

**Service Science and Innovation Doctoral
Colloquium
22-23 March 2010**

**Staffordshire University, The Octagon, Beaconside, Stafford,
ST 18 OAD.**

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Purpose of Doctoral Colloquium

- It is designed to provide doctoral researchers in Services Science and Innovation (SSI) with the opportunity to present and discuss their research with a multi disciplinary panel of distinguished scholars and practitioners engaged in SSI.
- Two Streams A and B.

Stream A

- Is for doctoral researchers who have commenced their doctoral studies, and made some progress in the development of their research, or who have recently completed their doctoral thesis.

Stream B

- Is for students who are in the very early stages of their doctoral research, or who are anticipating enrolment for a doctoral degree in the near future.

IT Industry

- Shifts from Product to Service.
- ICT is the major driver of service revolution.
- Service research drives future ICT innovation and business productivity.

What is Service Science or SSME(D)?

Service Science, Management, and Engineering (SSME) is a term introduced by IBM to describe Service Science, an interdisciplinary approach to the study, design, and implementation of services systems – complex systems in which specific arrangements of people and technologies take actions that provide value for others. More precisely, SSME has been defined as the application of science, management, and engineering disciplines to tasks that one organization beneficially performs for and with another.



The screenshot shows the Wikipedia page for "Service Science, Management and Engineering". The page title is "Service Science, Management and Engineering" and it is from Wikipedia, the free encyclopedia. The main text defines SSME as a term introduced by IBM to describe Services Sciences, an interdisciplinary approach to the study, design, and implementation of services systems. It states that SSME is a call for academia, industry, and governments to focus on becoming more systematic about innovation in the service largest sector in developing nations as well. SSME is also a proposed academic discipline and research area that would complement other disciplines.

The page includes a navigation sidebar with links to Main page, Contents, Featured content, Current events, and Random article. It also has a search box, an interaction sidebar with links to About Wikipedia, Community portal, Recent changes, Contact Wikipedia, and Donate to Wikipedia, and a toolbox with links to What links here, Related changes, Upload file, Special pages, Printable version, Permanent link, and Cite this page.

The main content area has a "Contents" section with the following items:

- 1 What is Service?
- 2 What is a Service System?
- 3 Toward a Science of Service
- 4 Sources
- 5 See also
- 6 External links

The "What is Service?" section defines service in national economic statistics as whatever is not agriculture or manufacturing. It states that service involves deployment of knowledge, skills, and a single, customized job. It also mentions that service requires substantial input from the customer or client. The text notes that service involves so-called front-stage and back-stage activities in any business transaction – front stage being the part that comes in contact with the front-stage activities to interact with the customer, whereas traditional manufacturing requires very little customer input to the product.

There are many definitions of service in the literature. Here are a few:

- Services are economic activities offered by one party to another, most commonly employing time-based performances to bring about responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labor, physical elements involved. LOVELOCK & WIRTZ, "Services Marketing: People, Technology, Strategy," 6/e; (Upper Saddle River
- A service is a time-perishable, intangible experience performed for a customer acting in the role of a co-producer. FITZSIMMONS
- Service [is] the application of specialized competences (knowledge and skills), through deeds, processes, and performances for (Armonk, NY: ME Sharpe, 2006).

Historically, service scholars emphasized customization, but the world is changing. One of the contributions of SSME may be to help modular service elements in several "customizable" but highly predictable permutations. Many customers seek and value standardization and mass customization. A new service definition might focus on the technical nature of modern day service, rather than something to advance the service economy.

- SSME goal
 - Make productivity, quality, performance, compliance, growth, and learning improvements more predictable in (co-production) relationships.
- SSME is the study of service systems
 - Aimed at improving service systems.
- SSME brings together ongoing work in computer science, operations research, industrial engineering, business strategy, management sciences, social and cognitive sciences, and legal sciences to develop the skills required in a services-led economy. (IBM)

Why is SSME important?

- The world is becoming networked, dependent on information and information technology.
- Science will provide tools and methods to study services and develop solutions to problems that span multiple disciplines.
- Graduates may be solution designers, consultants, engineers, scientists, and managers who will grow into becoming entrepreneurs, executives, researchers, and practitioners.



