

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”



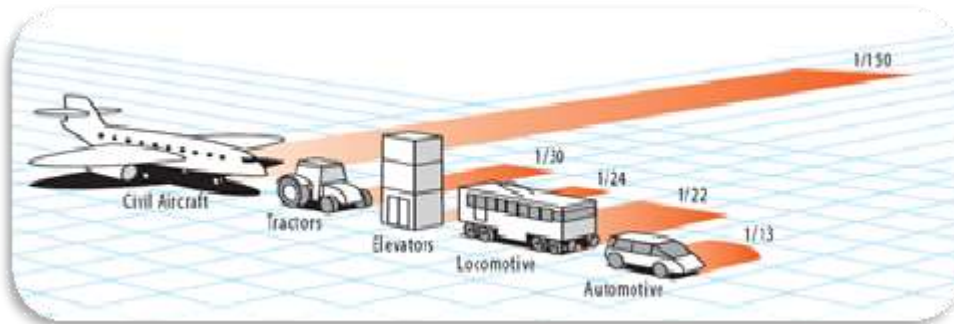
Rolls Royce

FROM
selling aircraft engines...



...**TO** providing
functionality
 (“Power by the hour”)





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

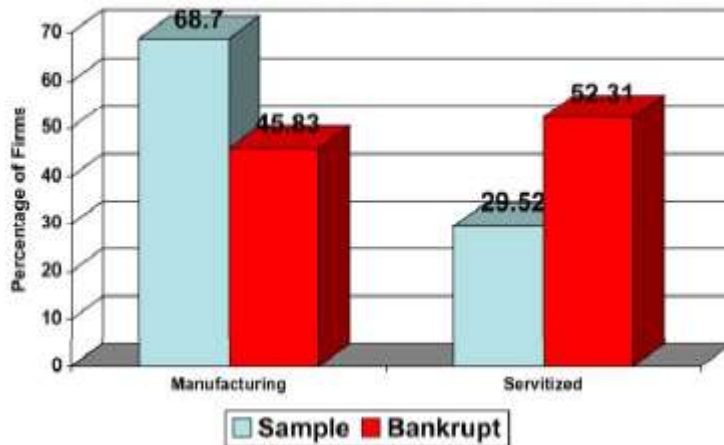
Note: 1 Margin Leverage = Margin in Service / Margin in OEM-Business
Source: Annual Reports, Expert Interviews, Monitor Analysis

Expected Advantages

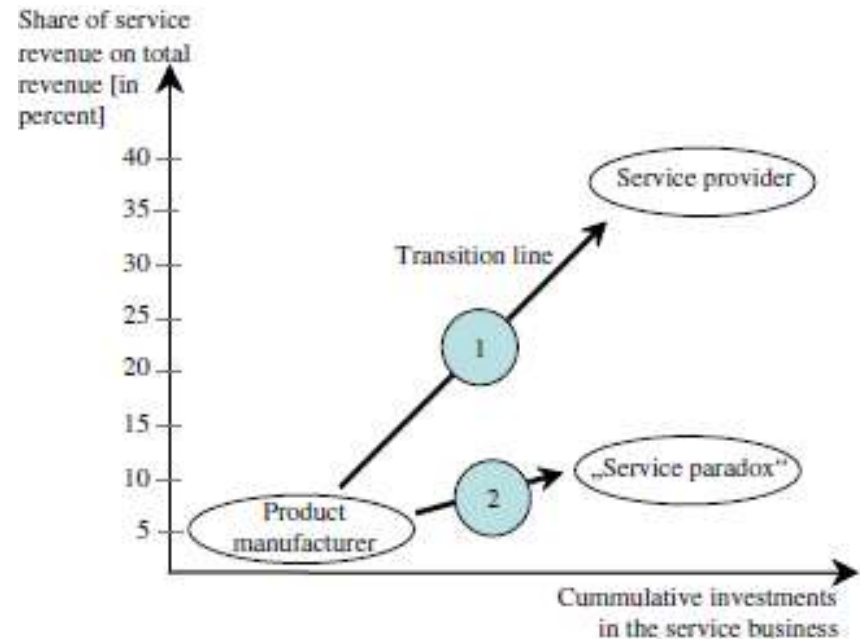
- **For a provider:**
 - ❑ financial benefits
 - ❑ strategic benefits
 - ❑ marketing benefits
- **For the environment:**
 - ❑ increase of resource productivity
 - ❑ dematerialisation and reduction of consumption
- **For the society:**
 - ❑ stronger stakeholder relations
 - ❑ creation of new jobs
 - ❑ increased quality of the consumer service through the offering of individual solutions
 - ❑ improvement of work and life quality

The dark side of the moon

A greater proportion of servitized firms went bankrupt than might be expected



Source: Neely (2010)



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)



A large iceberg floats in a deep blue ocean under a bright blue sky with scattered white clouds. The iceberg's visible tip is on the left, while its much larger, submerged base extends to the right. The water surface is marked by a horizontal line. The sky is filled with fluffy white clouds, and the ocean has a textured surface with small waves.

