

# Service Science and Innovation

## Doctoral Symposium

March 22<sup>nd</sup>-23<sup>rd</sup>

University of Staffordshire

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# About The University of Manchester

- Distinguished history of research, innovation, enterprise over 180 years
- Attracts over £250m in external research funding each year
- UK's largest single site educational institution, annual income £684m, with 35k students, 26k undergraduates, 5.5k Masters, 3.4k Doctoral
- Has 23 Nobel Prize winners amongst its staff and former students

World class facilities for incubation of companies, over 100 spin-outs in past 10 years, generating over £150m



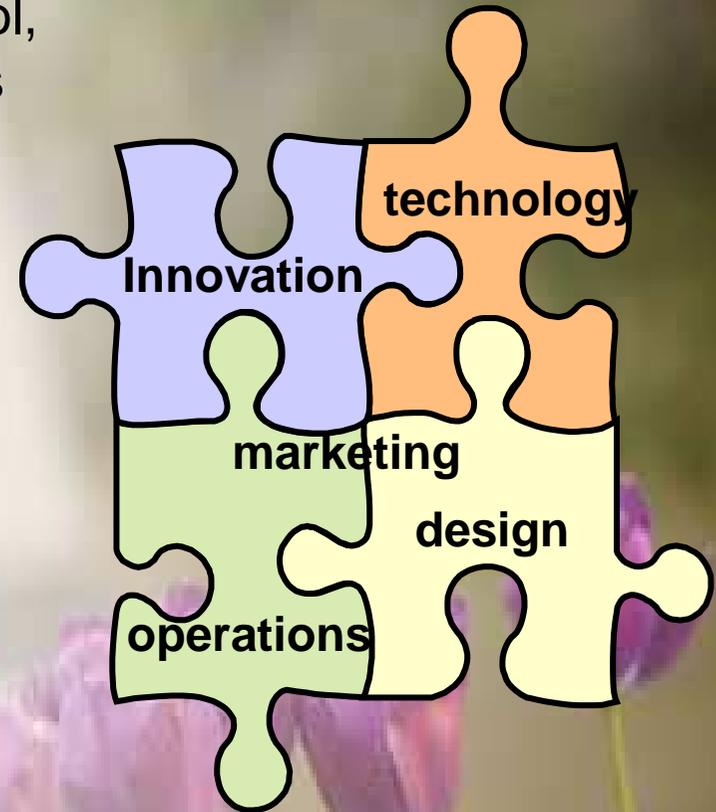
The University has always been at the forefront of science and technology, Kilburn and Williams developed the world's first modern computer



Situated in Manchester Business School, the centre has over 30 faculty members including 10 Professors and links into Computer Science

Draws together staff with a strong track record of international collaboration, publication in high quality journals, industry relevant research and winning competitive funding bids

In line with Manchester 2015 vision our aim is to develop a world renowned centre for scholarship and research



# What is a Service?

A service can be generated and supplied in different ways

- Human to Human
- IT - Human Interaction
- IT to IT



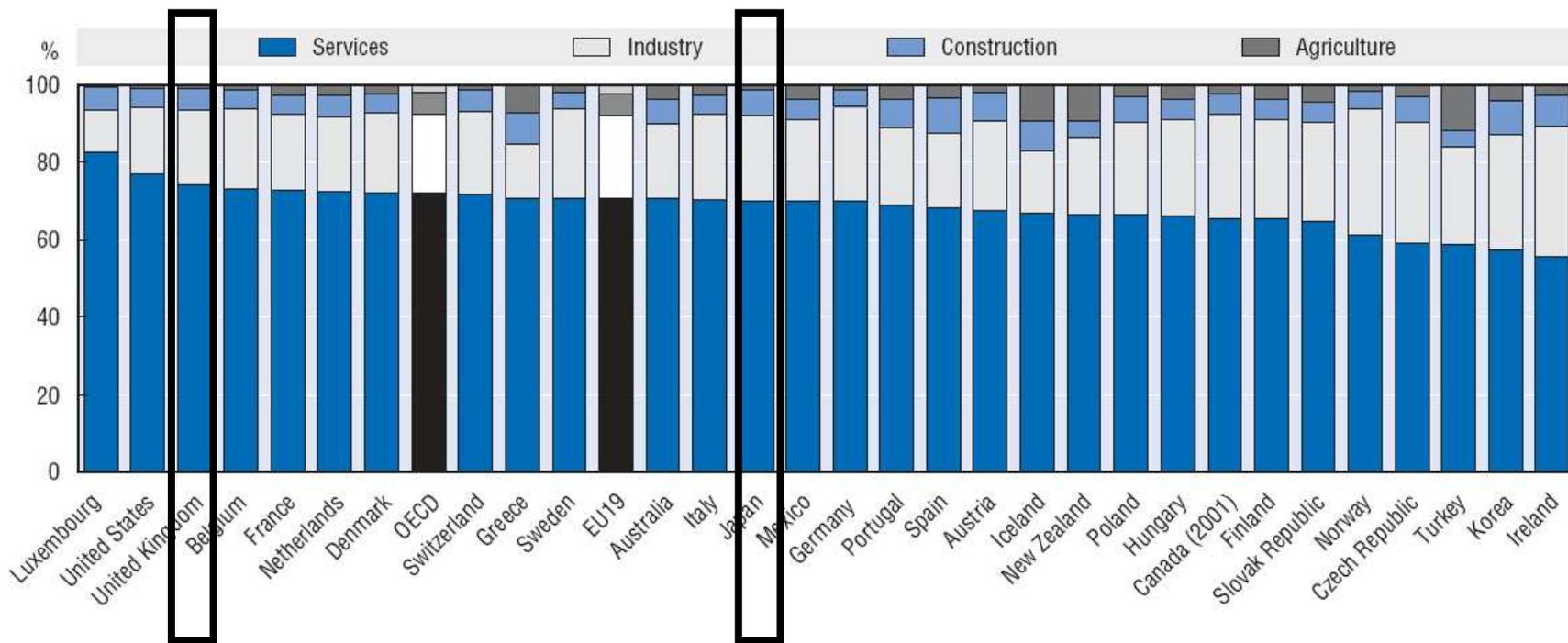
People, physical artefacts or symbols can be transformed by service processes