The importance of creating SSME

- Services are the largest part of the developed countries' economy and fastest growing sectors in developing countries (in fact, manufacturing includes services too).
- GDP growth depends on companies' ability to earn revenue and make profits.
- Revenue and profit increases depend on productivity and innovations.
- Innovation and productivity depend on multi-disciplinary skills.
- Multidisciplinary skills depend on getting students and employees trained in service science. (IBM)

IBM's motivation

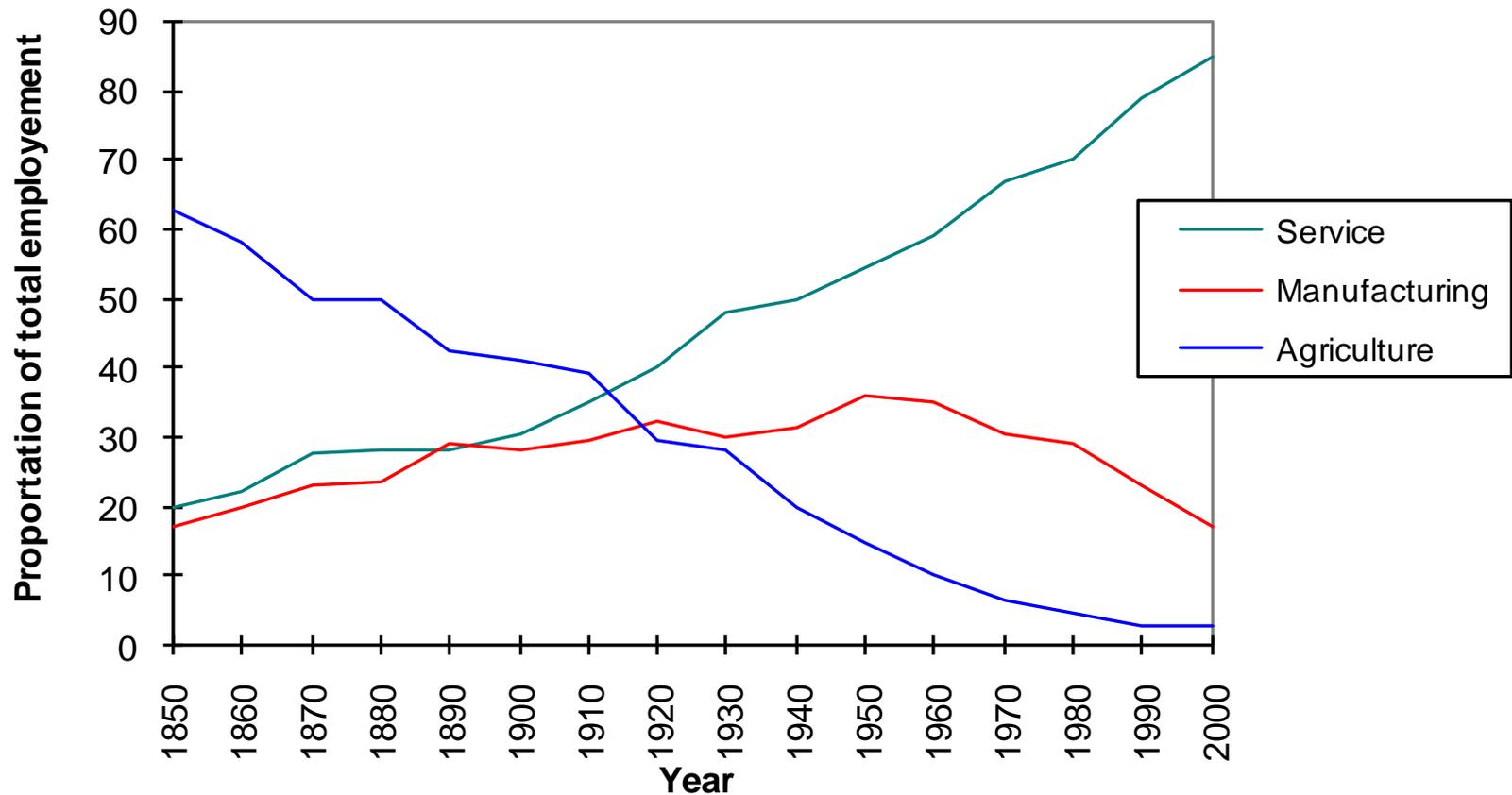
- Need better trained people: Services professionals & researchers.
- Need more knowledge about sustainable service innovation techniques: Innovation is the key to value creation and capture; hence the key to sustainable business advantage.
- Need more systematic methods for studying and creating knowledge about service systems: Investment in science & research pays in new knowledge. Example: Computer Science (co-evolution of occupation, discipline, techniques, science).

