

## Maximising value-add from intellectual property via product/service-systems

05-06-2007

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05-06-2007  
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## IT and patents ...

### Definitions

- **Information technology**  
*"The study or use of systems such as computers and telecommunications for storing, retrieving, and sending information."*

[Oxford English Dictionary]

- **Patent**  
*"Typically, a patent application must include one or more claims defining the invention which must be new, inventive, and useful or industrially applicable."*

[Wikipedia]



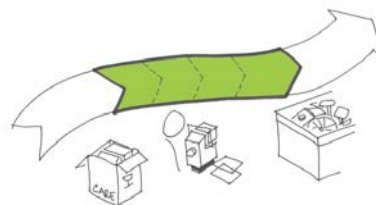
### From product to service to innovation

- Introduction to PSS as a business strategy
- Lifecycle thinking
- Views on PSS and intellectual property
- PSS as user-orientation
- Four business cases
- New perspectives and complexities in the business agenda
- Discussion and conclusion



### From service to innovation

- Around 50% of GDP in EU countries came from service revenues in 2000
- Around 75% of GDP in USA came from service revenues in 2000 [Tischner]
- Competition with the East and the dematerialised world is putting high demands on a **new innovation agenda** in the West
- By looking beyond the end of our noses in the product development room and understanding the product in respect to its **whole life cycle**, we can identify new business opportunities



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## Where the business potential is



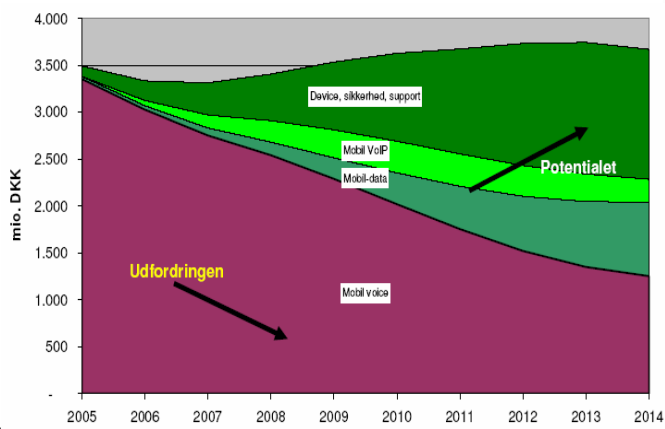
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## Where the business potential is

### Voice vs. value-added services

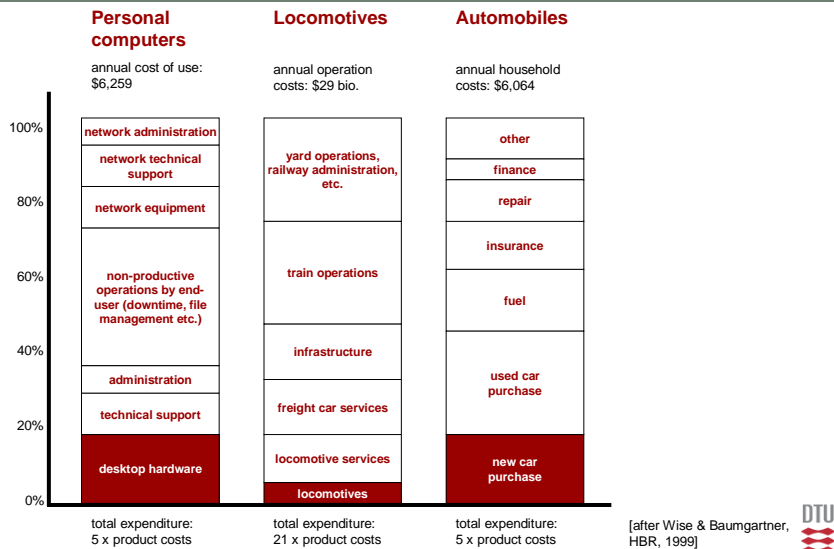


[Irfan Goandal, '3']