A service is a provider-to-client interaction that creates and captures value while sharing risks, (referred to as: co-creation of value)

# Why focus on service? Employment...

Major proportion of GDP and employment in western world

- Service sector accounts for over 70% of EU's economic activity
- Nearly 70% of EU's workforce are employed in service sectors

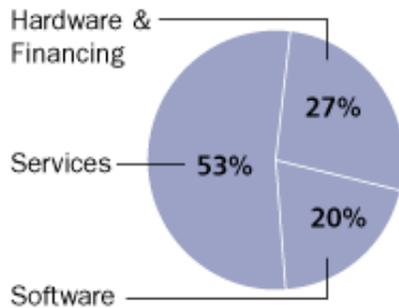


UK

Japan

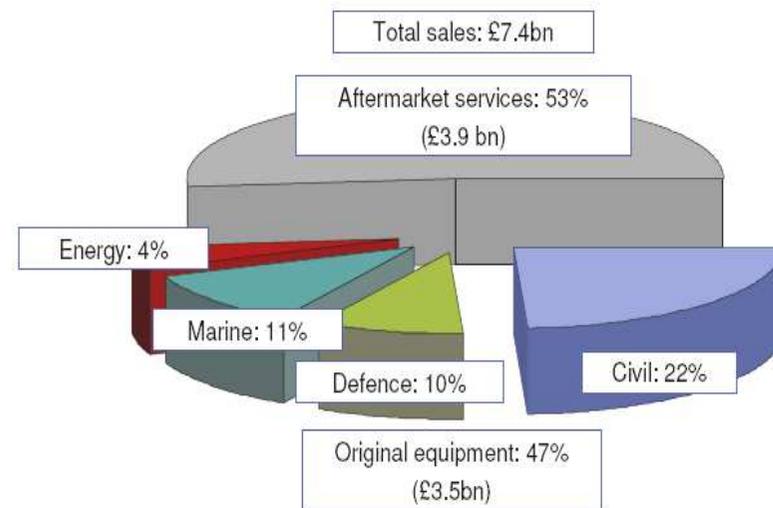


Revenue Mix



# Why Focus on Service?

## Levels of revenue generated from Services



Revenue Stream



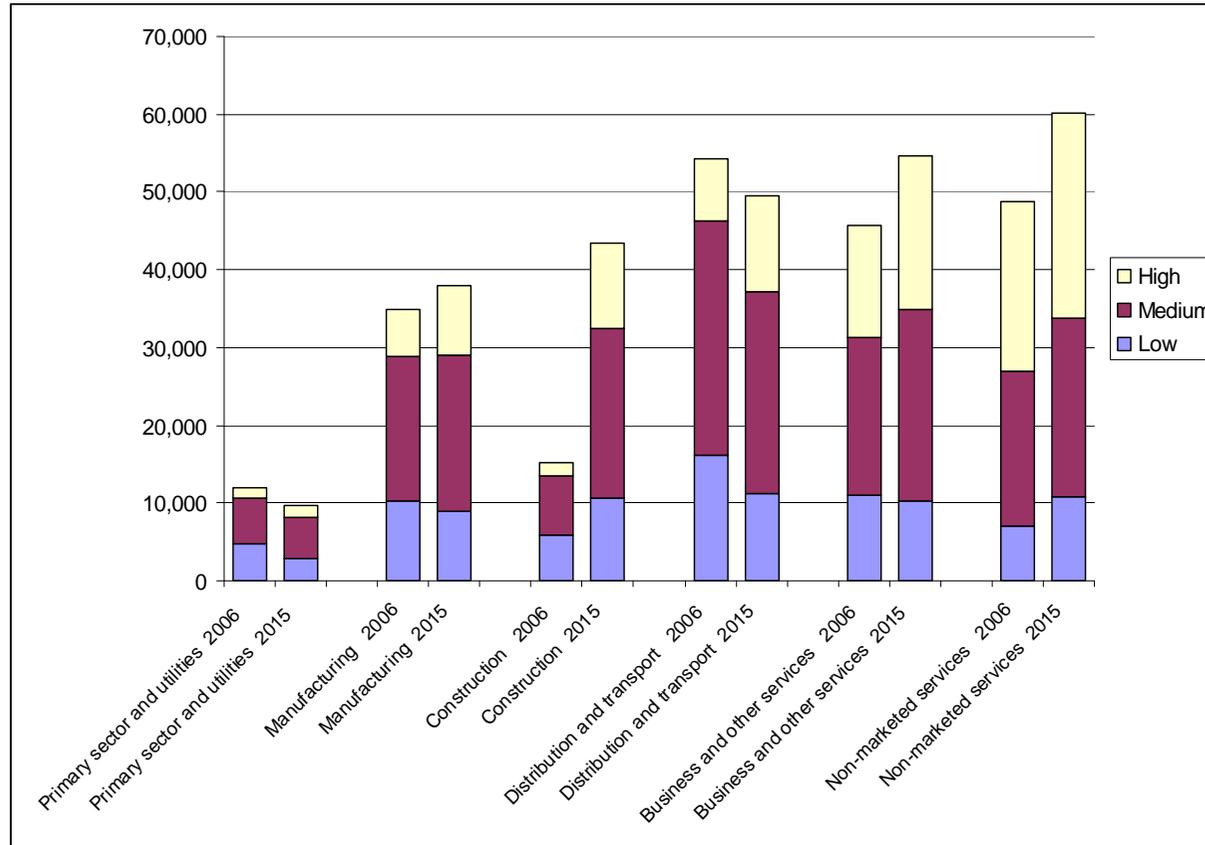
Approximately 28% of our revenue comes from equipment sales, from either lease arrangements that qualify as sales for accounting purposes, or outright cash sales.

The remaining 72% of our revenue, "Post sale and financing," includes annuity-based revenue from maintenance, services, supplies, and financing, as well as revenue from rentals or operating lease arrangements.

## Levels of profit?

# Why focus on Service? demand for graduates

## Projections in graduate employment to 2015 (high skill level)



Absolute employment numbers and projections, three skill levels

SOURCE: *Elaborated from data in Tables 34a/34b pp 100-103: in,*

*Future Skill needs in Europe Medium term Synthesis Report (2008), CEDEFOP, Luxembourg EC.*

# The Centre for Service Research The University of Manchester

Why such a Centre is needed...



# Why is Service Research needed?

## The shift from manufacturing to service

- Economies have become dominated by service sectors
- Service thought of as a 'craft' and lacks the scientific rigour of traditional engineering
- A more scientific approach to service is needed but research is lagging behind

## The complexity of service

- Both business to business and business to consumer
- Requires research into service innovation and how a service is designed, delivered, managed, used, measured and evaluated
- Requires contribution from many disciplines
- Research is traditionally conducted in silos and does not facilitate the holistic thinking needed to address complexity

## The growth in services is changing the way companies organise themselves

- Creating a skills gap that requires graduates to have knowledge about people, business and information technology in the design and delivery of service

