A Software-Driven Approach to Model, Simulate and Optimize Service-Oriented Value Creation

About

This study presents a software-supported approach designed to help businesses configure and manage complex, service-oriented value networks. The core of this approach is a detailed metamodel, implemented in a software tool, which integrates all relevant elements like partners, resources, and activities into a single data model. This allows companies to model, analyze, simulate, and optimize their collaborative service offerings.

Problem

As industries shift from product-centric to service-oriented models, businesses increasingly operate within complex networks of partners, suppliers, and customers. Traditional methods for business modeling are inadequate for managing the intricate, non-linear decisions required in these ecosystems, creating a need for a tool that can handle coordinated decision-making across the entire value network.

Study Outcome

- The developed software tool enables the systematic modeling, simulation, and comparison of different partner constellations in a service network.
- It makes trade-offs between factors like cost, quality, and time explicit, linking operational activities directly to the value perceived by each stakeholder.
- The approach proved effective in a hypothetical case and three real-world industry cases (mobility, construction, additive manufacturing) for designing feasible business models and identifying new stakeholders.
- It provides a unified view of the value network, supporting the systematic analysis of dependencies and the development of collaborative strategies.

Keywords

Value Creation Network • Modeling Software • Metamodel • Service-Oriented Value Creation • Business Model Simulation • Decision Support • Business Ecosystems