Da prodotto a soluzione: paradossi, dilemmi e opportunità del service engineering

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The manufacturing context

Deregulation
Innovation of technology
Globalisation
Industrialisation of emerging economies
Fierce competitive pressure
New customers’ needs

To survive manufacturing firms can rarely remain as pure manufacturing firms...

...they have to move beyond manufacturing and offer services and solutions, delivered through their products.
Some successful examples

**XEROX**
FROM selling photocopiers... 
...TO being a “document company”

**ICI-Nobel**
FROM producing explosives... 
...TO providing “rock on the ground”

**Rolls Royce**
FROM selling aircraft engines... 
...TO providing functionality (“Power by the hour”)
Full moonlight?

Expected Advantages

- For a provider:
  - financial benefits
  - strategic benefits
  - marketing benefits

- For the environment:
  - increase of resource productivity
  - dematerialisation and reduction of consumption

- For the society:
  - stronger stakeholder relations
  - creation of new jobs
  - increased quality of the consumer service through the offering of individual solutions
  - improvement of work and life quality

<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>MARGIN IN OEM BUSINESS</th>
<th>MARGIN IN SERVICE</th>
<th>MARGIN LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper Machines</td>
<td>1–3%</td>
<td>10–15%</td>
<td>5</td>
</tr>
<tr>
<td>Power Equipment</td>
<td>2–5%</td>
<td>15–20%</td>
<td>4</td>
</tr>
<tr>
<td>Metallurgy Equipment</td>
<td>-3 – +6%</td>
<td>15–20%</td>
<td>4</td>
</tr>
<tr>
<td>Rail Vehicles</td>
<td>3–6%</td>
<td>8–10%</td>
<td>2</td>
</tr>
<tr>
<td>Machine Tools</td>
<td>1–12%</td>
<td>5–15%</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: 1 Margin Leverage = Margin in Service / Margin in OEM-Business
Source: Annual Reports, Expert Interviews, Monitor Analysis
The dark side of the moon

Service paradox in manufacturing companies

“[...] companies which invest heavily in extending their service business, increase their service offerings and incur higher costs, but this does not result in the expected correspondingly higher returns. Because of increasing costs and a lack of corresponding returns, the growth in service revenue fails to meet its intended objectives.” (Gebauer et al., 2005)
WHY SERVICE STINKS

Companies know just how good a customer you are – and unless you’re a high roller, they would rather lose you than fix your problem.
How to engineer a service?
DEVELOP
research and educational activities at national and international level

PROMOTE
collaboration and technological transfer with industrial and service companies, in particular with SMEs

CONTRIBUTE
to the local and regional development through the institution of Industry-Academia Forums and Research Observatories

CELS LAB
The **design, development, and lifecycle management of a service solution** raise new issues!

**Few methods** developed specifically for service design, development and engineering.

Focus on the necessity to design solutions satisfying customer needs.

Needs for the **improvement of service planning, service conception and service implementation**, in order to create higher value services.

Needs for a framework for the **systematic development and design of services**, using suitable models, methods, and tools.
Engineering a Product vs. Engineering a Service

[Sampson, 2004]
Traditional Cost Relationships

As service improves, cost increases

[John Wiley & Sons, Inc, 2011]
To make service provision profitable in the long term, it is of utmost relevance to balance the **excellence in the customer value creation** and the **efficiency and productivity of the service provision processes**.

Service engineering
Service Engineering Design process

Customer

Customer Needs

Service Offering

Company

Design Requirements and Specification

Service Delivery process
Service Engineering Design process

Customer

Need

Customer Needs

Service Offering

Needs

Company

Design Requirements and Specification

Service Delivery process
Service Engineering Design process

Customer

- Need
  - Customer Needs

Company

- Design Requirements and Specification
  - Processes
  - Prototypes

Service Offering

Service Delivery process

Customer Needs

Needs

VALUE PROCESS

QFD

Service Blueprinting

map

Blueprinting - Value link

Design Requirements and Specification

Customer

Company
Service Blueprinting
Service Engineering Design process

Customer

- Need
- Customer Needs
- Service Offering

Company

- Design Requirements and Specification
- Processes Prototypes
- Simulation

Needs

Offering
The purpose of simulation

- The purpose of simulation is to:
  - **Assess** the performance of a service system under different conditions (*what-if analysis*)
  - **Evaluate** the effectiveness of possible changes in the service system organization
  - **Support** the selection of the process configuration with the best trade-off between internal performance and value for customer
  - **Provide** insights into the service system’s dynamics and bottlenecks
Service Engineering Design process

Customer

- Need
- Customer Needs
- Gap
- Service offering

Company

- Design Requirements and Specification
- Processes Prototypes
- Simulation

Needs

Offering
Possibile Applications

- Repair, maintenance, overhaul
- Catalogues
- Full maintenance contracts
- Spare parts delivery
- Home delivery
- Financing schemes (for service)
- Financing schemes (for sales)
- Legal consultancy
- Help Desk
- Pit-Stop/fast maintenance
- Full-maintenance contracts
- Outsourcing
- «Pay-per result»
- «Pay-per use»
- Product keeping
- Product-oriented training
- Process consultancy
- Pay per use
- Digital documentation
- Legal consultancy
- Pooling
- Share it
- Green solutions
- Experience packages

- Diagnosis
- Maintenance training
- Extended warranties
- Outsourcing
- «Pay-per result»
- Pay per use
- Process consultancy
- Digital documentation
- Legal consultancy
- Pooling
- Share it
- Green solutions
- Experience packages

- Re-manufacturing
- Spare parts management
- Business development consultancy
- Business-oriented training
- Product-oriented training
- Product keeping
- Process consultancy
- Pay per use
- Digital documentation
- Legal consultancy
- Pooling
- Share it
- Green solutions
- Experience packages
Benefits

The main benefits of the proposed approach are:

- Systematic procedure to identify new valuable services
- Simulation of different service provision scenarios
- Economic and risk assessment tool to reduce the expenditure related to the risk of the introduction of an ineffective (customer perspective) and poor performing (internal process performance) service.
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