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Editorial Notes—The Growth of Interest in Services Management: Opportunities for Information Systems Scholars

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Across the global economy, we are witnessing a dramatic transformation toward a services economy. At the same time, advances in information technologies provide significant opportunities for digitization of services and the development of services management thinking within the information systems community. This note aims to stimulate attention toward the promising research and teaching opportunities for information systems scholars in the domain of digitized services innovation, management, and use.

Key words: services management; digitized services management; service-oriented architecture; service orchestration

Why Services Management?

We are witnessing a transition from a goods-based economy to a services-based economy. Services now account for 75% of the U.S. gross domestic product (GDP) (Pal and Zimmerie 2005) and 80% of private-sector employment in the United States (Karmakar 2004). The North American Industrial Classification System (NAICS), which replaced Standard Industrial Classification (SIC), consists of 20 sectors of which 16 are services related. While SIC had 1,004 industries of which 416 were service-related industries, NAICS includes 1,170 industries of which 565 are service-based industries. In fact, 250 of the 358 new industries recognized in NAICS produce services.¹

There are several reasons for the growth in services management. First, in a hypercompetitive economy, where globalization, rapid product and services innovation leadership, operational excellence, and customer intimacy are significant drivers of competitive performance, firms are discovering that they have

significant structural barriers to agility and competitive performance. For instance, business processes across industries remain highly fragmented, resulting in bloated costs, lack of responsiveness to customers, and missed opportunities for innovation. Table 1 enumerates process deficiencies across some key industries that are profiled in a report from IBM Research (2004). The examples illustrate broad-scale requirements for digitally enabled services for process integration and business intelligence.

The growth in services is also fueled by firms using it as a defense against the commoditization of goods and as a strategy for productivity, growth, and retention. Consistent with the old adage, "There are no mature markets, only mature marketers," poster-child, goods-based companies such as IBM, BMW, and General Motors have focused on service innovation for growth. In fact, it is the services arm of these businesses, such as IBM Global Services, that are contributing the largest proportion of revenues. To achieve growth, firms are offering total solutions for a set of logically related activities, while others are focusing on niche services. Table 2 shows an illustrative set of solutions that can be configured from dig-

¹ "Development of NAICS" (<http://www.census.gov/epcd/www/naicsdev.htm>).

Table 1 Pervasive Need for Digitally Enabled Services for Business Processes

Industry	End-to-end business process deficiencies
Automotive	Deficient integration of systems and software from multiple vendors with average warranty costs per vehicle at \$700.
Electronics	Challenges in transitioning from mass production to configure-to-order supply chains that achieve productivity and customer responsiveness.
Health care	Fragmented processes across payers, providers, and hospitals. Poor quality of patient records. Accelerating costs and slow responsiveness.
Banking	Under-utilized data and silo structures. Diminishing customer loyalty with deficient products and services.
Retail	Fragmented systems and under-utilized information across the supply chain from track-and-trace innovations (e.g., radio frequency identification).
Telecomm	Incomplete view of customer because of fragmented systems for billing, customer care, self-service, and activation of services.

itized services in response to contemporary customer requirements.

Given the emerging service and value cocreation imperatives, firms are challenged to discover finely segmented and diverse user requirements and to strike with agility. The opportunities for innovation can be along primary or adjacent value chains (e.g., for traditional automotive services or for telematics services that address safety, security, and convenience needs.) To respond to these opportunities,

Table 2 The Emergence of Total Solutions for Logically Related Activities

Solution offering	Digitized services
Mobile communication	Broadband access, Web browsing, messaging, news, financial services, and gaming.
In-vehicle systems	Safety, security, and convenience (e.g., OnStar and BMW Assistance).
Supply chain solutions	Adaptive planning and execution, including shipping, receiving, visibility, brokerage, inventory management, and IT integration.
Entertainment	Record labels and content owners (e.g., iTunes), recording/transmission, casting, and gaming (e.g., iPod).
Personal computing	Broadband access, Web browsing, messaging, document management, financial services, and functional applications.

firms require capabilities to reconfigure activities and add new ones (Sawhney et al. 2004). Additionally, they need to establish capabilities to manage their portfolio of resources, including IT, as services for business processes.

