The object of organizational robustness and resilience: an content analysis

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Extended abstract

Objectives and motivation
The aim of this article is to explore the concepts of robustness and resilience in organizations and is principally concerned to research question “What are the central theories and concepts about the terms robustness and resilience [in Transport Logistics]”. The main objectives of this article are exploring and describing qualitatively the terms of organizational robustness and resilience, their interrelations and the three most dominant pillars. In case of term robustness, the three most dominant pillars are “Business Practices & Technologies”, “Organizational Culture & Agility” and “Risk- & Crisis Management”. In case of term resilience, the three most dominant pillars are “Risk- & Crisis Management”, “Organizational Culture & Agility” and “Cognitive Capabilities”.

This article is based on a quantitative literature review of “Robustness and Resilience in Transport Logistics – A Literature Review” written by Florian Maurer and Ulrike Lechner and submitted to the “8th GI Conference on Autonomous Systems”. In this literature review the reseach methodologies of Structured Literature Review (e. g. Lamnek 1995; Hart 2003; Randolph 2009) and Grounded Theory (e. g. Strauss 1996; Glaser 1998) are applied. On basis of used samples (99 scientific papers, chosen from A+, A, B and C rated international scientific journals, proposed by the VHB-JOURQUAL report of the “German Academic Association for Business Research”), in this article we examine systematically generated open-, axial- and selective-codes previously developed via the Grounded Theory approach. Applied methodology for this analysis is the qualitative content analysis (e. g. Schwarz 2000; Mayring 2008). The methodology of content analysis is a evaluation strategy and its purpose is the evaluation of developed or accidental documents without a priori formulated analysis criteria. Aim of this methodology is a controlled traceability of everyday-worldly actions and systemization of patterns.

With this article, we deepen scientifically the understanding of the terms of robustness and resilience, structuring / unifying explored objects, and contributing to as well as enhancing existing literature in this field of research.

General description
Man-made and natural disruptions as well as cybercrime-events illustrate the high fragility of supply chains networks. For example, a small accident in one part of the supply chain network can cause a major disruption in another part. To guarantee continuous supply of goods and materials, managers of supply chains have to evaluate, strengthen and re-engineer resistant, internally and externally robust and resilient networks. Resilience and robustness are target in transport logistics and supply chain management and can be defined as the capability of a system to manage variations and fluctuations efficiently regardless of the occurrence of disruption. But, due to increasing natural and man-made phenomena, volatility will be the new “normal” (World Economic Forum 2013).

Resistance can be determined with the concepts of robustness and resilience: The idea behind robustness is to create undisturbed and strong structures and processes. As Töpfer and Günther (2009) quote, robustness stands for low probability of errors and defaults in service provision and is associated with high reliability of products and services. While robustness stands for stability and constancy, maintaining intact structure and low deviation, resilience is wedded to organizational agility, adaption and change. A combination of both approaches are initial point for innovative organizational structures and new business models strengthen the single organization’s and supply chain’s competitive advantage.

Results and conclusions
The results of this paper are model for the concepts robustness and resilience and their interrelations and the discussion about their main pillars as basis for innovative organizational structures and new business models in volatile business environments.

In comparison to resilience, robustness plays a subordinate role and it seems that robustness is more an organizational characteristic instead an organizational capability. However, resilience in organizations and supply chains is an emerging concept and promising future business model. It bases essentially on close relation to risk- and crisis management. Resilience is both, a proactive and reactive extension of risk- and crisis management and incorporates the organizational characteristics of robustness (as proactive part) and agility (as reactive part).

References
Gläser, Barney G. (1998): Grounded theory Strategien qualitativer Forschung. Bern (u.a.): Huber (= Hans Huber Programmbereich Pflege)

Hart, Chris (2003): Doing a literature review: releasing the social science research imagination. London [etc.]: Sage

Mayring, Philipp (2008): Qualitative Inhaltsanalyse Grundlagen und Techniken. 10., neu ausgestattete Aufl. Weinheim (u.a.): Beltz (= Beltz Pädagogik)


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