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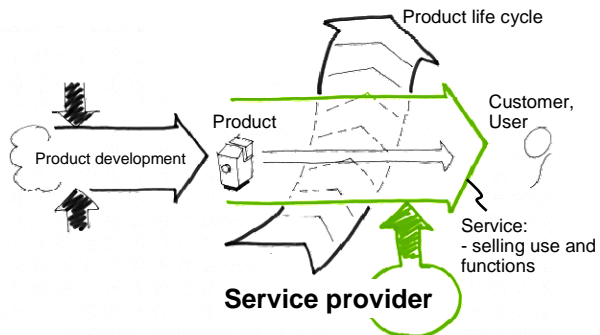
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## Where the business potential is



## What is a PSS?

- ▶ A Product/Service-System is a system that supports and utilises the product through an extended (for the company) product life period



## PSS as a business strategy

- ▶ PSS means making a shift of business focus, from

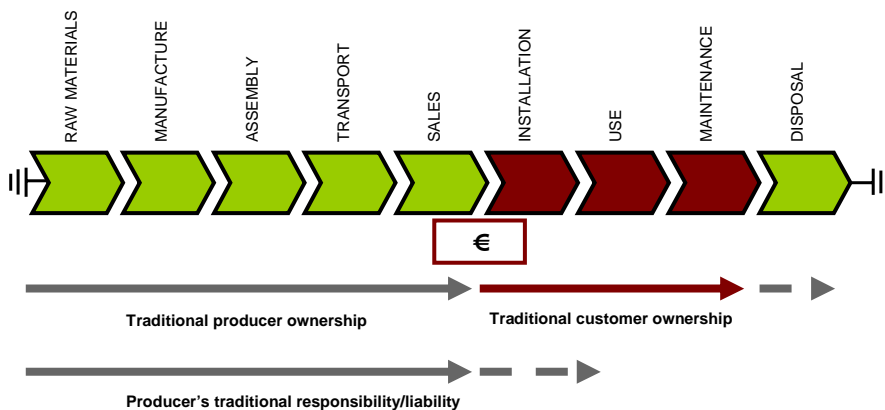
business based on *value creation through the transfer of product ownership and -responsibility*

to

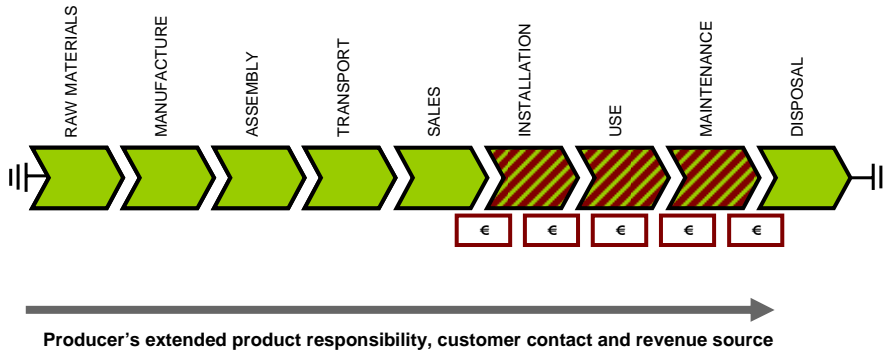
business based on *value creation through the support and delivery of a service from a product, for the whole of its lifetime...*



