SYRI – Systemic Risk-Management and Resilience-Planning for Austrian Food Supply Security

In SYRI we develop a data-driven simulation methodology to locally quantify actual food supply losses for the population that result from the cascading of supply disruptions. The methodology is immediately policy relevant as a fact-driven and generalizable crisis management tool.

Analog information processing and expertise are often sufficient to solve locally isolated problems at the ministry level. However, major crises, such as COVID-19, have demonstrated the limitations of analog and reactive crisis management. This is particularly true for essential to life food supply, which consists of complex, fast-moving, and interdependent value chains (from primary production to processing plants to consumers). It is therefore central to be able to proactively assess and analyze crisis scenarios in real time, as these can directly threaten the food supply of the population. Food supply for the population is one of the most important value networks and an area-wide digital systemic risk monitoring in real time should be realized.

To monitor systemic risk in real time, a digital crisis monitor is created in SYRI for the first time on a national scale for five product groups defined by the stakeholders. This monitor allows the dynamic computation of systemic risk indicators on actor level due to the development of a generic data model, the first digital mapping of the food value networks including the interconnection of consumer and company data. The food value networks including risk assessment are made available to BMLRT and AMA in real time on an interactive and user-friendly interface (=the digital crisis monitor) to monitor potential upcoming crisis events and prepare and train for future crisis scenarios. Expertise and inter-disciplinarity are prerequisites for tackling a groundbreaking project like SYRI. CSH is a world leader in the assessment of systemic risk, JRC LIVE of FH OÖ is dealing with the real-time visualization of value networks on enterprise level and BOKU and VM are proven experts in the primary production and processing of plant and animal product groups.

In SYRI, a systemic risk index at the actor level in food value networks is to be calculated and presented in real time for the first time in an international value network (extending far beyond company boundaries). To the current knowledge of the SYRI project consortium, no comparable research project exists worldwide. This uniqueness of the project was also recognized by the economic partners and has led to the fact that - although in a strong competitive situation - almost the entire retail trade (market coverage > 95 %), central actors of the wholesale trade as well as central producers in the five product groups have agreed to participate.

SYRI aims for new knowledge and skills with the goal of applying them to the selected product groups to verify a possible suitability. These product groups were selected because of their diversity to be able to verify the generic applicability of the digital crisis monitor. If proof of successful application in this highly specific area - basic food supply - can be provided in the SYRI project, the next step will be to apply the developed logic to all food product groups defined as critical, to transfer it to other non-food products (e.g., medical products) and to use it by other stakeholders (e.g., Ministry of Digitalization and Economy). If these steps can also be successfully realized, the development of a marketable product (=digital interactive crisis monitor) can be considered.

Contact:
Dr. Melanie Hinterplatttner, BA MA
+43 5 0804 33221, melanie.hinterplattner@fh-steyr.at