Front Stage

**Line of
visibility**

Back Stage

**How to
engineer
a service?**





DEVELOP

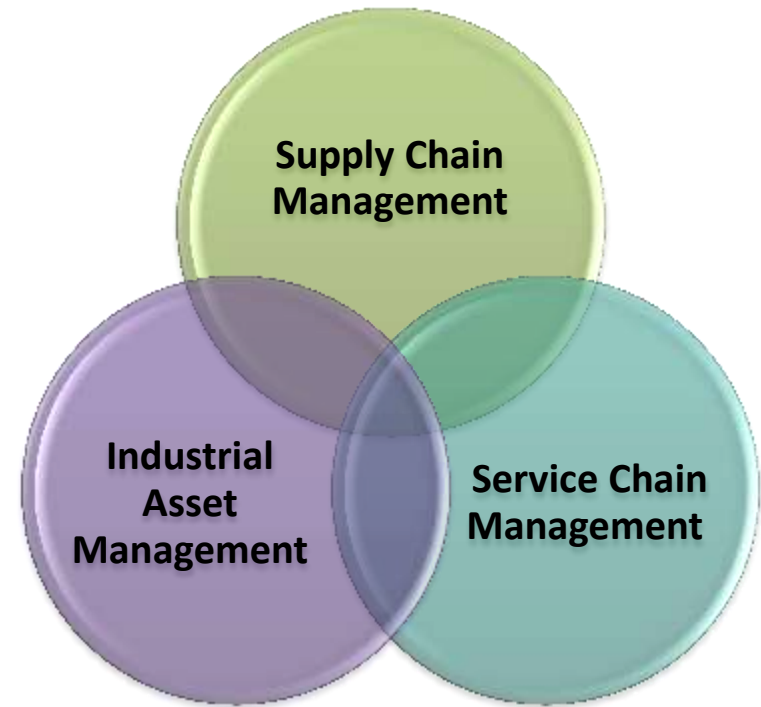
research and educational activities at national and international level

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 L  B

A vertical line of five white circles, each with a blue outline, connected by a blue line. The circles are positioned to the left of the text blocks.

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

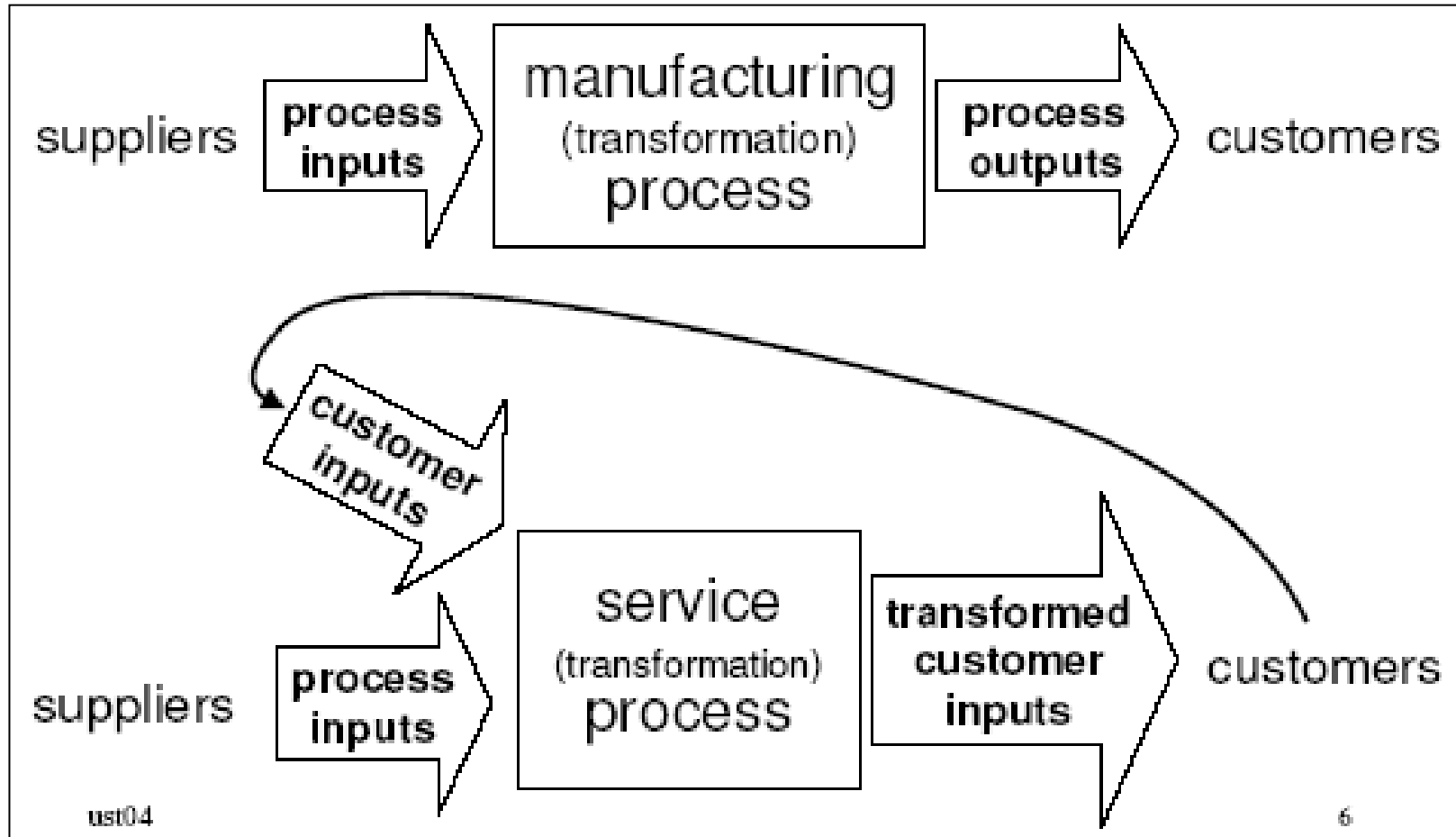
Few methods developed specifically for service design, development and engineering.

