
Manufacturing Evolution to Service (& Implications for Low Carbon)

Prof Duncan McFarlane

*HVM Meeting
April 2008*



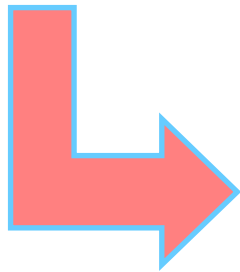
Services



Challenges for Existing Services

Pressure on Existing Services

- Cost reductions (eg government)
- Space constraints (eg aviation)
- Resource Limitations (eg leisure)
- Emission regulation (eg transportation)



Systematise
Standardise
Optimise
(Commoditise)

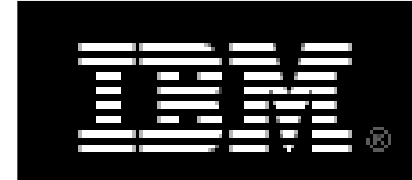
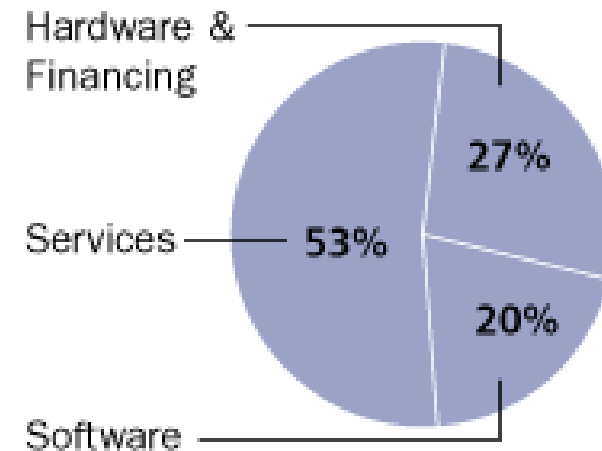
PRODUCTISATION
of services

IBM

Systems for creating business value across a continuum of service creation and delivery environments are simply not well understood. There has been little concerted scientific and engineering effort focused on these sorts of systems, which means it is time to shift our focus, especially in view of the role of services in the global economy.