Nature of Services and Traditional Academic Perspectives

The concept of service has been defined in the fields of marketing, operations, economics, and information technology. While a common definition has not emerged within or across fields, there is reasonable triangulation on what services are. Consider some definitions:

- Services are capabilities or competencies that one person, organization, enterprise, or system provides for another (Vargo and Lusch 2004).
- A service is a change in the condition of a person, or a good belonging to some economic entity, brought about as a result of some other economic entity, with the approval of the first person or economic entity (Hill 1977).
- A service is a provider-client interaction that creates and captures value (IBM Research 2004).
- A service is a time-perishable, intangible experience performed for a customer acting in the role of a coproducer (Fitzsimmons and Fitzsimmons 2006).

In general, the definitions emphasize a simultaneous or near-simultaneous exchange of production and consumption, transformation in the experience and value that customers receive from engagement with providers, and intangibility in that goods are not exchanged. Importantly, there are unique challenges that arise for services management. The idiosyncratic nature of customer requirements for services challenges the standardization of delivery processes and the economies of scale. Additionally, as services are perishable, they cannot be inventoried, leading to the need for dynamic pricing and adaptive capacity planning. This is also because the coproduction of some services requires a high degree of interaction between customers and providers. While traditionally coproduction was anchored in human interactions, IT is playing a transformative role in how services are conceived, developed, and delivered.

The distinctive elements of services and their unique challenges have been investigated by scholars

Table 3 Traditional Functional Inquisitions on Services

Traditional inquisitional perspective	Illustrative focal elements
Services marketing	• Customer-defined service quality • Customer satisfaction and loyalty • Customer participation in service delivery • Customer lifetime value
Service operations	• Cost-oriented focus • Waiting line and management of service time • Operations design for service experience
Service-employee management	• Service culture and climate • Employee empowerment • Hiring and training service employees
Information technology services	• Extensions/refinements of measurement for services (SERVQUAL refinements for IT services) • Adoption of technologies for service orchestration (e.g., Web services) • IT services management (e.g., ITIL).

from different functional perspectives. As shown in Table 3, the major functional areas, including marketing, operations, human resources management, and information systems, have investigated how their functions should be managed differently for services than for a good-based context. From a curricular standpoint, this same approach has led to the piecemeal introduction of courses (e.g., services marketing and services operations) that have emphasized a functional perspective on services.

As firms attempt to remap offerings from goods to services, to rethink strategies and structures, and to transition to services management for their portfolio of resources and capabilities, functional perspectives are insufficient. Instead, an interdisciplinary approach is required to understand how services should be conceived, designed, delivered, and supported. The potential of information technology for services management is touted as significant. Both understanding and realizing this potential requires investigation of the interstitial areas related to technology, human behaviors, strategy and design, and economics. Thus, we conceptualize digitally enabled services management as the capabilities, structures, and processes with which digitized services are conceived and architected, how these services are offered and orchestrated, and how interactions for innovation and production of services are managed. We

Table 4 Expanding Base of Digital Innovations for Services Management

Services management capability	Innovations for digital enablement
Describe and discover	• Ontology-supported representations of service resources (e.g., semantic Web) • Specifications for publication and discovery of services (e.g., universal description, discovery, and integration specification for implementing registries of Web services) • Protocols for accessing services and exchange messages (e.g., simple object access protocol, an XML-based message exchange format) • Standards-based solutions for reuse, interoperability, and composition of services (e.g., Web services description language)
Design and architect	• Encapsulation that enables services to be invoked independently of technology (e.g., services-oriented architecture) • Decoupled and loosely coupled interactions based on standardized interfaces • Synchronous interactions between providers and customers • Event messaging for coordination among services
Orchestrate for business processes	• Business process modeling • Business process execution to integrate distributed Web services • Invocation of encapsulated services against usage models
Generate and apply business intelligence	• Mining of event-stream data • Real-time execution of business rules

briefly review major IT innovations for services management and then enumerate some research avenues for IS scholars.