# What is a Service System?

The system concept has been used in everyday life to help us understand complex phenomena, both physical and conceptual: “weather systems”; “social systems”; “human systems”; “computer systems” .

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)

Viewing services as systems allows us to study their structure, reason about their properties and behaviour, understand their processes, and test their validity.

The service system is the basic abstraction of service science (2009), Paul P. Maglio, Stephen L. Vargo, Nathan Caswell, Jim Spohrer, Information Systems E-Business Management (DOI 10.1007/s10257-008-0105-1) Online First Springer Verlag 2009

# Needs holistic, multi-discipline thinking...

**From...single discipline**



**To...complementary knowledge and expertise**



**To...seeing the whole picture**

# The Centre for Service Research The University of Manchester

What we do...



The centre supports organisations in their service provisioning to help them succeed in:

- Strategy and Innovation.
- Design, control and improve service.
- Develop an holistic view of services.
- Deliver services more effectively and efficiently.

Via

- Service Innovation
- Service Marketing
- Service Operations
- Service System Design
- Socio-technical Design
- Emerging Service Skills
- Information Management
- Service Provision/Sectors

# Key Areas of Research

## Service Innovation

Innovation processes, Foresight, Innovation studies

## Service Marketing

Co-creation of value, complaints management, perception of value

## Service Operations

Designing, controlling and improving operations, methods of assessment

## Service System Design

Designing service systems to identify their structure and components so that they can be changed, managed and controlled.

## Socio-technical Design

Designing systems for optimal individual, group and social interaction

## Emerging Service Skills

Identifying new skills requirements

## Information Management

New patterns of finding, using and creating information and knowledge

## Service Provision/Sectors

Health Services, Knowledge Intensive Services, Financial Services, Small & Medium Size Enterprises (SMEs), Voluntary Sector

# Building the Centre through Challenges

Worked Example of a Challenge: **The Future Call Centre**

In the video Patrick Dixon, Futurist from Globalchange.com talks about his vision for call centres.