Percent Employment in Services

Top Ten Postindustrial Nations

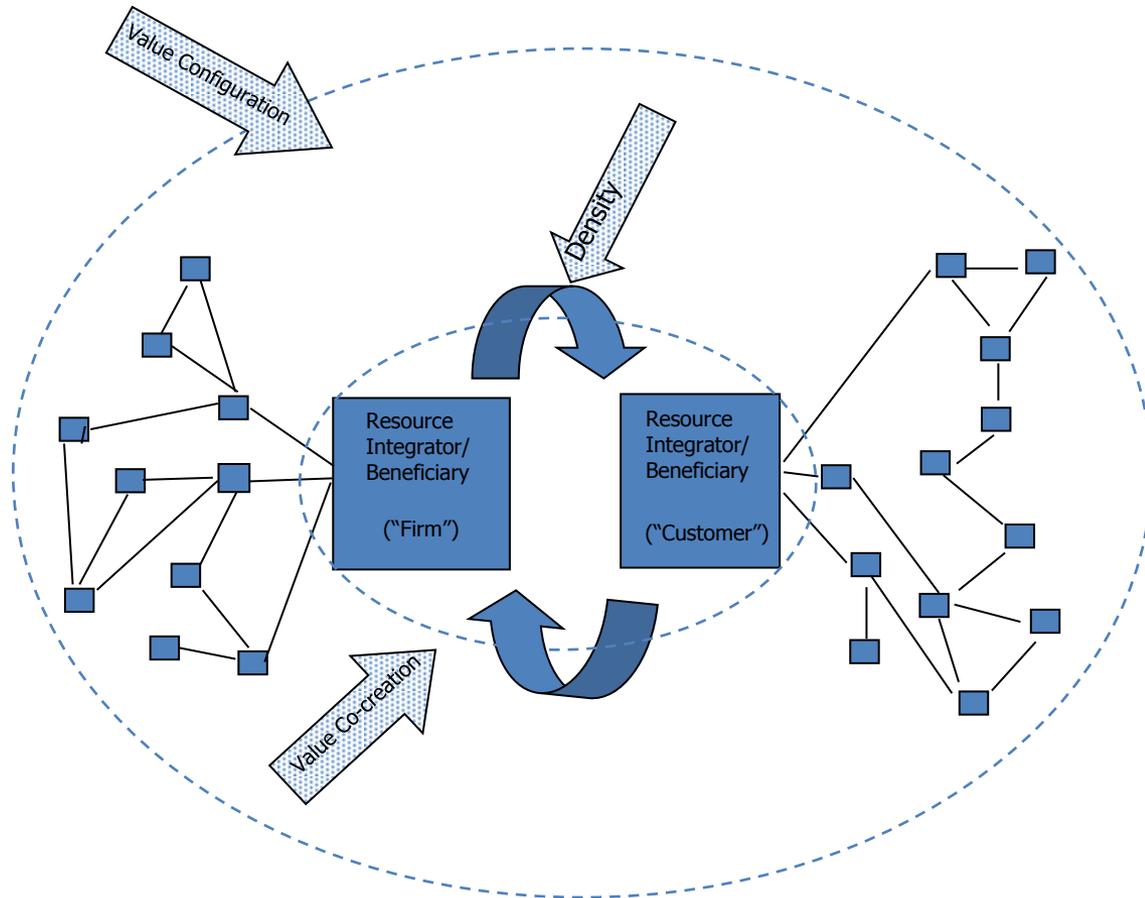
Country	1965	1975	1985	1995	2005
United States	59.5	66.4	70.0	74.1	78.6
United Kingdom	51.3	58.3	64.1	71.4	77.0
The Netherlands	52.5	60.9	68.3	73.4	76.5
Sweden	46.5	57.7	66.1	71.5	76.3
Canada	57.8	65.8	70.6	74.8	76.0
Australia	54.6	61.5	68.4	73.1	75.8
France	43.9	51.9	61.4	70.0	74.8
Japan	44.8	52.0	57.0	61.4	68.6
Germany	41.8	n/a	51.6	60.8	68.5
Italy	36.5	44.0	55.3	62.2	65.5

