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Theodor Borangiu · Monica Drăgoicea
Henriqueta Nóvoa (Eds.)

Exploring Services Science

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Editors

Theodor Borangiu
Faculty of Automatic Control
  and Computers
University Politehnica of Bucharest
Bucharest
Romania

Monica Drăgoicea
Faculty of Automatic Control
  and Computers
University Politehnica of Bucharest
Bucharest
Romania

Henriqueta Nóvoa
Faculty of Engineering - FEUP
University of Porto
Porto
Portugal

Foreword

Service Science was launched by IBM as an open code initiative more than ten years ago in an attempt to integrate different knowledge domains contributing to the study and better understanding of service systems. Since the preliminary proposals, it was clear that the organization, functioning, and development of service systems had to be based on a new conceptualization of services, on relationship governance, and on a new qualification of value generation, as service research has pointed out all along the last decades of scientific production.

In order to address and cope with such demanding theoretical issues in the search for a better understanding of service systems, the service community was inspired by a multicultural approach capable of catalysing into Service Science the scientific contributions proposed by researchers coming not only from IBM, but also from academia and experts in IT, management, and consumer behaviour, sociology, computer science, engineering, and many other disciplines.

Service scientists have accordingly approached the Service Science research path with an open mind and aggregating attitude, inherently and strongly based on T-shaped programs on a global basis, in an attempt to capture intriguing suggestions from different research streams, all interested in advancing knowledge on service systems as well as their modelling and operative traits.

Since 2004 a relevant worldwide community has grown, a community still engaged in this long-lasting process of defining the research boundaries and scientific goals of this inclusive Service Science discipline; however, not all cultural domains have accomplished rewarding results and, moreover, further effort ought to be placed in the integration of various cultural domains.

Within this cross-cultural research setting comes the 7th International Conference on Exploring Service Science, IESS 1.6, an event gathering scholars and researchers from all over the world balancing different categories of scientists and different lines of research — from different perspectives:

– Business oriented vs. technology oriented
– Fundamental vs. applied
– System science foundation vs. computer science support

To approach Service Science, management, and engineering subjects from these multiple innovation perspectives, and to guarantee a cross-cultural approach to Service Science main issues and focus, a number of topics of interest were defined, including: service exploration processes; business transformation through service science; new service business models; modelling of the service consumer needs; service design methodologies and patterns; IT-based service engineering; service orientation in the digital enterprise; modelling and design of IT-enabled service systems; product-service systems; service innovation strategies and solutions; service sustainability; governance

of service systems; service system networks; education and skills for service design and management.

The numerous papers received and presented in this volume were grouped into 13 sessions, covering the aforementioned topics. The technological perspective adopted by many scholars balances the managerial point of view of others, once more demonstrating the strong interest of Service Science in an open-minded and interdisciplinary community.

The IESS 1.6 conference met its main goals: to gather scientists working in the Service Science domain, to find out about their most recent research work trying to orient R&D in Service Science toward fundamental contributions leading to this new science, and to encourage new types of service innovation based on this research.

Despite the encouraging results accomplished by the Service Science research context over the last decade, a long research path still has to be pursued in search of even more challenging advances. An overview of the scientific production of our community, in fact, shows that scholars ought to look for more integration among various cultural domains, in order to give rise to this new science and to demolish the cultural boundaries that still appear in the shades of this scientific production.

Service scientists in the future could aim for the production of more interdisciplinary papers, written by scholars coming from different research contexts, and increase the cross-cultural references within each scientific production.

This challenging advance calls for an open-minded attitude brought on by curious researchers willing to study and deepen models and theories according to their specific field of interest, and of course it needs a production systems (journals, book series, reviewers) in line with this approach. The Service Science community is ready for this; hence, let us play a key role in advancing Service Science research in this direction!

February 2016   Francesco Polese

Preface

This volume gathers the peer-reviewed papers that were presented at the 7th International Workshop on Exploring Service Science, IESS 1.6, organized during May 25–27, 2016, by the CIMR Research Centre of the Faculty of Automatic Control and Computer Science, University Politehnica of Bucharest, Romania.