We asked members of the Centre for Service Research to respond: Given your area of expertise, how would you analyse the problem and how would you help achieve the vision?

Watch the video...what would your response be?

[http://www.youtube.com/profile?user=pjvdixon#p/search/2/C\\_GMINarIpI](http://www.youtube.com/profile?user=pjvdixon#p/search/2/C_GMINarIpI)

## Centre for Service Research staff said it's....

A data problem

A human technology interaction problem

A work organisation problem

A people problem

An information management problem

An operational procedures problem

A performance measurement problem

And that there's 'a need to look for sources of innovation'

## What staff would do: quote 1

“I’d want to analyse if there are any gaps, between what the customer wants,  
and what the organisation is saying it delivered, and to try and look at the processes that constitute this call centre.  
....

There seems to be little communication between different processes, so people have to call time and time again.”

Dr Claire Moxham, Operations Management

## What staff would do: Quote 2

“We have done ethnographic studies of how these call centres work and we also did some discourse analysis of what is actually happening with the telephone calls at the moment,

we took the telephone calls apart and were able to help them restructure the service they delivered and redesign their staff training.”

Dr. Kathy Keeling, Marketing

## What staff would do: Quote 3

“ ....we need to consider data understanding, data representation, conceptualisation and conduct clever searching of data and extraction of real time information for operators.

We're interested in tracking concerns that contextualise the interaction, and the individual element of customisation and segmentation.

Ultimately what we try to do is describe what's contained within data and, where possible, predict what may occur.”

Professor John Keane, School of Computer Science and Decision Sciences, MBS

## Some staff disagree!

“.....Patrick Dixon first came on and said “that the customer wants to see a human and not a robot”

....how interesting because the worker says:

**‘we want to be treated as a human’** and not a robot, and that they feel a part of a system and have no space to be human.

.....maybe if they were given the space to be more human then they would act more human and the customer would appreciate that.”

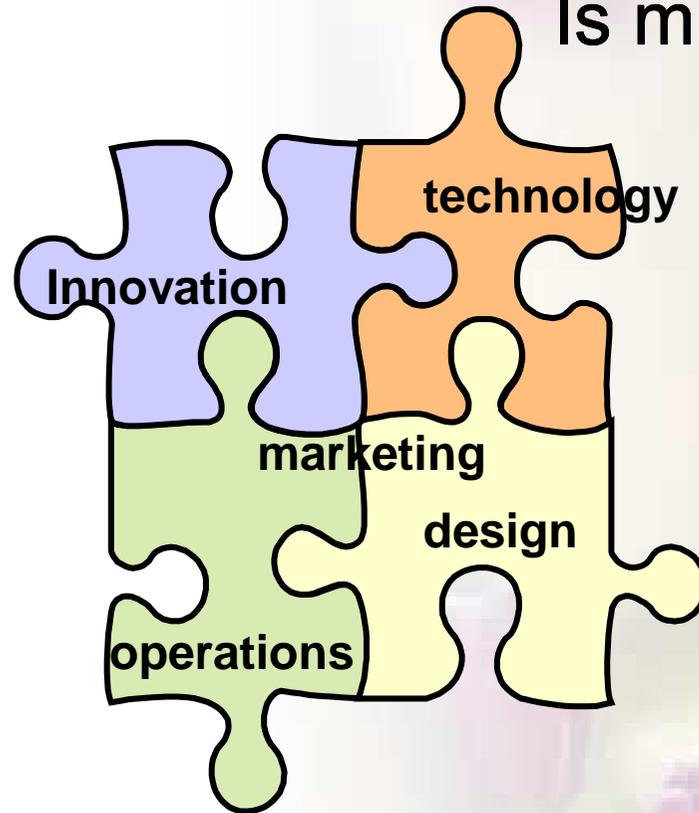
[Dr.Victoria Bishop, Human Resource Management](#)

“I disagree that all customers want to see a human face behind a service delivery **there are customers that really want to be empowered** and to have all the capabilities that could allow them to tap into companies back office.”

[Dr.Pedro Sampaio, Business Technology](#)