*Ginni Rometti
Senior VP
IBM Global Business Services (2008)*

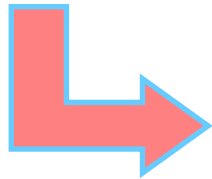
Revenue Mix



*IBM “Service Factory” model
Kevin Bishop
VP, e Business Europe (last night)*

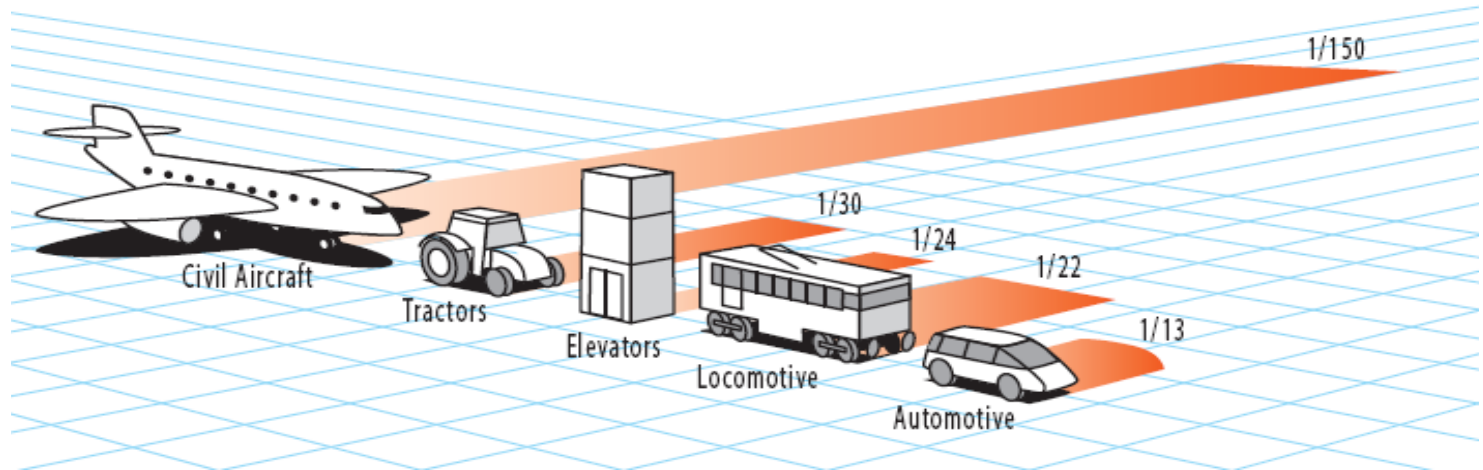
Emerging Service Areas

Pressures on equipment producers
(cost, competition, reduced market)



Add value
Add services

New order
intake /
Installed
Base
ratio



Emerging Service Areas

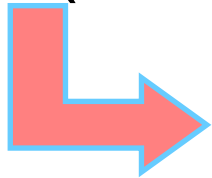
INDUSTRY	MARGIN IN OEM BUSINESS	MARGIN IN SERVICE	MARGIN LEVERAGE ¹
Paper Machines	1-3%	10-15%	5
Power Equipment	2-5%	15-20%	4
Metallurgy Equipment	-3 - +6%	15-20%	4
Rail Vehicles	3-6%	8-10%	2
Machine Tools	1-12%	5-15%	2

Note: 1 Margin Leverage = Margin in Service / Margin in OEM-Business

Source: Annual Reports, Expert Interviews, Monitor Analysis

Emerging Service Areas

Pressures on equipment producers
(cost, competition, reduced market)