Shifting Technological Landscape for the Digital Enablement of Services

We have been witnessing a sea change in IT innovations for services management. In addition, an IDC estimates that the software as a service market will significantly grow and reach \$10 billion by 2009 (Cases 2006). Table 4 lists some major innovations that are redefining how IT can redefine capabilities for services management.

These digital enablers have significant implications to describe services, decouple services or loosely couple services, hide technical implementation details, and orchestrate related services in response to the demand of business processes. First, developments in

techniques to represent services and in technologies and standards to discover services are profoundly reshaping how services can be offered and accessed. Second, innovations in how services are encapsulated, so that functionality is revealed and technical details hidden, enable service instances to be invoked without integration with the underlying technology. Third, advances in capabilities for synchronous interaction and for the asynchronous flow of events and activities provide opportunities to reconceptualize how services can be interrelated and coproduced. Fourth, developments in process modeling, process standards, and business process execution provide for services to be orchestrated in response to demands of specific usage models, such as those of business processes. Fifth, there has been a significant expansion in capabilities to generate business intelligence based on mining of event-stream and click-stream data and to apply business rules by embedding them in processes.

Opportunities for IS Scholars

The expanding base of IT innovations for services management, coupled with the macroeconomic shifts toward services, provides a rich context for IS research on behavioral, economics, technical, and organizational issues. Toward this end, IBM has seeded innovation initiatives in academia to integrate science, engineering, and management disciplinary perspectives related to services management. The public sector has also been engaging in innovations for delivery of services to citizens.

Limited understanding exists of how complementary advances in services-oriented architectures, event management, and synchronous and asynchronous interactions can be leveraged for services management. When there were significant advances in product modularity, Baldwin and Clark (2000) identified modular design principles and how they impacted the functional capabilities of systems. In a similar vein, what are the design principles for digitally enabled services, and how do they impact the capabilities to split, augment, substitute, exclude, port, and broker services?

Important questions emerge on customer perceptions and the economics of digitally enabled services. For example, what are the economics and customer experiences with these services relative to traditional services? How does reuse of service modules

from one service instance to another impact their economics? How should encapsulated services be bundled with goods or digitized services, and how should these offerings be priced? As services are modularized and their interfaces standardized, what implications are there for boundary choices for service activities? Which services should be produced or sourced from the market, and how should these decisions be made?

In terms of sourcing of services, there has been a significant growth in business process outsourcing. How should these arrangements be digitally governed, and what contingencies emerge for offshore relationships for different types of services?

Advances in business intelligence, synchronous and asynchronous interaction, and security and privacy provide opportunities to develop and evaluate new models for coproduction and innovation. How can these capabilities be leveraged to understand the needs of customers, to identify microsegments, to coproduce services, and to innovate? The manufacturing model of innovation has been rooted in internal R&D investments for the discovery of breakthrough innovation. Given the importance of driving innovation to meet customer needs, what are the alternate models for customer-centric innovation and when should each be applied?

The growth of self-service and multichannel environments raises questions about how service interfaces should be designed to manage the total customer experience. For example, how should service interfaces be designed to engage the customer in defining, shaping, and integrating services, not just passively receiving them? How should the experiential characteristics of services impact these design choices? How should the total customer experience be managed in multichannel environments?

Finally, the phenomenon of digitally enabled services management provides an opportunity to develop innovative curricula that respond to expanding market needs. A recent study indicates that while technical courses on Web services are being increasingly offered, there is virtually no coverage on business and organizational aspects of digitally enabled services (Sheth et al. 2006). Recently, a workshop was hosted by the Information Technology Service Management Forum (*itSMF*) to promote awareness about

the opportunities for integrating IT services management frameworks (e.g., ITIL) into curricula and research. IS scholars have an opportunity to play an instrumental role in leading cross-disciplinary initiatives for curricula around the interplay between the technical and managerial aspects of digitally enabled services management.

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