## Traditional product life-oriented business strategy

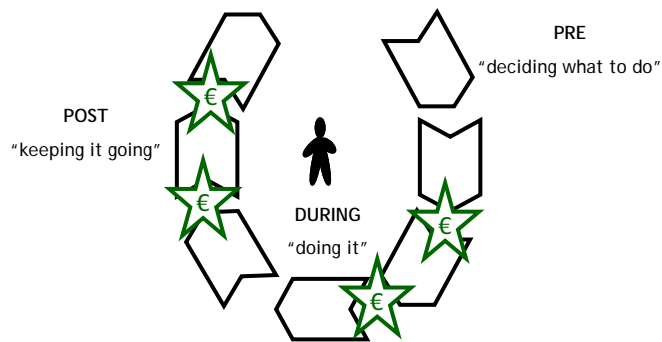


# A PSS-approach to combined business strategy and product responsibility



# 'Service-relationship' thinking

## CUSTOMER'S ACTIVITIES

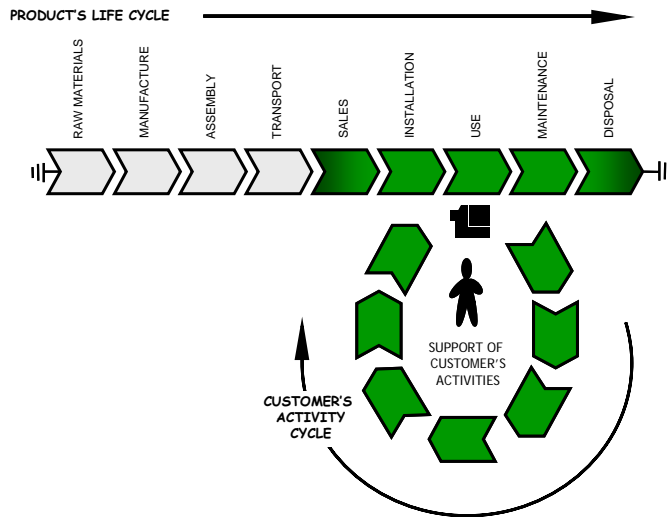


[After Vandermerwe]

Company retains ownership and assumes larger responsibility



## Two life-phase systems



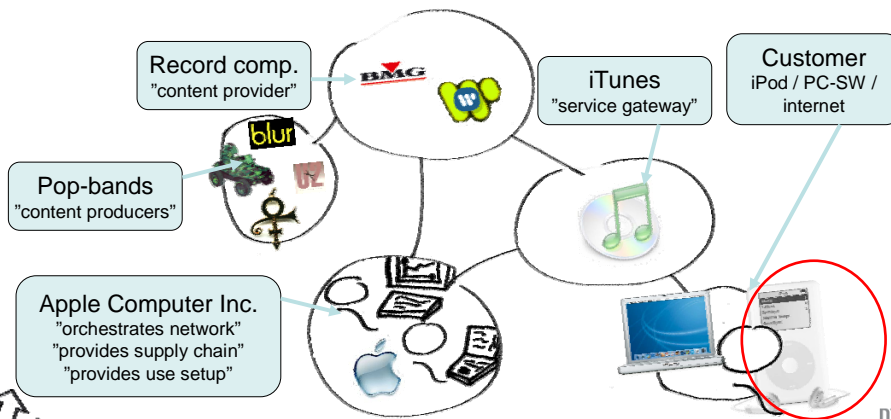
## PSS example - three views

1 - in the artefact domain

- ...a set of multiple, interrelated systems, between which the use phase system is the predominant, but where other systems can also be of importance.



[McAloone & Andreasen, 2004]

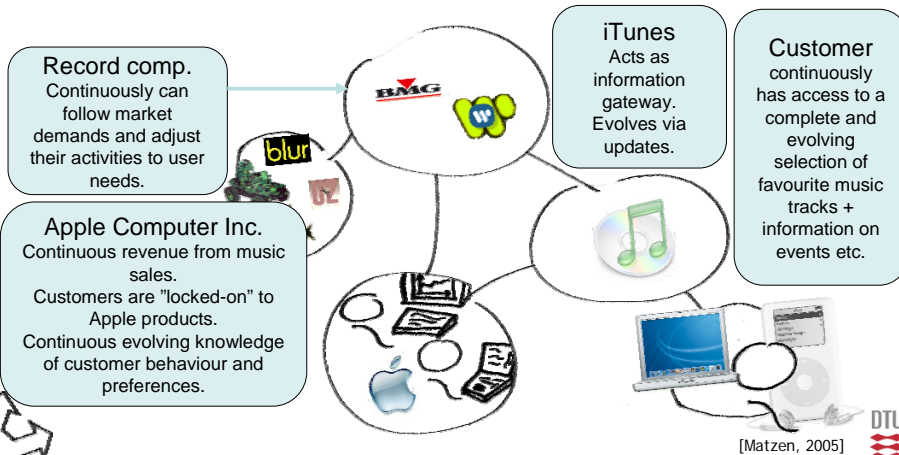


[Matzen, 2005]

## PSS example - three views 2 - in the time domain

- ▶ ...a sequence of multiple, interrelated life phases and activities throughout the product's service time;