Trends in U.S. Employment by Sector



Service-dominant logic

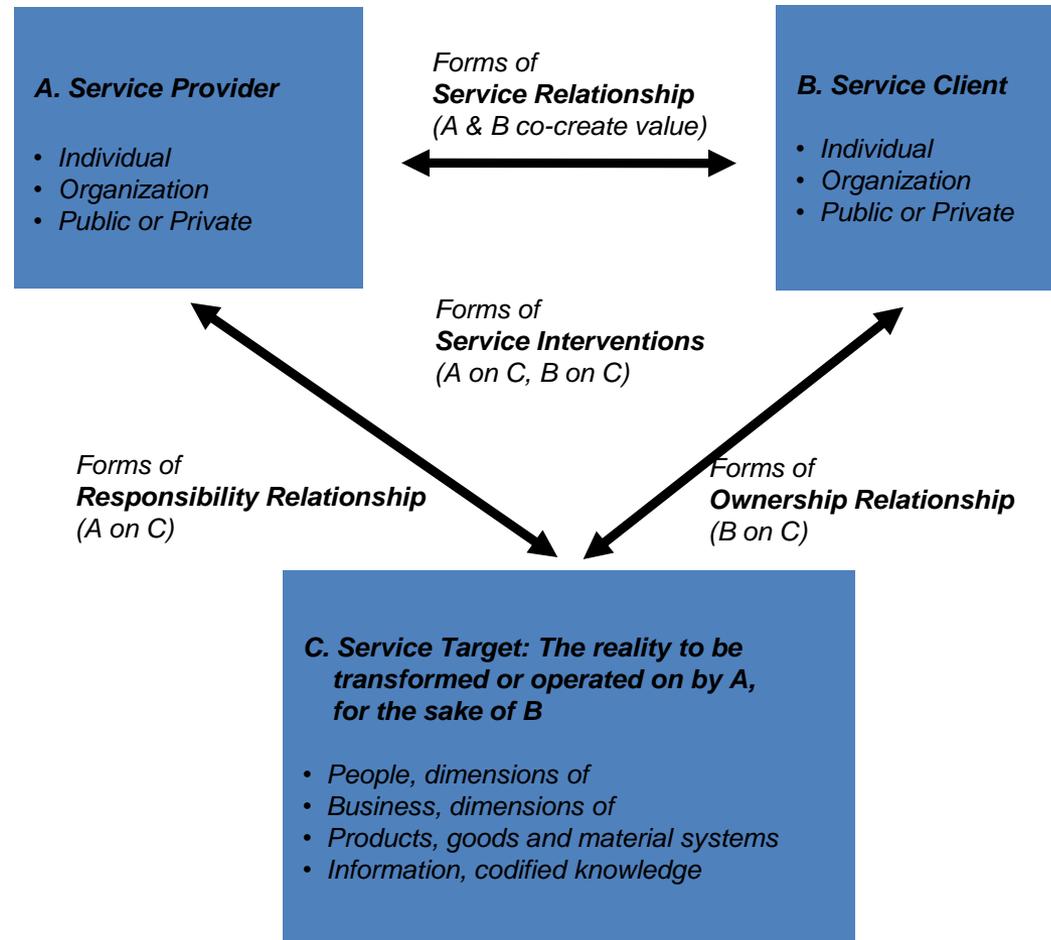
- Service is the application of competences for the benefit of another entity.
- Service is exchanged for service.
- Value is always co-created.
- Goods are appliances for delivery.
- All economies are service economies.
- All businesses are service businesses.



Vargo, S. L. & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68, 1 – 17.

Service is the application of competence for the benefit of another entity

- Service involves at least two entities, one applying competence and another integrating the applied competences with other resources and determining benefit (also called, value co-creation).
- We call these **service systems**.



Gadrey, J. (2002). The misuse of productivity concepts in services: Lessons from a comparison between France and the United States. In J. Gadrey & F. Gallouj (Eds). *Productivity, Innovation, and Knowledge in Services: New Economic and Socio-economic Approaches*. Cheltenham UK: Edward Elgar, pp. 26 – 53.

Spohrer, J., Maglio, P. P., Bailey, J. & Gruhl, D. (2007). Steps toward a science of service systems. *Computer*, 40, 71-77.

A service system is

- “a configuration of people, technologies, and other resources that interact with other service systems to create mutual value.” (Maglio et al., 2009)
- The service system is the basic abstraction of service science (2009), Paul P. Maglio, Stephen L. Vargo, Nathan Caswell,

Internet of Service Vision

(from Kris Singh, president SRII)

- A multitude of connected IT services that are offered, bought, sold, used, repurposed and corresponding by a worldwide network of service providers, consumers, aggregators and brokers, resulting in:
- New ways of offering, using and organising IT through cloud computing.

Research in Service Science

- IT: e-services, software as a Service, SOA.
- Everything as a service.
- Cloud Computing.

- Need to investigate research from social Science, Business, Engineering & Technology for customers to co-create value.

