

How Technology-based Insurance Solutions can Contribute to Supply Chain Resilience

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The collapse of supply chains has now reached global scale. Supply chain resilience is therefore a macroeconomic problem or challenge. This presentation aims to give an overview of technologies to create transparency as well as precautionary measures for risk mitigation. Behind a concrete supply chain are numerous other supply chains. If just one of these supply chains collapses, the entire process may come to a standstill. The resulting sensitivity extends from raw material extraction to material procurement and includes all logistical imponderables (closure of ports, lack of transport options due to staff shortages, etc.). The increasing vulnerability of interconnected supply chains raises the question of how companies can manage their risks and improve supply chain resilience more effectively. Especially data-driven approaches have already revolutionized specific areas of the supply chain, assisting the maintenance and monitoring of real-time data.

As the link between globally distributed procurement and sales markets, goods transport is exposed to a variety of risks and dangers. Damage in transit can lead to business interruptions or restricted delivery capacity for companies. The consequences are negative chain reactions that usually far exceed the costs of the original transport damage. Against the background of the high dynamic and structural complexity of transport and logistics processes, more precise risk assessments are hardly possible, especially in global goods traffic.

Transport insurers usually calculate their insurance premiums as a flat percentage of a company's transported goods turnover, including a risk factor for the region where the goods are sent. The actual transport duration, the means of transport used in different sections, or the number of damage-prone handling processes are hardly considered in the previous pricing, as this information is not available to the insurance company. For the variable, dynamic premium calculation depending on the specific prevailing risk profile, loads on the transported goods during transport must be recorded. In the case of shock-sensitive goods, for example, ubiquitous information systems use acceleration sensors to determine the force acting on containers and goods in the vertical, horizontal, and lateral directions. The measurement is usually made at the container door. In this case, the measured values are localized by determining the GPS coordinates. The measured values can either be stored locally on the module or transmitted via data communication at close time intervals. The latter enables an adjustment of the insurance premiums then during the ongoing transport. Such technologies are relevant since they make the precise monitoring of even temperature and humidity for sensitive products possible e.g., for biologic or biopharmaceutical medicine, vaccines, and perishable food. Even the smallest advancement in predicting, measuring, and controlling risk related factors is an improvement for anticipating business disruptions.

In general, the development towards cheaper sensors and better connectivity expands the accessibility of IoT (internet of things) throughout the supply chain and so increases the number of devices that can provide real-time data about risk related conditions. However, while the amount of data collected continues to increase, there are still challenges with analyzing and centralizing the data. This means there is an important opportunity in improving risk analysis to predict risk events but also to identify and implement actions to minimize its impacts.

Preventive measures to minimize the effect of risk incidents is something traditional insurance products have offered for many years. However, the insurance sector currently often lacks transparency, is expensive and despite the urgency, insurers are slow at processing claims. The pressing matter of this topic requires faster and more effective solutions which is why new tech players are emerging and growing. These players are not just revolutionizing the way

risks are assessed; but how entities, companies and people facing them are economically protected. Using new technologies, such as image recognition or machine learning, combined with the advanced data sources, such as satellites or IoT, can significantly improve transparency, speed, and risk assessment. The main advantage of using such methods is that they enable greater precision in risk assessment and increasingly rapid claims payouts, sometimes within a few hours, ensuring that supply chains can return to their usual operations swiftly. This leaves behind stronger and more resilient supply chains behind that can bounce back from adversity and disruptions as fast as possible without facing significant losses.

Short Bio

Dr Alexander Skorna is Managing Director of Funk Consulting GmbH. He is also responsible for risk consulting and business development at Funk. In the non-profit Funk Foundation, he is additionally active as a consultant for scientific projects in the field of risk management.

Dr Alexander Skorna, born in Munich in 1982, completed his studies in industrial engineering at the University of Karlsruhe (Karlsruhe Institute of Technology). After an extended stay abroad in Singapore and Hong Kong as part of a job for an international logistics service provider, he completed a part-time doctorate at the University of St.Gallen. He joined Funk in October 2014. There he took over the successive expansion of the business development division, which is responsible for the development and placement of complex risk solutions. In 2022, Dr Skorna was appointed to the management of Funk Consulting GmbH.