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.

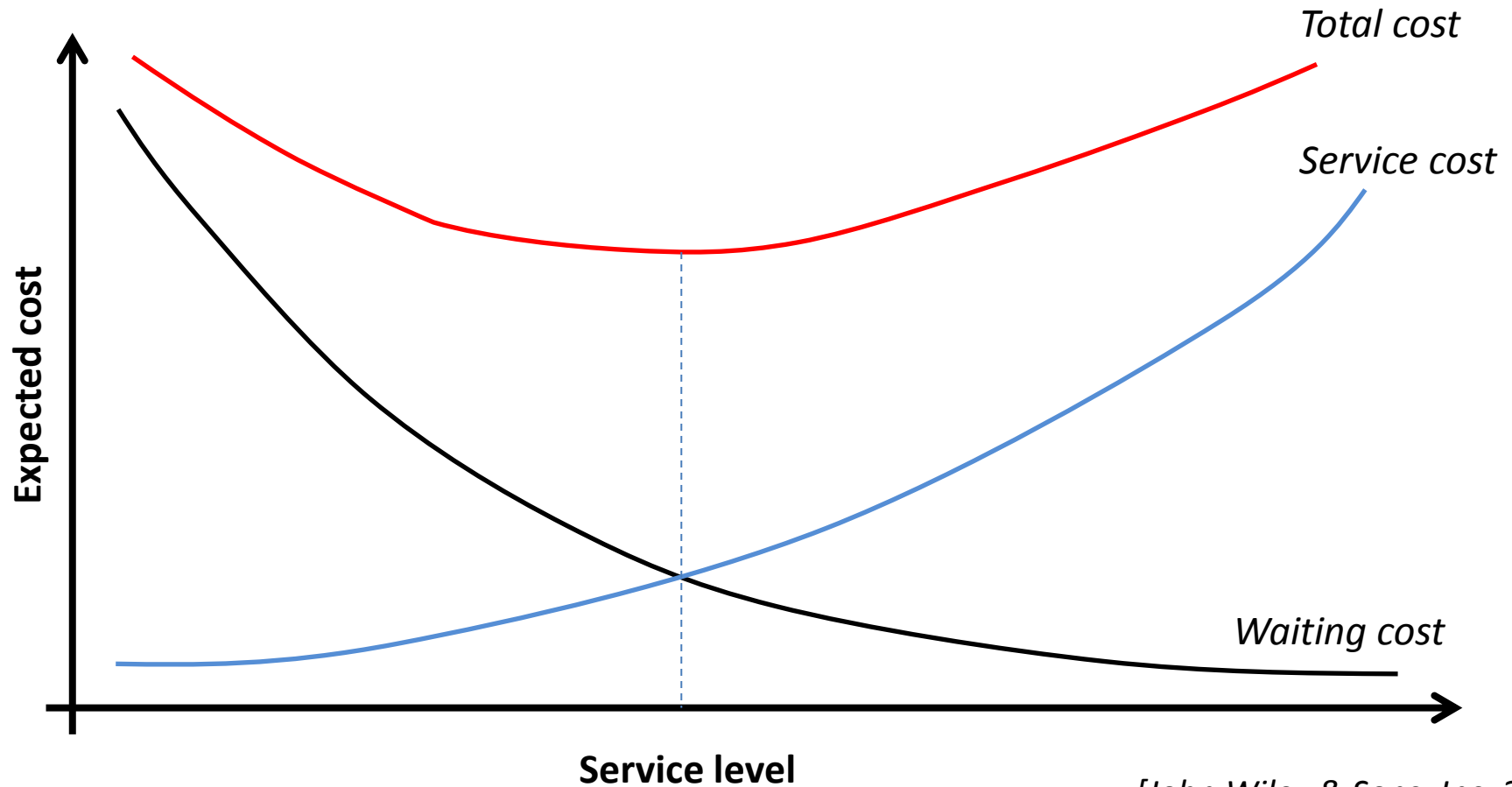
Engineering a Product vs. Engineering a Service