# Service Science Research

Is multidisciplinary



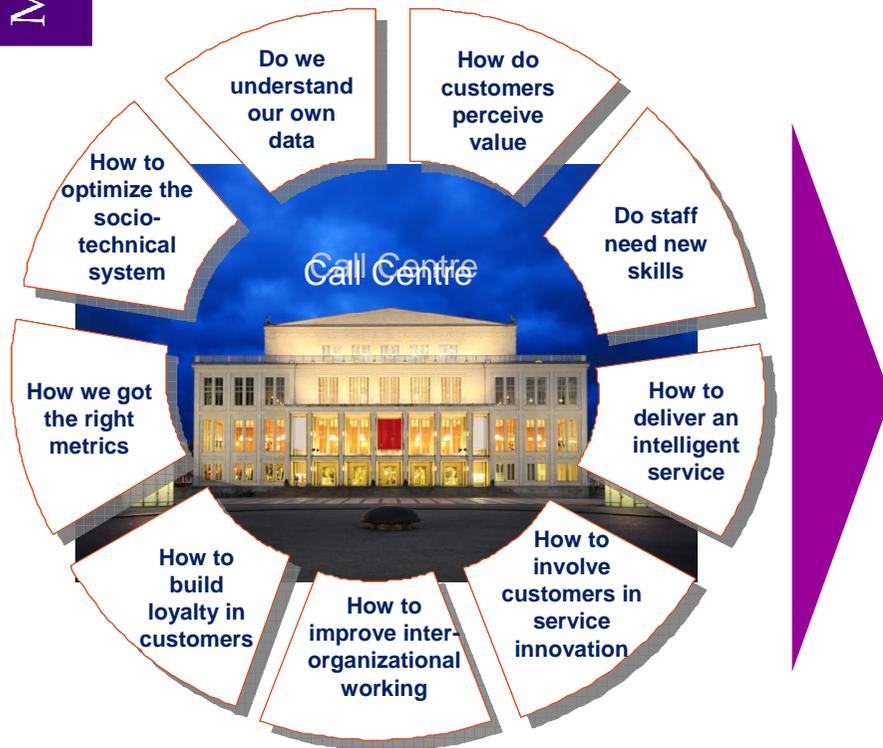
## Challenges facing Call Centres...



# A Worked Example: The Future Call Centre



How does each area of research deal with these challenges?



Service Innovation

Identifying sources of innovation

Service Marketing

Understand customer perception of value

Service Operations

Examine business processes & metrics

Service System Design

Align processes with IT architectures

Socio-technical Design

Optimize human computer interaction

Emerging Service Skills

Identify new skills requirements

Information Management

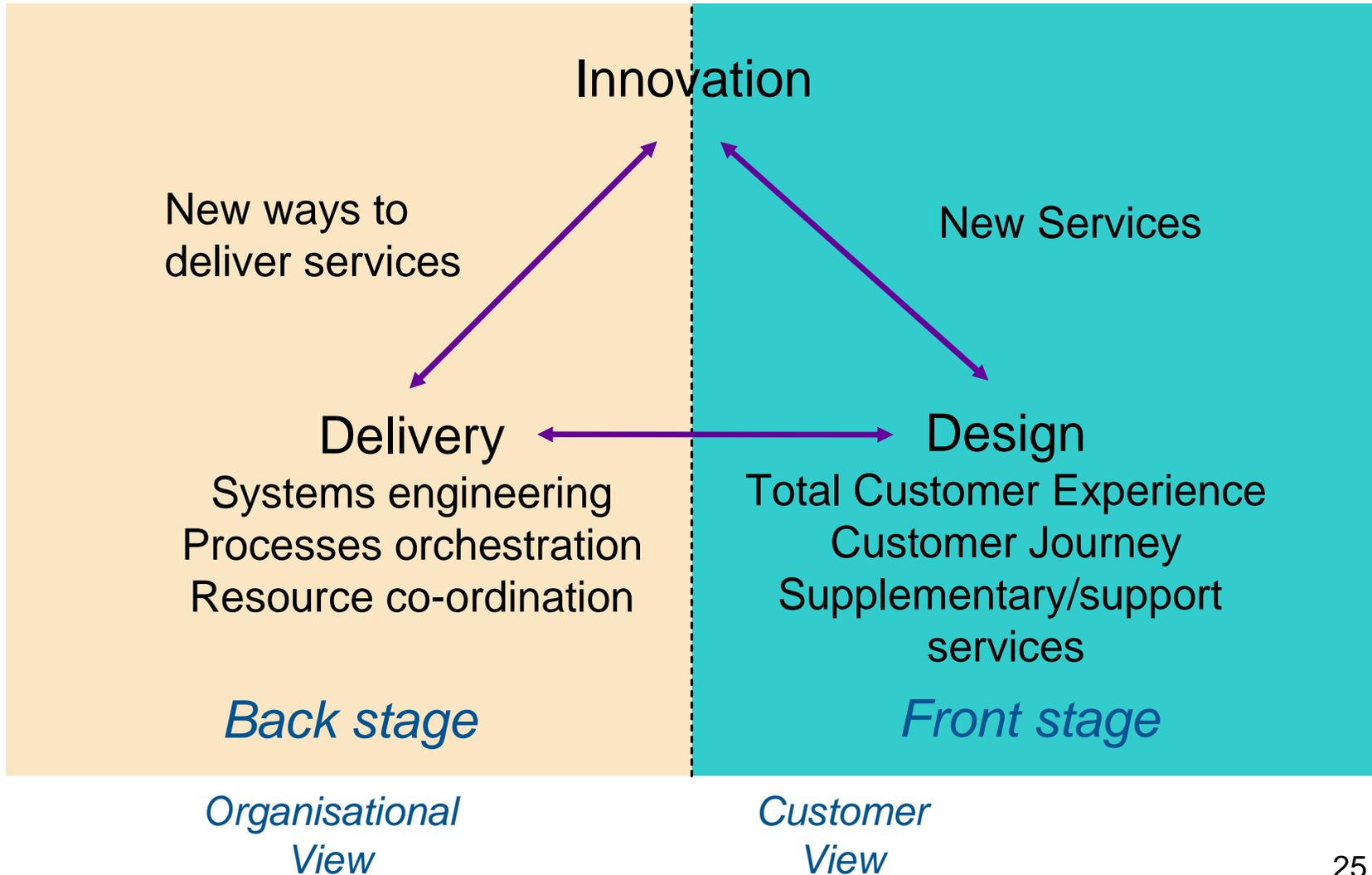
Understand data, deliver 'intelligent' service

