

*Guest Editors' Introduction*

**Research Directions and Issues of Service Research:  
A Perspective of Business Information System**

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Recent advances in service computing such as service-oriented architectures, software as a service, web services, data center outsourcing, and cloud computing have induced more widespread attention to concepts and issues in service engineering and management. For instance, major software development tools such as JDeveloper from Oracle, Visual Studio from Microsoft, and Eclipse from IBM have added new features to support planning, analysis, design, and implementation of service-oriented systems. However, the recent progress and efforts in industrial research and development have not been matched in intensity by academic research in the field of business information systems. Hence, the goal of this special issue is to cultivate more concerted efforts from researchers who study business information systems, by which we refer to the conglomeration of individuals, organizations, computing devices, and the business environments.

Service research is the study of service systems that create business value through complex configurations of resources. In general, components in a service system interact through service exchange processes. The concept of service orientation has also been applied to the management of computing components in an information system. As such, service orientation advocates the enablement of service-oriented architecture that can be used to maintain system components gracefully without interrupting existing information services. Presently, there is a need to bridge related fields of study in service (singular form) such as service management and study of services (plural form) including service computing.

Service has different meanings in different fields. A service in service computing refers to a computational unit that has certain computational functionality and behavior, whereas in service management, service (singular form) means offering of certain human attention and delivery of meaningful results that benefit the service participants. Furthermore, the subject of service administration is different in service computing and service management. Service computing

mainly deals with service relationships involving software components; on the other hand, service management mainly deals with service relationships involving people. The main purpose of service research is to understand how service systems in a networked business world generate high quality service (and computing services) with reasonable consumption of resources, aligning and integrating different service concepts in service management and service computing.

### ***Key Research Directions and Issues: Special Issue Papers***

There are many open research issues in service research. For example, the scope of service research in the context of business information systems has to be clearly defined. Existing streams of research in service-related topics that span multiple fields such as computer science, management sciences, marketing sciences, and service operations need to be unified and synthesized to make service research a distinguishable research area. Key service research issues in various levels of research engagements such as theory, modeling, systems, techniques, and applications need to be identified. Therefore, more research efforts on directions and issues in service research are imperative. This special issue includes three articles that present some new advances in service research, including issues related to linking service dominant (S-D) logic and design science, co-creation of requirements and value in consumer information systems, and analysis of service ontologies. A brief overview of these papers is given below.

In "Service-Oriented Challenges for Design Science: Charting the "E"-volution," Hong-Mei Chen and Stephen L. Vargo link service-dominant (S-D) logic and design science to advance service system design, which is characterized by the indeterminacy of the design problems and outcome measures. The authors describe the "e"-volution of systems design, transitioning from goods-dominant (G-D) logic to S-D logic, and they identify the IS design challenges implied by S-D logic. Although much progress has been made in IT and IS toward service-orientation, many systems are adaptations of G-D logic, rather than a full transition to a service orientation. Existing Electronic Customer Relationship Management (CRM) and Supply Chain Management (SCM) systems are used as examples to illustrate how underlying design models based on G-D logic are inadequate. To devise new service-oriented modeling, methods and evaluation measurements, the authors points out that S-D logic endorses a fundamental shift in design thinking for design science from "bounded rationality" for problem solving to "expandable rationality" for design for the unknown. Further suggested is a transformative IS design approach that combines expandable rationality and effectuation logic for organically, dynamically, adaptive, co-created service system design.

In "A Conceptual Framework for Consumer Information Systems Development," Tuure Tuunanen, Michael D. Myers and Harold Cassab define Consumer information systems (CIS) in contrast to traditional information systems, propose a conceptual framework for CIS value co-creation and describe challenges in CIS development methods, based on findings from three case studies of real-world requirement engineering projects. The authors argue that the trend towards the development of digitized services or designing and developing systems for consumers, as contrasted with users, potentially marks a disruption both in the practice and research of information systems. Their framework illustrates that CIS consumer value is co-created through system value propositions and customer value drivers. IS researchers have traditionally emphasized efficiency and effectiveness of organizational processes and system use. Their framework suggests that attention be paid to processes of value creation embedded in the consumer experience. The authors tie in insights from Consumer Behavior and Service Quality to outline challenges for CIS development.

In "An Analysis of Service Ontologies," Vikram Sorathia, Luís Ferreira Pires, and Marten van Sinderen conduct a comprehensive review of twenty-three service ontologies in order to analyze their capabilities to support service semantic interoperability in service marketplaces. They classify and compare those ontologies according to their different design objectives, including service definition, e-business service support, web services interoperability, service quality, and service classification. Based on the review, the authors identify additional service aspects that have not been covered by existing service ontologies and propose a comprehensive service ontology classification schema. This paper presents a holistic view of existing service ontologies in terms of supporting various aspects of a service ecosystem and provides useful insights into future design, refinement, and development of service ontologies.

## **About the Guest Editors**

**Hong-Mei Chen** is a Professor of Information Technology Management at the Shidler College of Business, University of Hawaii at Manoa and formerly served as an Associate Dean for the College. She earned an M.S in Management Information Systems (MIS) and a Ph.D. in Business Administration (majoring in MIS, minoring in Electrical and Computer Engineering) from the University of Arizona in Tucson. She has a B.S. in Business Administration from National Taiwan University in Taipei, Taiwan. She conducts cross-disciplinary empirical research including service engineering, business-IT alignment, Electronic Customer Relationship Management, business intelligence, and multimedia distributed database systems. She was a Fulbright grantee and has directed several multi-million-dollar, multi-institution research projects

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