[Sampson, 2004]

Traditional Cost Relationships

As service improves, cost increases



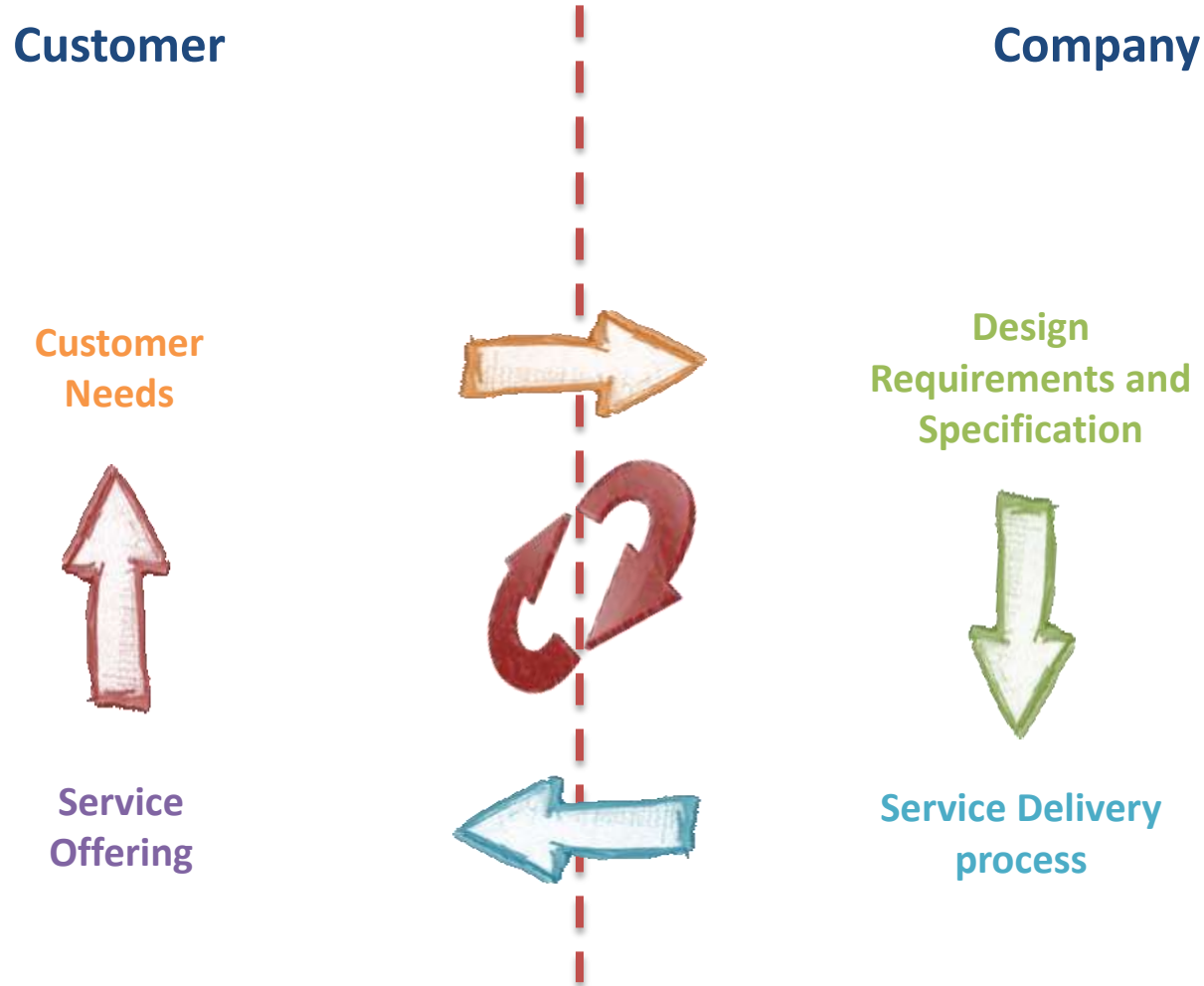
[John Wiley & Sons, Inc, 2011]