Add value

Combine equipment & after sales services

Share risk, cost, information, performance

SERVITISATION of
products

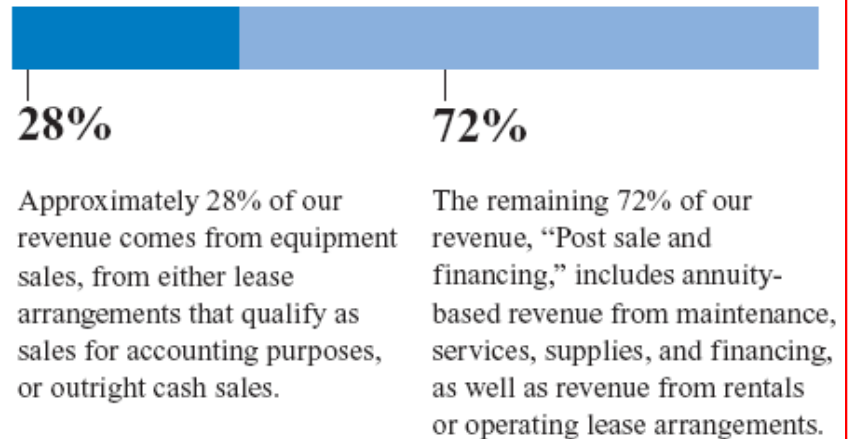
Xerox



XEROX

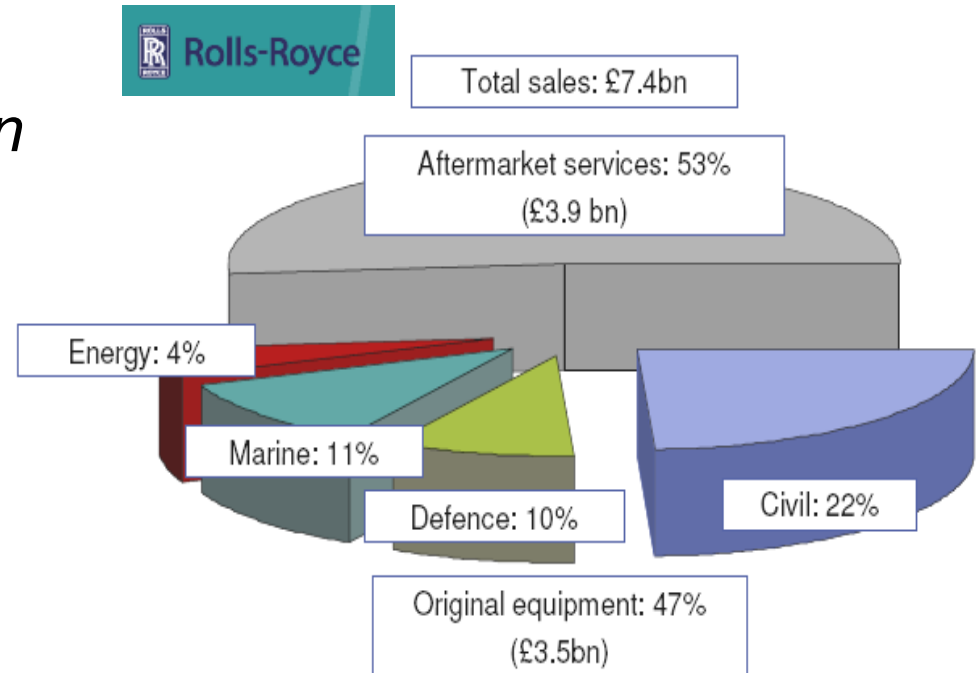
- Mixed leasing and pay per copy models
- Significant use of 2nd hand parts

Revenue Stream

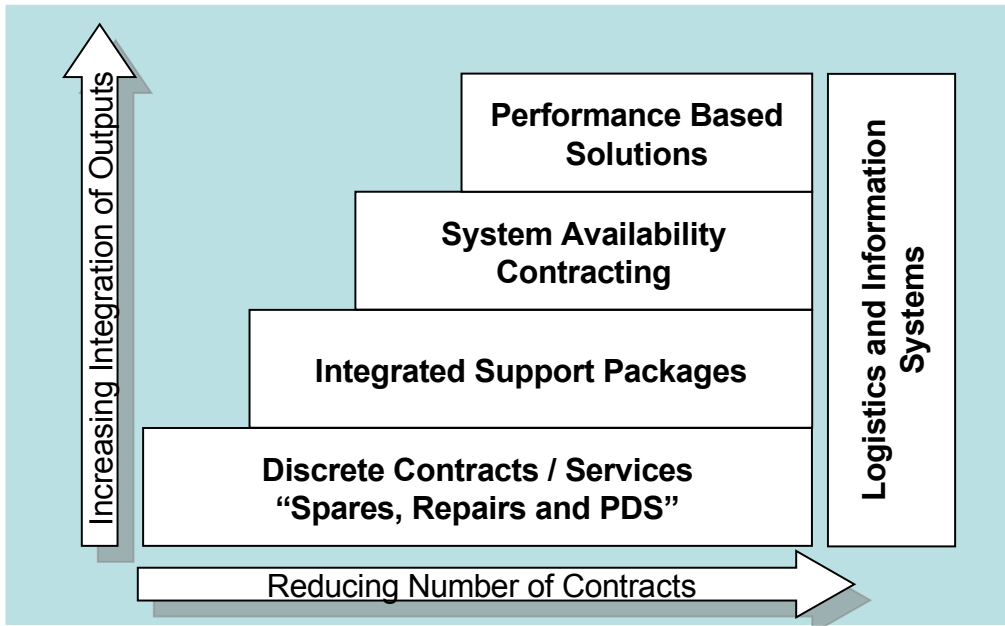


Rolls Royce

Power by the Hour
Product -> service transition



UK Defence Industry/BAE Systems



- Defence Industrial Strategy
- Massive reduction in supply base
- Throughlife contracting
- Risk sharing support services