Research Issues

- How to co-create value.
- Better understanding of value co-creation.
- How to model the complexity of service systems.
- How to measure service quality.
- How to promote service innovation.
- Defining innovative business models that can create value for all stakeholders.
- How can we effectively co-create value in a network of different stakeholders?

Teaching at Staffordshire University

- Master degree in Information Systems and Service Science.
- Modules for undergraduate students
 - Service science
 - Service innovation
 - Service management and ITIL
- Used Problem Based Learning for teaching

Feedback from Students

From Jessica

- I liked the module Service Science very much and learned a lot.
- I also liked the tutorials and the assignments where we have had the possibility to apply what we have learned and to understand how we can implement that into the case studies in the tutorials and in our group assignment.
- Therefore the module which in the beginning seemed to be very theoretical to me was converted into a practical module, which I really enjoyed. The reason therefore is that I can learn and understand things better if I know and try to apply them by myself

SSME Research at Staffordshire University

- Development of a global service framework, (part time HP student).
- Modelling service design using activity theory, co-configuration, and boundary objects.
- A framework for measuring service quality
- Service innovation and knowledge management
- Co-creation of value in a network through simulation
- E learning service using actor network theory
- SDL and ITIL

Service Skills, Abilities & Knowledge

Complex Communication

Expert Thinking

- “T-shaped Professionals” Are in high demand because they have both depth and breadth.
- They combine expert thinking (depth in one or more areas) and complex communications (breadth across many areas).

(From IBM)

- Cross-discipline communication.
- Service system design, management and modelling.
- Value co-creation analysis.
- Service life-cycle analysis (for quality assurance)
- Service supply and demand management.
- New service development.
- Business case development and analysis.





- Organisational change management.
- Marketing and sales.
- Creative and critical thinking.
- Communication skills.
- Leadership and collaboration skills.

Summary

- Service is value co-creation, that is, useful changes that result from communication, planning or other purposeful interaction between distinct entities.
- A service system is a collection of entities and interactions that co-create value, that is, a set of distinct configurations of resources (including people, organisations, shared information and technology) that are better off working together than working alone.





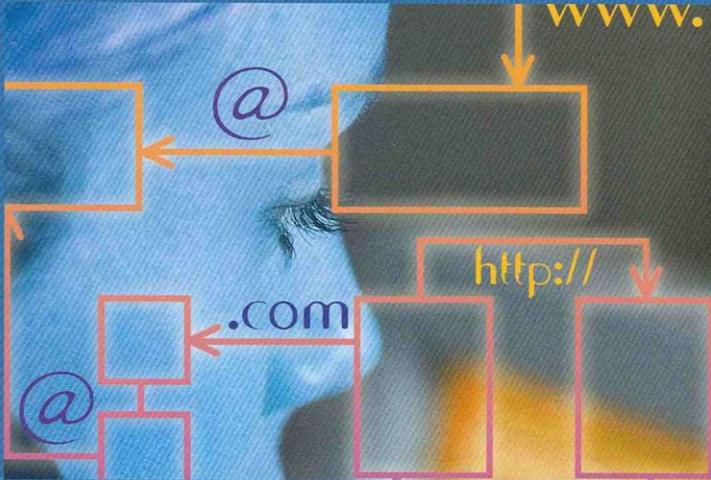
- Service science aims to create a body of knowledge that describes, explains, predicts and improves value co-creation between entities as they interact, that is, relaying on methods and standards used by a community to account for observable phenomena with conceptual frameworks, theories, models and laws that can be empirically tested.



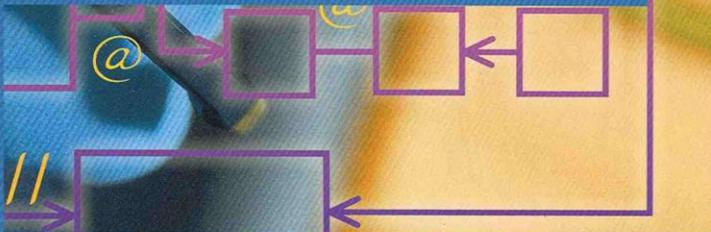
- So, the object of study is value co-creation.
- The basic abstraction is the service system, and the ultimate goal is to develop methods and theories that can be used to explain and improve value co-creation in service systems.

(IBM 2010)

Technology and Problem-Based Learning



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Published by

IGI – Global

<www.igi-pub.com>

ISBN 1-59140-744-3

(Hardback)

ISBN 1-5940-745-1

(Soft cover)

ISBN 1-59140-746-X

(E-book).

Thank you for listening.