# Service Innovation



# Scope and Context

Michael Lyons, BT source [www.ssmenetuk.org](http://www.ssmenetuk.org)



# Sources of Innovation

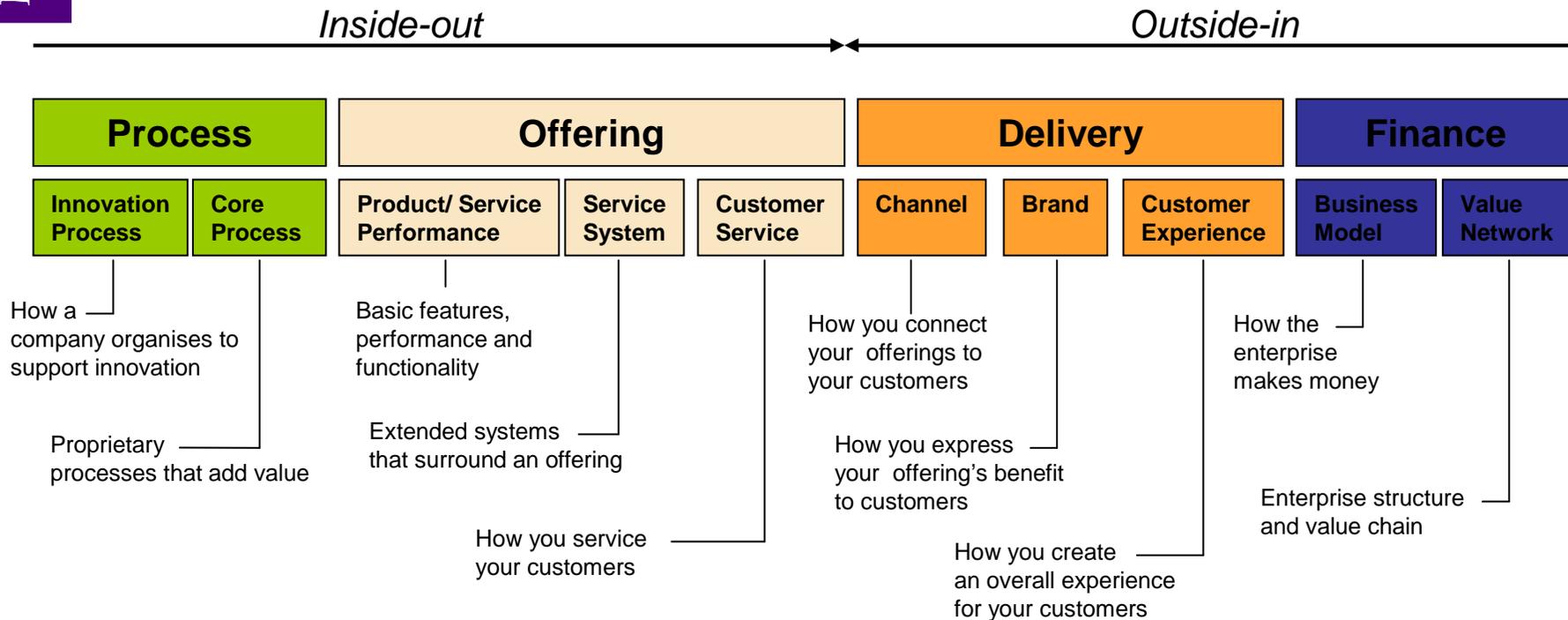
The Doblin Group, a Chicago-based consultancy led by [Larry Keeley](#), offers [10 types of innovation](#) that they consider.

1. Business model
2. Networks and alliances
3. Enabling processes
4. Core processes
5. Product performance
6. Product system
7. Customer Service
8. Channel
9. Brand
10. Customer Experience

# Service Innovation

*Michael Lyons, BT source www.ssmenetuk.org*

- Integration/ disaggregation of information value chain
- L Keeley (Doblin Inc.): Ten types of innovation:



- Goods - focus on: offering
- Services - focus on: customer experience; core process; business model

# Service Innovation: Definition

“Service innovation is a **new or significantly improved service concept that is taken into practice**. It can be for example a new customer interaction channel, a distribution system or a technological concept or a combination of them.

A service innovation always includes **replicable elements** that can be identified and systematically reproduced in other cases or environments. The replicable element can be the service outcome or the service process as such or a part of them.