Service engineering aim

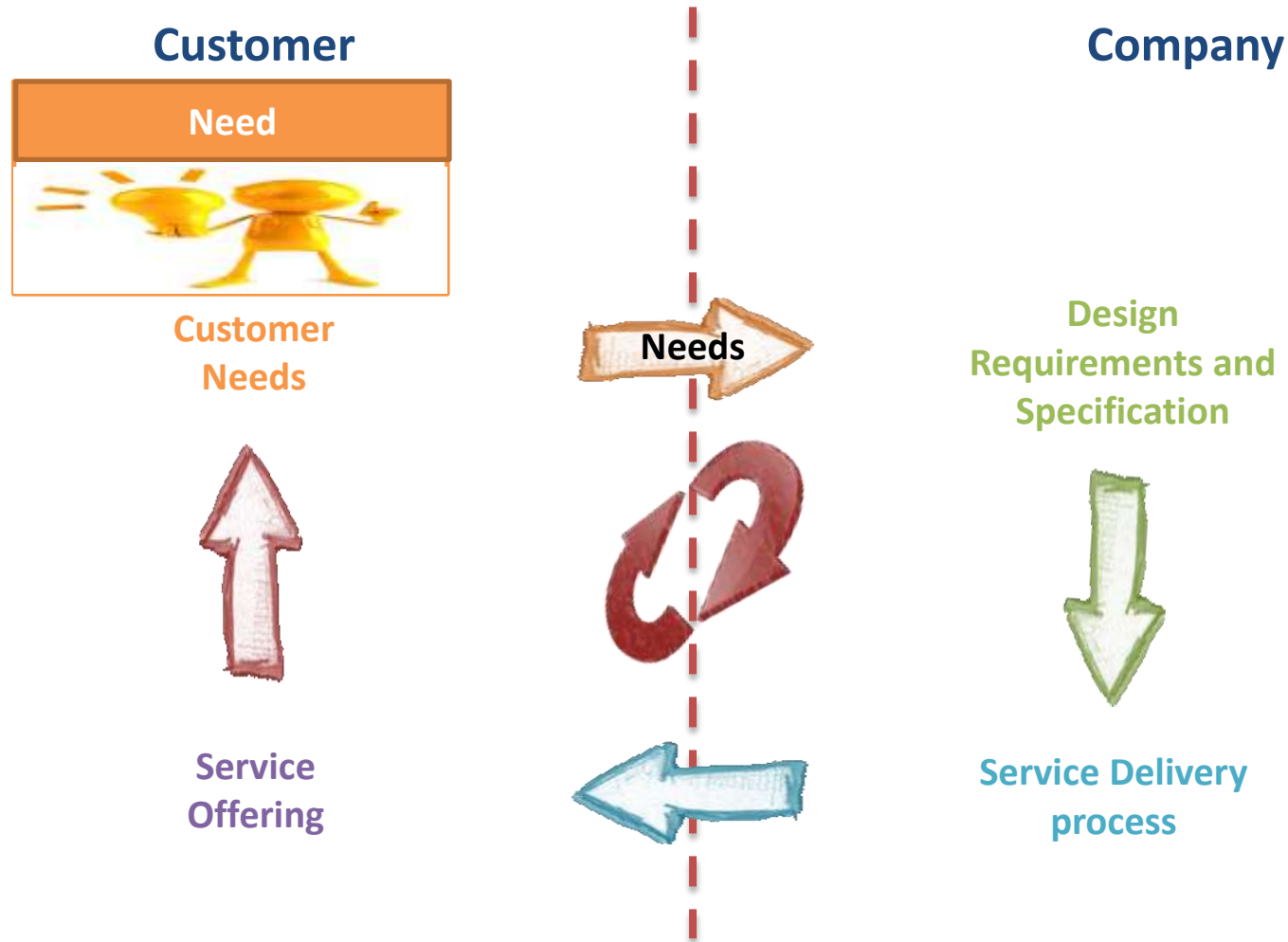
To make service provision profitable in the long term, it is of utmost relevance to balance the **excellence in the customer value creation** and the **efficiency and productivity of the service provision processes**.

