

# **Towards A Hybrid Simulation Modelling Framework for Service Networks**

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For hundreds of years, providing service has been as an important part of our economy. Over the past decades, the dominant logic of marketing has been shifted from tangible resources, embedded value, and transactions to intangible resources, the co-creation of value, and relationships [1]. The world face of electronic services has transformed from object orientation into service orientation, with networked enterprises transacting and co-creating value on digital infrastructures with a global reach. These networked enterprises demand innovative service systems and networks to advance their business and compete in increasingly complex and dynamic markets and operating environments.

The starting point to the success of developing a service network is to have a comprehensive picture of the process in which all the required services are delivered and all the stakeholders are involved, and in addition, to find a novel way to explain the picture to both business and technical experts. The demands at service networks place an equal emphasis on the business domain and technical domain. The business process design should fully reflect the business goals and the interactions among multiple stakeholders involved in the entire business chain. It also should be translated into the technical design without any misunderstanding, so that the necessary technical expertise and resources can be dedicated to the service network and used in the most effective and cost-efficient way. Thus it is crucial to have smooth communication between business modelers and technical modelers, and an alignment between business design and Information Technology (IT), through which the maximal value from IT will be added to the business.

This research has the purpose to provide a framework, which will be an effective solution to service network development and performance optimization. The service networks will be represented and analyzed from multiple perspectives in favor of both top management and IT developers. We rely on a hybrid simulation modelling approach to predict, analyze and visualize the impact of changes in service networks over time, and trace back to the root-cause of performance anomalies and errors.

Performance measurement plays an important role in this research. In the anticipated framework, the service capability and characteristics are clearly specified, and the influential factors to the service performance, such as QoSs of software services and the KPIs of business services, are distinctively derived. Thus the

service network performance is accurately characterized and consistently communicated in the entire network.

Our research will advocate creating an explicit service network structure and mechanisms for measuring and analyzing service network performance. Eventually, the research result will bridge the gap between the business and IT parties in practical service networks, and the gap among different scientific disciplines in service science.

## **Reference**

1. Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *Journal of Marketing*, 68(1), 1-17. doi: 10.1509/jmkg.68.1.1.24036.