A service innovation **benefits both the service producer and customers** and it improves its developer’s competitive edge.”

<http://akseli.tekes.fi/opencms/opencms/OhjelmaPortaali/ohjelmat/Serve/en/etusivu.html>

# Service Innovation Laboratory

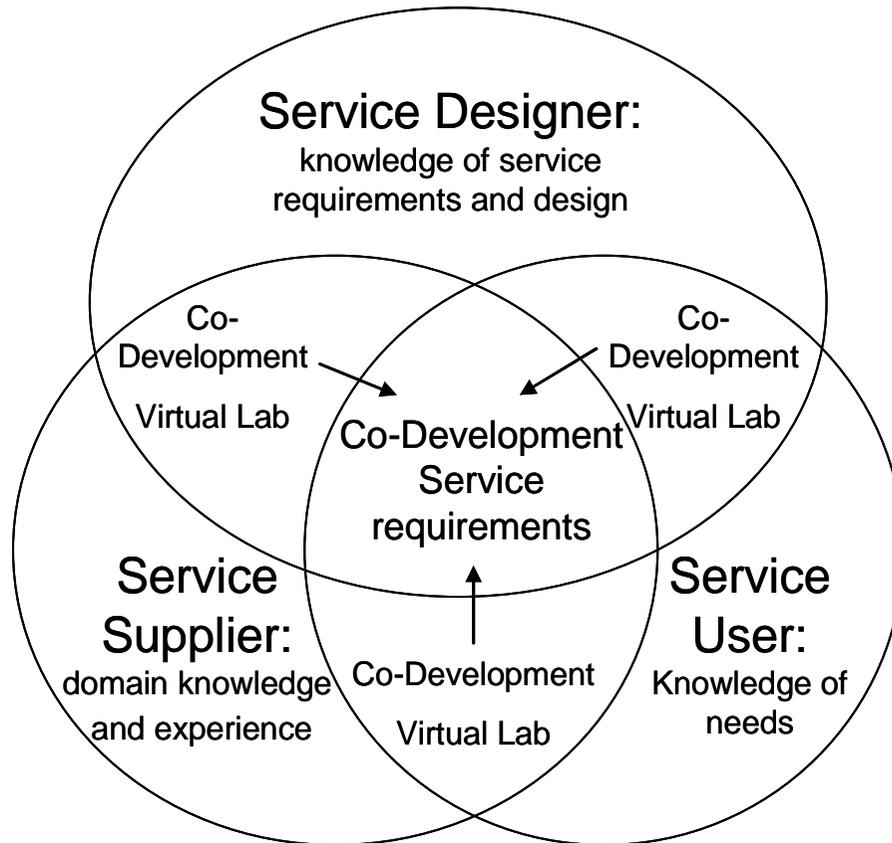
- Need to develop and assess ideas
- Interaction in value co-creation between service suppliers and service users
- Co-design between suppliers, users and designers
- Ability to capture social/psychological behaviours or emotional reactions to services where there is a high degree of human involvement
- Need for 'rapid prototyping' of services
- Modelling and simulation of
  - People
  - processes
  - performance
  - availability
  - resources
  - Dynamics

A Laboratory as a collection of tools, techniques, methods to help develop and assess ideas as part of the requirements process

# What tools can we include?

- Physical
  - Collaboration Environments
  - Usability Testing Environments
- Virtual
  - Teleconference, Telepresence
  - Social networking tools
- Virtual World
  - Second Life
- Simulations and Models
  - Simulation (testing 'what if')
  - Mathematical
  - Graphical
  - 3D
- Real World
  - Living Labs

## Virtual Worlds: co-creation and interactive simulation of new services



current simulation tools are weak in terms of their ability to capture social/psychological behaviours or emotional reactions

addresses a very real problem of envisioning how people will actually use a service before it has been designed and delivered.

# Real World Laboratory

## European Network of Living Labs

The European Network of Living Labs, brings together private and public organisations, who are committed to work together with users openly in realistic contexts, as a way to boost product/service innovation capacity.

“...but one thing is common for all of us; the human-centric involvement and its potential for development of new ICT-based services and products. It is all done by bringing different stakeholders together in a co-creative way.” <http://www.openlivinglabs.eu/>

"Living Labs are an excellent opportunity to speed up innovation"

*Veli-Pekka Niitamo, Nokia*

"As a research methodology, the Living Labs approach may be consistent with the policy measures that we are designing and implementing to foster an innovation-friendly market." *Rui Grilo, Portuguese Government*