BAE SYSTEMS

Service & Support
Engineering Programme



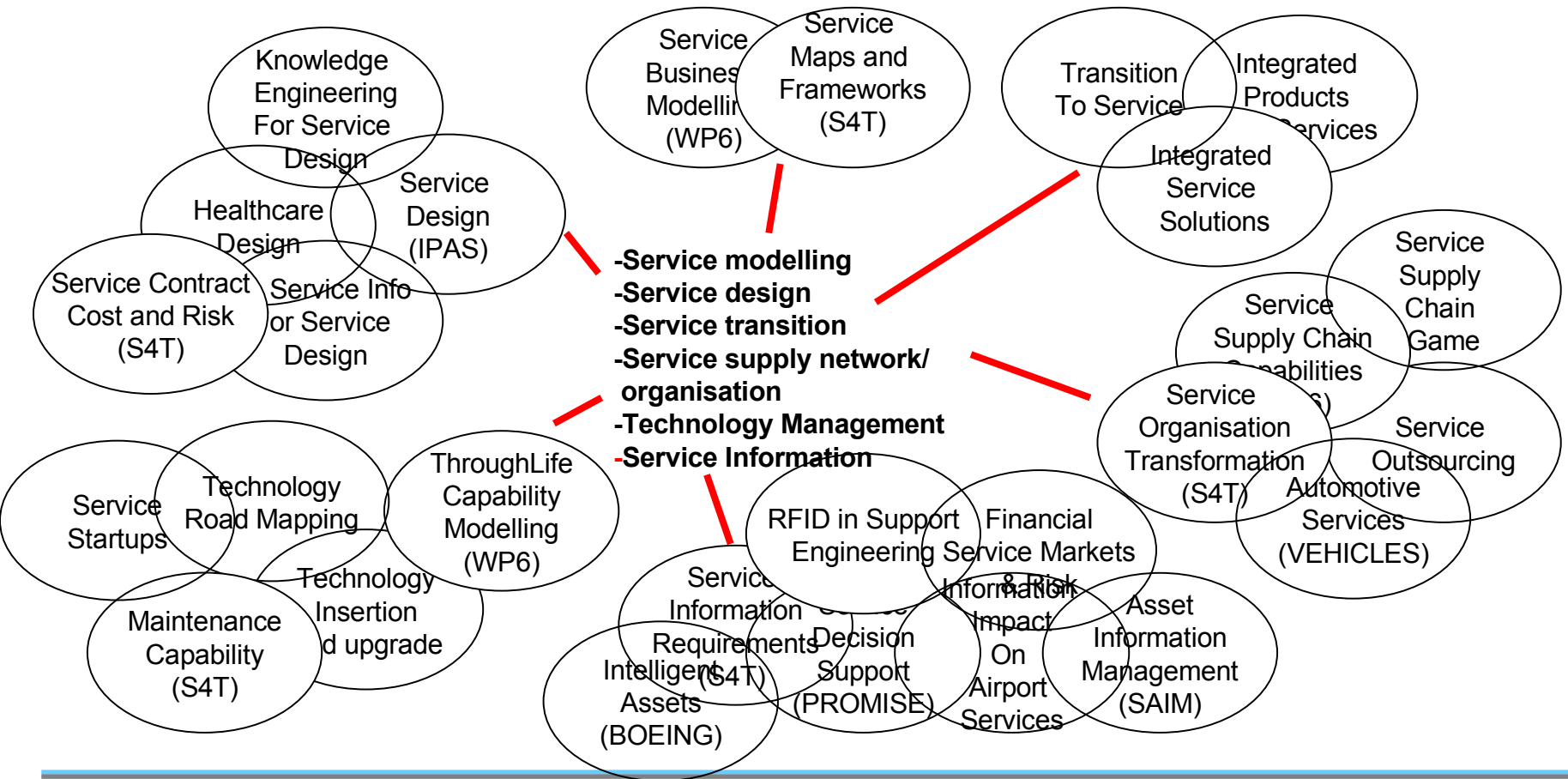
Service Research at Cambridge

- Three main areas
 - [Institute for Manufacturing](#): extension to value-adding manufacturing
 - [Engineering Design Centre](#): Equipment design to better meet product service needs
 - [Judge Business School](#): services marketing/HR
 - ... *Dialogs with Mech, Info Eng, Economics, Comp Lab, Sustainability*
- Institute for Manufacturing:
 - BAE Systems / Cambridge partnership in Service and Support Engineering in 2003 (Servitisation)
 - Increased provision of through-life support of manufactured products in different sectors (Servitisation)
 - Projects in retail, airport, post, healthcare – IBM input (Productisation)

