

Toward Systematic Services Innovation: Technical Workshop and Panel at IEEE CEC 2006

Abstract

While services, in their many different guises, have permeated modern economies, there is no clear understanding on how to achieve systematic services innovation. In this combined workshop and panel, we have invited a diverse and distinguish list of speakers to give us their perspectives on innovation, on services, and how services innovation is best achieved and tackled. We plan to cover various perspectives on services innovation, ranging from business, to culture, to modeling services, to modern SOA-style software architecture, as well as education and training.

1. Introduction

Services are not only the primary form of economic activity in the developed world such as in the US, UK, Germany, and Japan but also a key driver of economic growth in developing countries such as India and Brazil. For example, the services sector accounts for more than fifty percent of jobs in the US and close to 70% of GDP. By 2010, services will be responsible for close to half the GDP growth rate of fast growing economies such as India.

The word services often mean different things to different people; people in the technology industry talk about Service-Oriented Architecture, Infrastructure-as-a-Service, Software-as-a-Service, and so on. This perspective, which is the result of efforts by industry and academia, has resulted in new styles of designing software such that the infrastructure and business functions are exposed as informational services on a network. The resulting SOA-style of software architecture and design promises flexible integration of business functions and processes. Indeed various new business models are being created around these informational services, e.g., Salesforce.com, Amazon Web Services, and many others.

While services have always been studied as an integral part of economic theory [1] and more recently in management schools [2, 3, and 4] no comprehensive theory of services has emerged. In particular, there exists no systematic approach to understand, catalogue, predict, and foster services innovation.

At the outset, the broader economic view of services and the technology industry view of services

do not seem to have much in common other than the word. However, recent research [5] into the role of IT in service sector productivity is beginning to shed new possible linkages. The role of information technology in improving productivity, both personal and business process productivity in manufacturing industries and some service industries, is well known. However, the broader opportunity is in understanding the next set of IT innovations that will enable the next quantum leap in productivity in services eco-systems. The traditional dichotomy between technologies for personal productivity and technologies for business process productivity will need to be bridged as we are beginning to witness with some Web 2.0 technologies.

2. Purpose and Goals

Recent industry and academia initiatives, such as Services Sciences, Management, and Engineering (SSME) aim to remedy this problem by helping focus and galvanize efforts around services, as well as calling for the creation of a new discipline that studies services primarily and aims at uncovering principles for services innovation.

In this joint workshop and panel we are assembling an excellent and diverse group of distinguish members from academia, government, and industry (technology, business consultant, and others) to engage in a lively debate around services science and innovation.

Our paramount goals are to discuss various opinions, research results, and directions that will shape SSME. We intend to cover a wide range of issues and questions that are important to services. These range from generic questions about services innovation, to understanding services in the context of business innovations, technology innovations, and social and organizational innovations.

3. Questions

We plan to discuss various themes and questions around services innovation. These include, but not limited to: general, business, social and organization, education and training, as well as technology.

3.1 General

1. Is there a science of services? How should it be characterized?
2. What are empirical, analytical, and theoretical models for understanding services? What base should we be drawing upon?
3. If there is a science of services, then how do we conduct experiments? Mathematical modelling and simulations, agent-based simulations, social science and anthropological types of experiments, Web-based experiments, technology, and others?
4. What are services innovations composed of?
5. Can we find principles for systematic services innovations?
6. Is SSME too broad and not focused enough? Is this breadth vs. depth unbalance necessary?

3.2 Business

1. What will businesses gain from SSME?
2. Why should businesses invest in understanding services innovation more systematically?
3. What are business models that are more appropriate for services-based vs. good-based economies?

3.3 Social and Organizational

1. Why are services organizations interested in this space?
2. What are some of the key common problems that services organizations face?
3. What are some of the solution approaches that are being tried out successfully in various organizations?
4. What is the role of culture in services companies? Would understanding cultural aspects of services companies improve our chances for innovations?

3.4 Education and Training

1. What is an example curriculum for SSME?
2. What are key skills important to a *service engineer*?
3. What can educators and universities do to prepare graduates for this shift in the labor force?

3.5 Technology

1. How do we position SOA and Web services in a services-led economy? Are they the manifestation of this change?
2. How do we position Web 2.0 initiatives with the shift in services? Aren't Web 2.0 software-as-a-service applications the exact shift of information services on the platform enabled by the Web?
3. What is the role of technology in addressing services innovation?

4. Invited Talk: 90 minutes

Researchers across industry and academia talk about key research programs, issues, results, and so on, relating to services innovation (science, engineering, and management). The talks will expose the audience to some of the key research challenges and opportunities that the services poses and link it to some of the key areas of interest for the IEEE CEC community around information models, process models, business models, and so on.

The session will have representation from both industry and academia. There will be three talks, about 20 minutes each with some time for interactions. The talks' topics are determined by the speakers. What follows is a list of tentative speakers:

1. Henry W. Chesbrough, Executive Director, Center for Technology Strategy Management, Haas School of Business, University of California Berkeley

5. Invited Panel Session: 90 minutes

The panel is designed to provide a mix of diverse opinions on the subject of SSME and services innovation. We included economists, technologists, educators, and members of the government. An important goal of the panel is to allow the audience to

have a more intimate dialogue with the presenters as well as others who are interested in services innovation from multiple viewpoints. A tentative list of our distinguish panelists' follows:

1. Nick Bambos, Professor of Electrical Engineering and of Management Science and Engineering, Stanford University
2. Ravi Nemana, SSME Executive Director, CITRIS, UC Berkeley
3. Calton Pu, Professor, John P. Imlay, Jr. Chair in Software, College of Computing, Georgia Tech
4. Sara Moulton Reger, Organization Change Consultant, IBM Almaden Services Research
5. Mark Fulgham, ITO Portfolio Manager, HP Business Services

6. Organizers Biographies

6.1 HP Labs, Palo Alto, CA

Kannan Govindarajan is Portfolio Manager for Services Research at HP Labs in Palo Alto. Prior to working on Services, Kannan was architect of HP's pioneering Web services infrastructure offering, e-speak. He represented HP in Web services standards bodies such as UDDI in addition to architecting and developing key portions of e-speak. Kannan also spent a couple of years at Oracle's Java Products Group developing early versions of Oracle's java technology stack. Kannan has a S.M. in Management from MIT Sloan School of Management, a Ph.D. in Computer Science from SUNY at Buffalo, and a B.Tech. in Computer Science from the Indian Institute of Technology Chennai (Madras).

6.2 IBM Research, San Jose, CA

E. Michael Maximilien (or simply Max) is a Research Staff Member at IBM's Almaden Services Research (ASR) group in San Jose, CA. Prior to joining ASR he spent ten years at IBM's Research Triangle Park, NC in software development and architecture. Max led various small to medium size teams, architecting and developing enterprise and embedded Java software; he is founding member and contributor to three worldwide Java and UML industry standards. Max' primary research interests are in distributed systems

and software engineering. In particular, interests, contributions, and publications to areas of SOA, Web services, semantic Web services, multiagent systems, and agile programming and processes.

Max earned a Ph.D. and a M.S. in computer science from NC State University, Raleigh. Max received three IBM awards, holds five issued patents, and has eight pending.

10. References

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