The workshop gathered academic scientists and practitioners from the service industry and their worldwide partners in a collegial and stimulating environment. According to its tradition, IESS 1.6 covered major research and development areas related to Service Science foundations, service engineering and management, service innovation, service orientation of processes, applications in service sectors and ICT support for services.

Services comprise about 75 % of mature economies today, being also a fast-growing sector in emerging economies. This motivates an intense preoccupation to establish the philosophy of a new management and marketing, which highlights a paradigm shift away from the goods-dominant (G–D) logic. This paradigm is the theoretical concept of service-dominant (S–D) logic, fundamental for the service system developments reported in IESS1.6 papers; services are seen as the real protagonists of interactions and transactions.

A broader perspective shows that service systems evolve within dynamic environments and interact, in a network, with other service systems. Also, they may have other interconnected service sub-systems, and thus service systems may have to face external disturbances from the environment, but also internal disturbances generated by one of their sub-systems. Thus, a main challenge in the development of a service system is to design it in a way that ensures the flexibility and adaptability crucial for its survival, or, in other terms, for its viability. From this perspective, the Viable System Model (VSM) is an initial point of such a development strategy, as pointed out by some authors.

The IESS1.6 event includes papers that extend the view on different concepts related to the development of the Service Science domain of study, applying them to frameworks, advanced technologies, and tools for the design of ICT-based service systems.

The perspective introduced by this approach connects Service Science fundamental concepts to business-related concepts. In the Service Science approach, service organizations are studied as service systems evolving in their environment (service system ecology), in the pursuit of their business goal, according to a service business model. Service business models reflect the features of the service sector to which the organization belongs and describe activities for services as business processes. Successful service business models are crucial for the service system viability and they are related to service innovation.

As IESS 1.6 papers describe, specific items of service business models such as target markets and customers, product offerings or value propositions, distribution channels

(activities for services), and constraints and profits, together with the description of case studies and business solutions in various service sectors, are analysed and debated.

The book is structured in 13 parts, each one grouping a number of chapters describing research in current domains of service science, from fundamentals, theories, and concepts to models, frameworks, and implementing solutions for societal services (health care, education, administration) and the service industry.

From service theory to solutions, these book sections are: Part 1 – Service Exploration Theories and Processes; Part 2 – Modelling Service Requirements and Management of Business Processes; Part 3 – Value Co-creation Through Knowledge Management and User-Centric Services; Part 4 – Service Design Methodologies and Patterns; Part 5 – Service Innovation and Strategy; Part 6 – IT-Based Service Engineering; Part 7 – Servitization in Sustainable Manufacturing: Models and Information Technologies; Part 8 – Product-Service Systems; Part 9 – Business Software Services and Data-Driven Service Design; Part 10 – Web Service Design and Service-Oriented Agents; Part 11 – IoT and Mobile Apps for Public Transport Service Management; Part 12 – e-Health Services and Medical Data Interoperability; Part 13 – Service and IT-Oriented Learning and Education Systems.

The book offers a new vision on complexity, big data, and context-awareness in data-driven services for the contextual businesses, Service-oriented enterprise architectures, and service-oriented agents in Web and cloud services, by combining emergent ICT, control with distributed intelligence, and multi-agent frameworks for complex, networked service design and management.

The scientific work reported in the workshop technical sessions foster service innovation by allowing different stakeholders to arrive at a consensus in terms of service science fundamentals and build together the future knowledge base in the field of service science.

All these aspects are covered in the present book, which we hope you will find useful reading.

February 2016

Theodor Borangiu
Monica Drăgoicea
Henriqueta Nóvoa

Organization

IESS 1.6 was organized by the CIMR Research Centre of the Faculty of Automatic Control and Computer Science, University Politehnica of Bucharest, Romania, during May 25–27, 2016.

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