Industrial Partners

- Programme: BAE Systems, *IBM*
- Project: Boeing, Caterpillar, IATA, Fiat, Rolls Royce, Railcare, Philips Healthcare, BT, MBDA, Servisair, MOD, Savi, Sony, SAP Research

Service Research at Cambridge (02/08)



Towards Low Carbon Services?

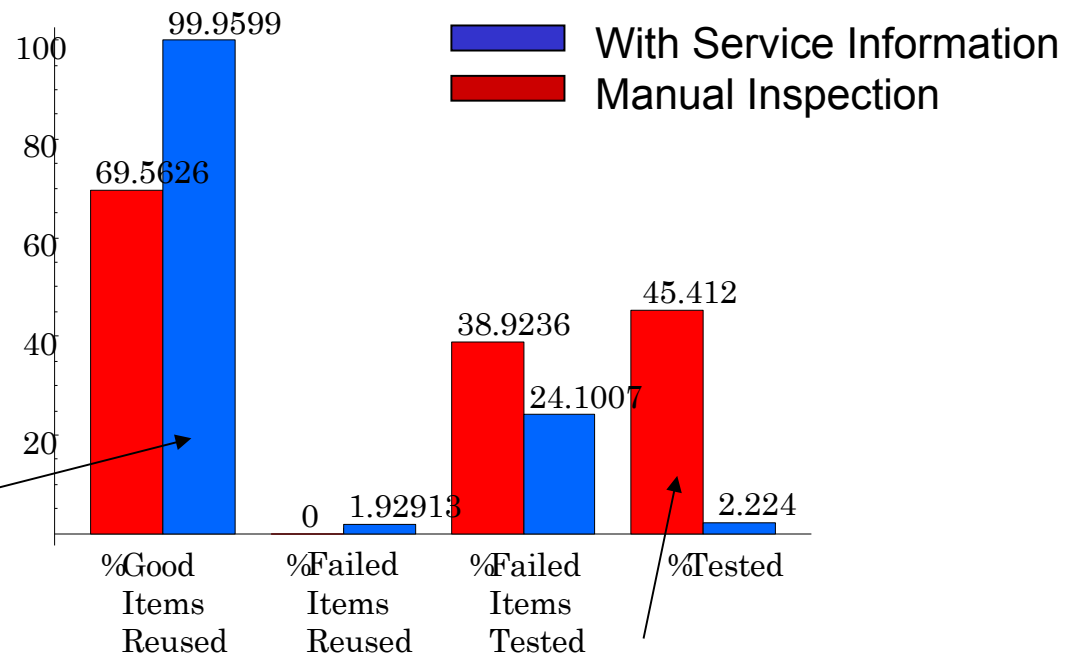
- **SERVITISATION**
 - Spare part models encourage early failure/limited life, replacement equipment
 - Service models encourage long life materials, maintain and upgrade vs replacement
- **PRODUCTISATION**
 - Encouraging efficiencies in existing services
 - Optimisation vs Expansion of operations

Impact of Enhanced Service Information on Vehicle Clutch Replacement



EU Promise Programme

*Enhanced Service/
Greater Reuse*



Service Effort Reduction