Introduction to the Smart Service Systems: Analytics, Cognition and Innovation Minitrack

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Smart service systems can be characterized by: (1) the types of offerings to their customers and/or citizens, (2) the types of jobs or roles for people within them, and (3) the types of returns they offer investors interested in growth and development, through improved use of technology, talent, or organizational and governance forms, which create (dis) incentives that (re) shape behaviors. Entrepreneurs and policymakers can be viewed as innovators working to improve quality-of-service for customers and quality-of-life for citizens, respectively, as well as quality-of-returns for investors. Ideally, smart service systems are ones that continuously improve (e.g., productivity, quality, compliance, sustainability, etc.) and co-evolve with all sectors (e.g., government, healthcare, education, finance, retail and hospitality, communication, energy, utilities, transportation, etc.). Regional service systems include nations, states, cities, universities, hospitals, and businesses. Global service systems include multi-national businesses, professional associations, and global organizations. Natural and human-made disasters, technology failures, criminal activities, political collapse can disrupt service systems and negatively impact quality-of-life for people living and working in them.

Because of analytics and cognitive systems, smart service systems adapt to a constantly changing environment to benefit customers and providers. Using big data analytics, service providers try to compete for customers by (1) improving existing offerings to customers, (2) innovating new types of offerings, (3) evolving their portfolio of offerings and making better recommendations to customers, (4) changing their relationships to suppliers and others in the ecosystem in ways their customers perceive as more sustainable, fair, or responsible.

There is a need to apply robust research findings in the appropriate management and organizational contexts related to innovation of smart service systems, service innovation, quality, architecture, design and delivery, and the resulting customer satisfaction and business value. The goal of this mini track is to explore the challenges, issues and opportunities related to innovation of smart service systems that enable value co-creation with analytics, cognitive and human systems.

The three papers accepted for the minitrack investigate these issues in different ways.

The first paper, titled “How Tangential Problems Limit Value Creation in IT-based Service Systems,” by Paul Maglio, Eser Kandogan, Eben Haber and John Bailey, examines troubleshooting work in system administration in the context of complex IT-based service systems. They found that system administrators typically spend much time troubleshooting. They also observed that while configuration and performance work is often guided by explicit procedures or plans, troubleshooting work is not. Although tangential problems tax the overall service system, there may be opportunities to identify and remediate them to improve overall service delivery and value co-creation.

In the paper titled, “Smart Households and Home Energy Management Systems with Innovative Sizing of Distributed Generation and Storage for Customers,” Ozan Erdinc, Nikolaos Paterakis, João P. S. Catalão, Iliana Pappi and Anastasios Bakirtzis, a mixed-integer linear programming model for techno-economic optimum sizing of additional photovoltaics and energy storage system investment was proposed for a demand response-based home energy management system controlled smart household. It was clear from the obtained results that considering demand response based load pattern changed significantly the sizing results and thus such investments for new generation residential areas should cover this impact during the planning phase.

In the last paper titled, “Strategies in Smart Service Systems Enabled Multi-Sided Markets: Business Models for the Internet of Things,” Tayfun Keskin and Deanna Kennedy, proposes business ownership strategies to further two-sided markets and platforms literature. Each case in their service design models provides a theoretical guideline for prospective research and presents an opportunity for future studies in various fields such as information goods pricing models, supply chain design, and policy development for potentially inefficient internet-of-things markets. Beyond, IoT industry, their concepts can also be used for any information systems enabled market complex enough to serve four different sides.

We hope you enjoy the papers and their presentation at the conference. We thank the authors for submitting their work to make this another engaging minitrack.