Service engineering

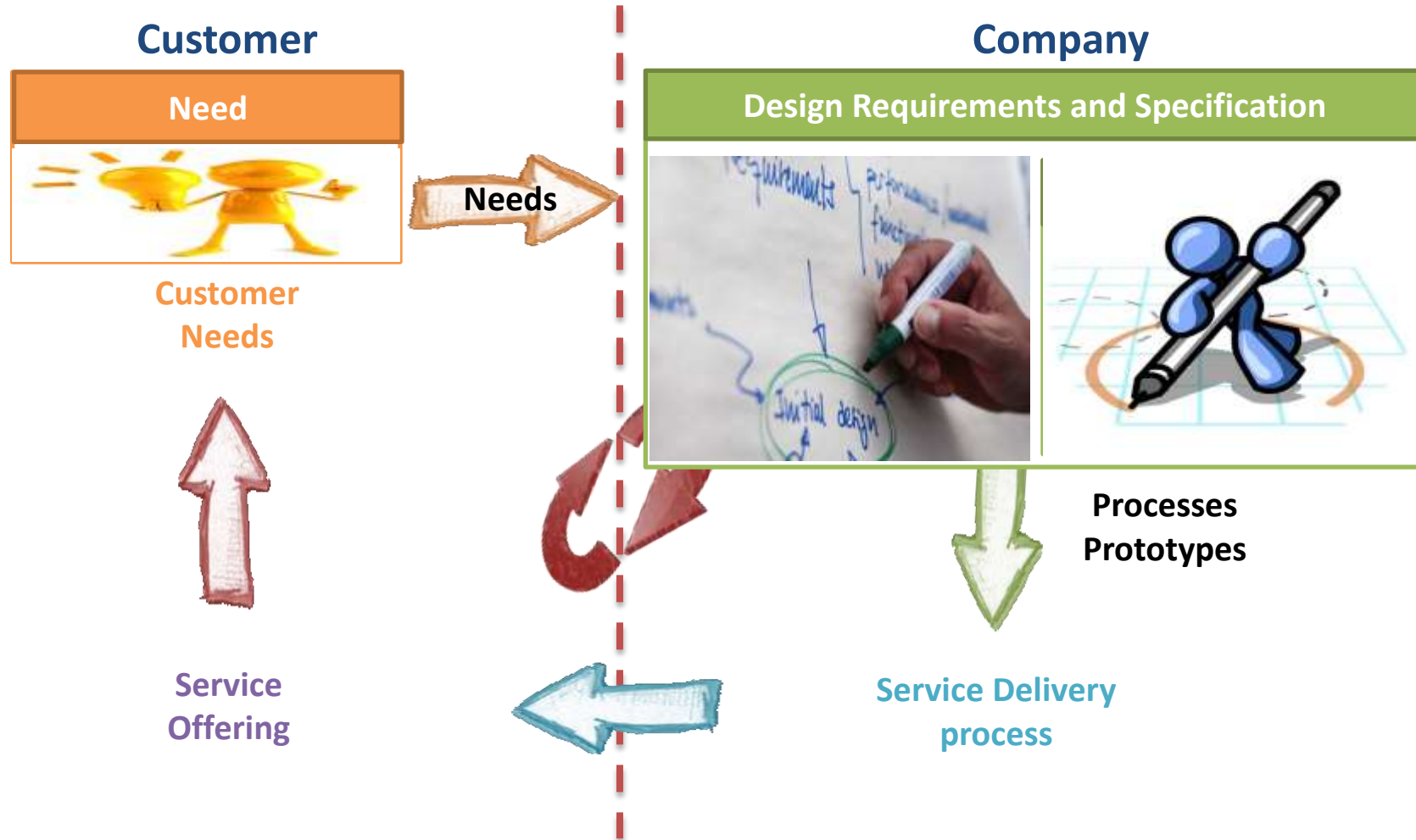
Service Engineering Design process

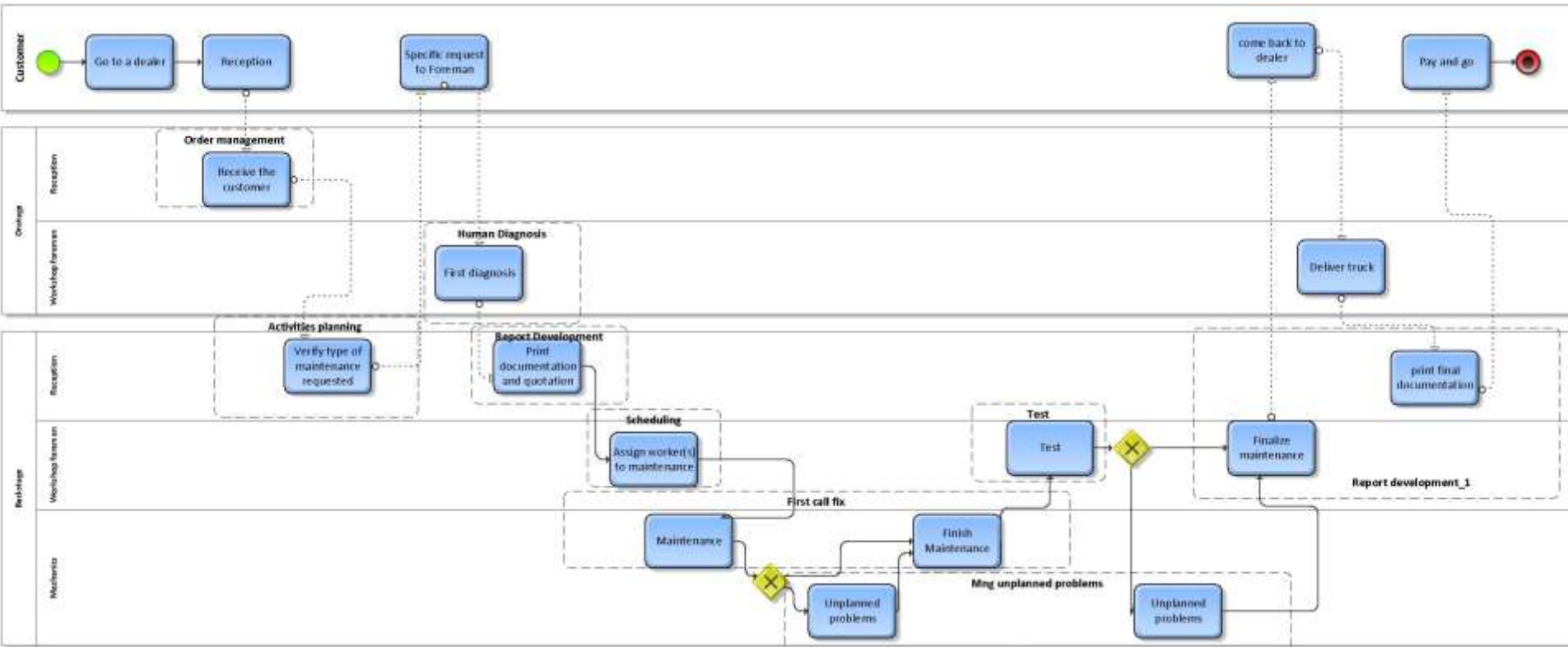


Service Engineering Design process

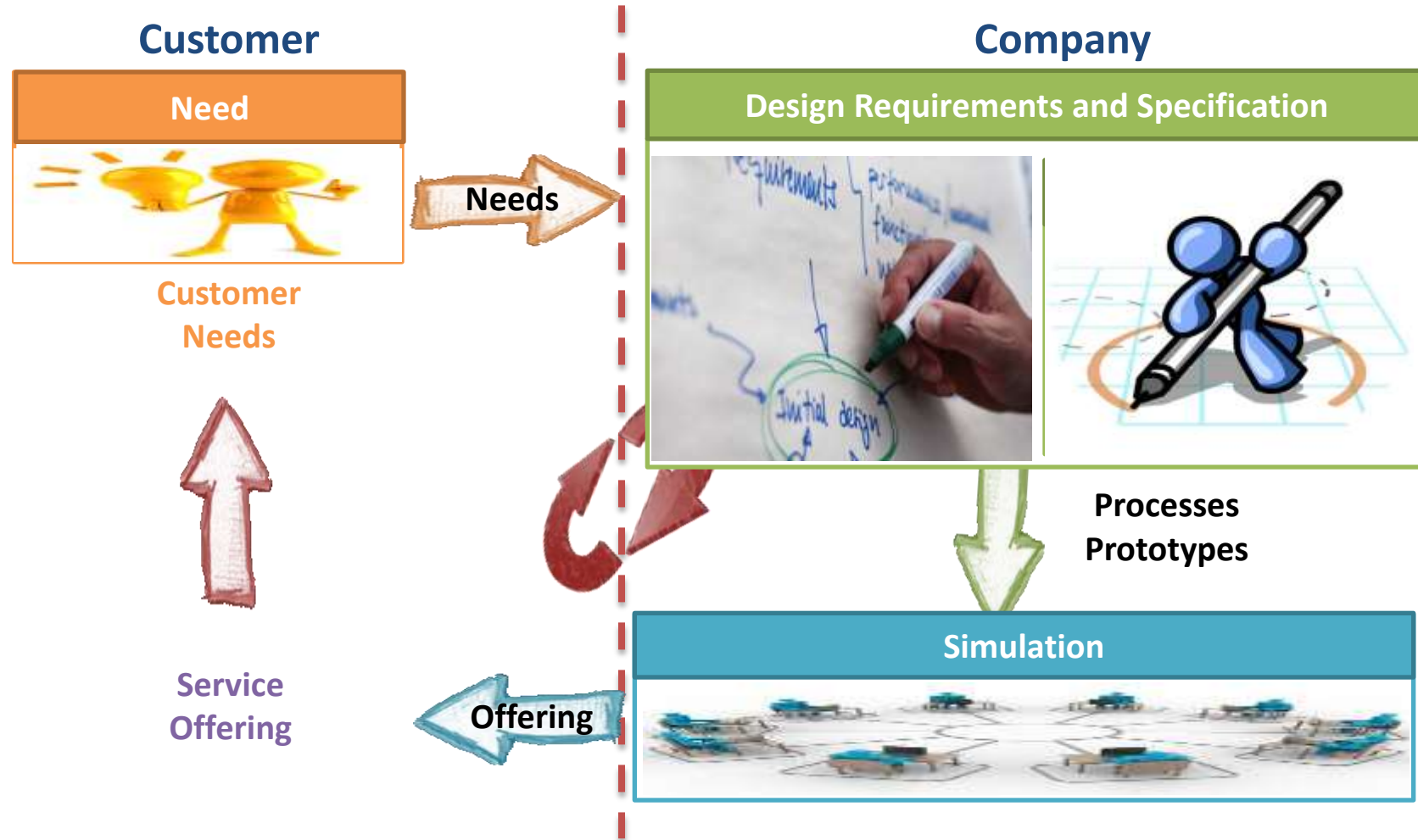


Service Engineering Design process





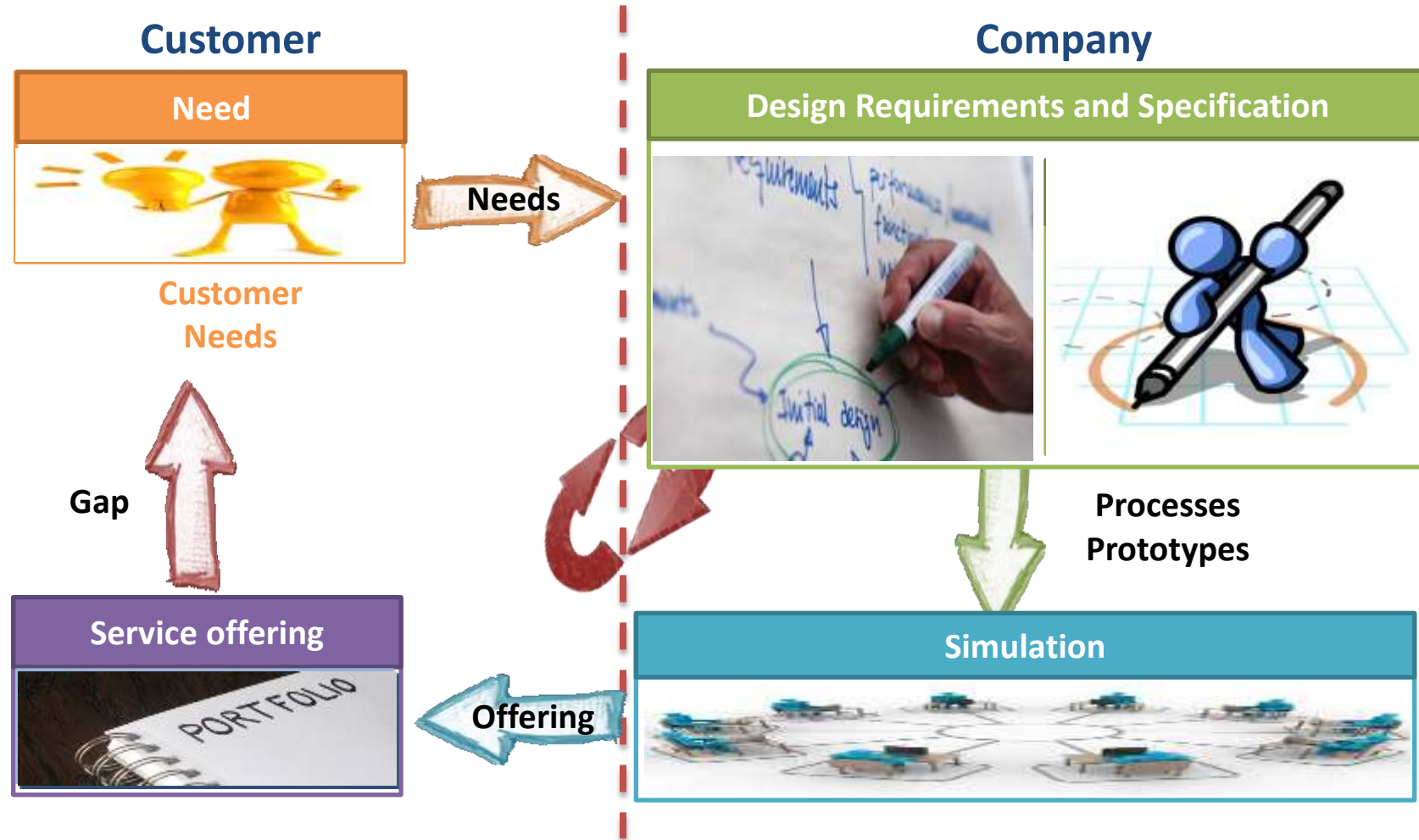
Service Engineering Design process



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





Repair, maintenance,
overhaul



Catalogues



Full-maintenance
contracts

Possible Applications



Spare parts delivery



Home
delivery



Un'assistenza vantaggiosa?
Cipriani Automobili

Financing schemes
(for service)



Financing schemes
(for sales)



Legal consultancy



Help Desk



Product
installation



Pit-Stop/fast



Maintenance training



Outsourcing



«Pay-per result»



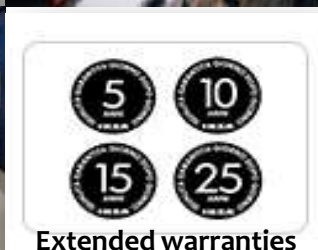
ROLLS
ROYCE



BEFORE



Diagnosis



Extended warranties



Product keeping



Sharing



Pooling



AFTER



Spare parts
management



Business-oriented
training



Process consultancy



Pay per use



Digital
documentation



Take back/Recycling



Business development
consultancy



Business-oriented
training



Product-oriented
training



Green solutions

Green
Solution



Experience packages

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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