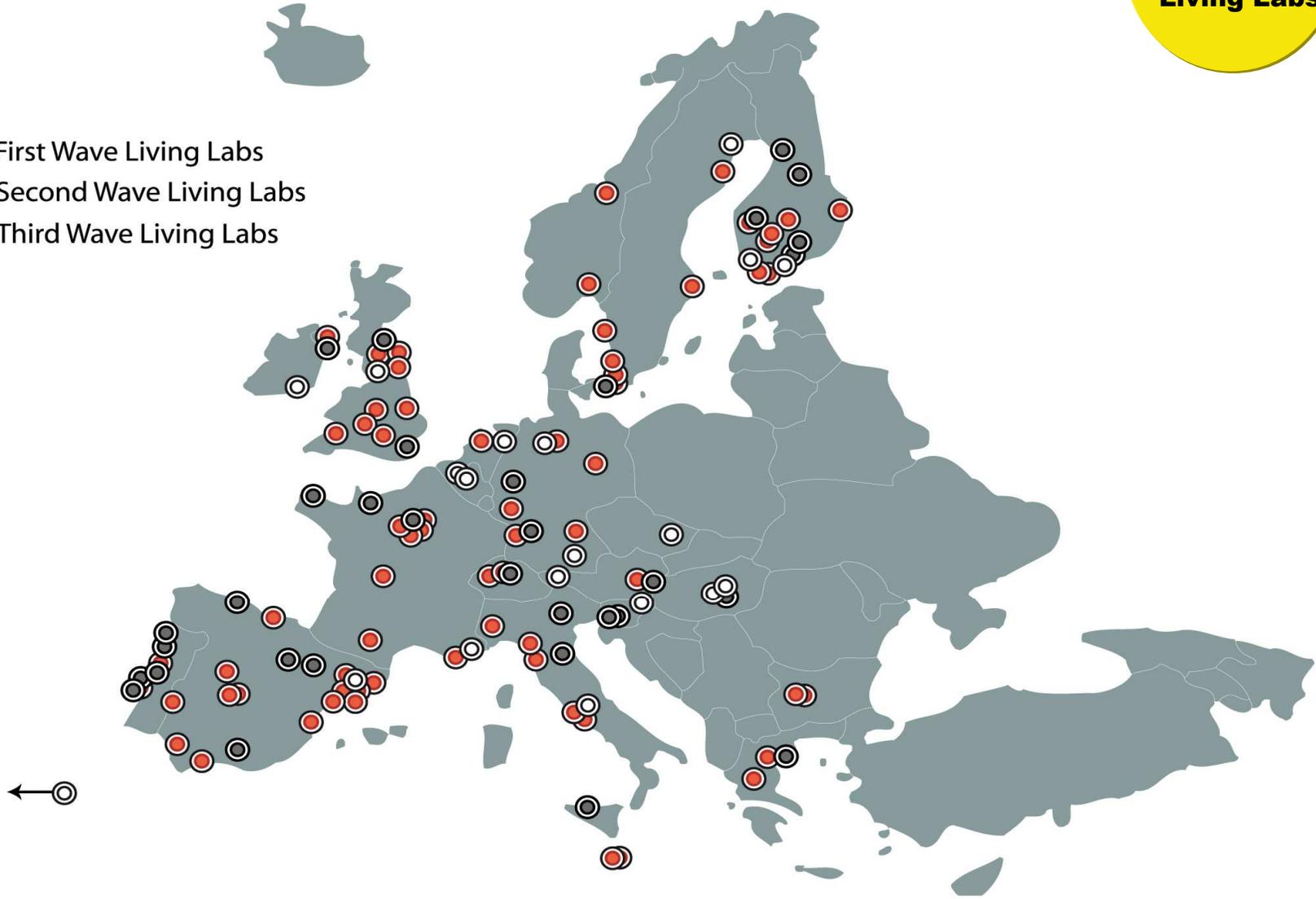
Example: <http://www.openlivinglabs.eu/pdfs/manchester-eastserve.pdf>

# Members Today (Europe)



MANCHESTER  
1824

- First Wave Living Labs
- Second Wave Living Labs
- Third Wave Living Labs



# Community building in service science....



SSMEnetUK

UK Network of Researchers in Science Management and Engineering

[www.ssmeneuk.org](http://www.ssmeneuk.org)

**UK Network  
of SSME Researchers and Practitioners**

Prof. Linda Macaulay, Manchester Business School  
Dr Liping Zhao, School of Computer Science  
The University of Manchester UK



## Research Overview

SSMEnetUK is a network of UK researchers interested in Service Science Management and Engineering (SSME).

SSMEnetUK is **funded by EPSRC** and **actively supported by BT, HP and IBM**.

The overall aim is to bring together researchers in the UK who recognize the need for multidisciplinary services oriented research and education and who will help develop the wider SSME agenda within the UK

## Case Studies in Service Innovation

Two day conference June 14th/15th 2010

Hosted by SSMEnetUK, SRII and the Centre for Service Research,  
at The University of Manchester, England

The aim of this event is to bring together practitioners and researchers  
to celebrate achievements in Service Innovation.

In this conference we are calling for examples of Service Innovation so  
that we can share our understanding and experiences and gain  
insights into how service innovation develops

For further detail see:

<http://www.ssmenetuk.org/netactivity.asp>

# Service Science and Innovation

In conclusion,

I have discussed why a multi-disciplinary approach to Service Science is important and highlighted some of the many sources of Service Innovation

Now I invite you to participate by joining the UK SSME network, submitting a Case Study in Service Innovation and coming to the Manchester conference in June

Thank you for listening