. Resilience and Stability of Ecological Systems. 1973. URL: [https://www.zoology.ubc.ca/bdg/pdfs\\_bdg/2013/Holling%201973.pdf](https://www.zoology.ubc.ca/bdg/pdfs_bdg/2013/Holling%201973.pdf)
3. OECD. Overview Paper on Resilient Economies and Societies. 2014. URL: [https://www.oecd.org/mcm/C-MIN\(2014\)7-ENG.pdf](https://www.oecd.org/mcm/C-MIN(2014)7-ENG.pdf)
4. Duchek S. Organizational resilience: a capability-based conceptualization. 2019. URL: <https://doi.org/10.1007/s40685-019-0085-7>
5. Larina R. R. (2005) Theoretical and methodological basis of the formation of regional logistics systems. 2005. URL: <https://core.ac.uk/download/pdf/11314386.pdf>
6. Hohenstein N.-O., Feisel E., Hartmann E. and Giunipero L. "Research on the phenomenon of supply chain resilience: A systematic review and paths for further investigation", International Journal of Physical Distribution & Logistics Management, Vol. 45 No. 1/2, 2015, p. 90-117
7. Falasca M., Zobel C.W. and Cook D. A Decision Support Framework to Assess Supply Chain Resilience. Paper presented at the 5th International ISCRAM Conference – Washington, DC, USA, 2008
8. Joshi S. and Huynh L.T. Review on supply chain resilience: phenomena, modelling techniques and framework of resilience building strategies with future research directions. International Journal of Supply Chain and Operations Resilience 5(2), 2022, p. 150-184