[McAloone & Andreasen, 2004]

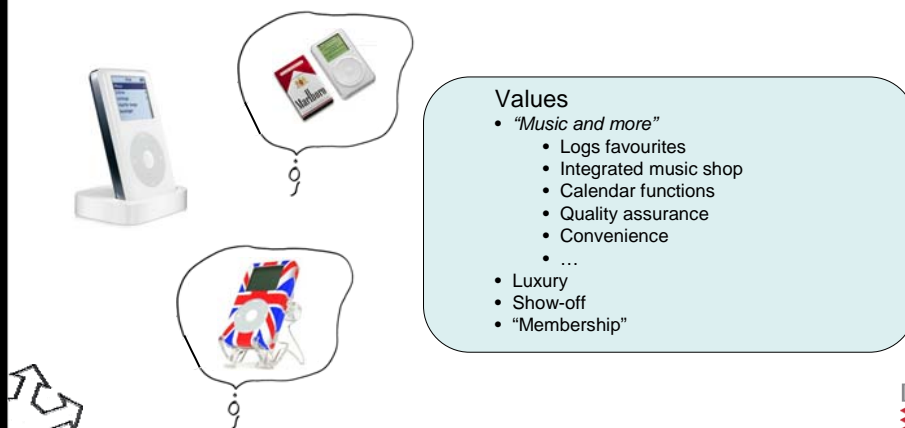


[Matzen, 2005]

## PSS example - three views 3 - in the value domain

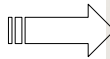
- ▶ ...a set of multiple stakeholders' values, determining the utilisation and reactions to the artefact systems and activity systems effects.

[McAloone & Andreasen, 2004]



## User-orientation through PSS

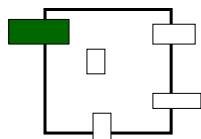
- ▶ Individualisation of products changes the way of reasoning:  
*from product to customer to from customer to product*



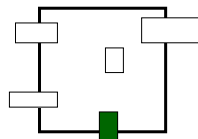
- ▶ Customer co-creation
  - ▶ Customer part of the value chain



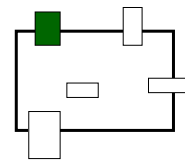
## Closer contact to the customer



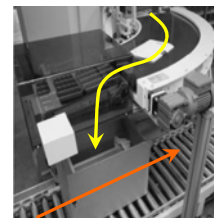
Home



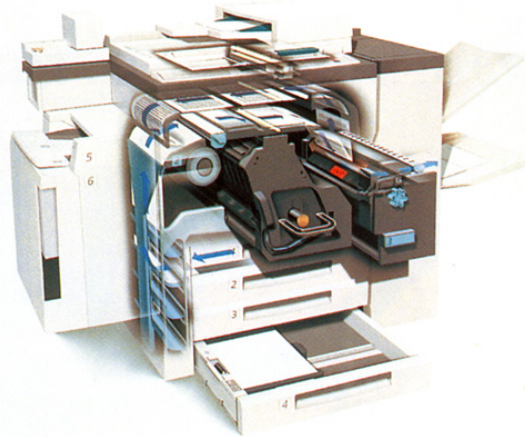
Office



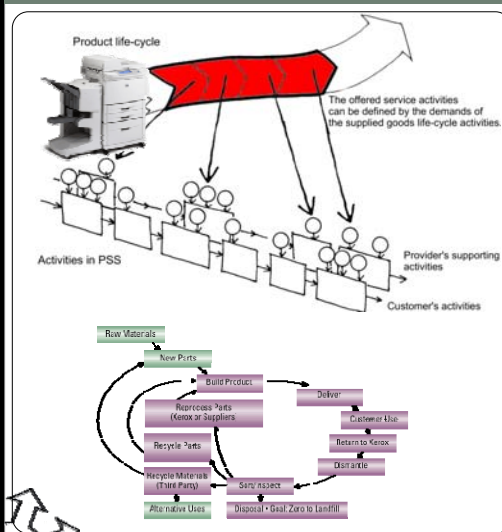
Factory



## PSS business case 1/4 Xerox's augmented product



## PSS business case 1/4 Xerox - Product-relationship lifecycle



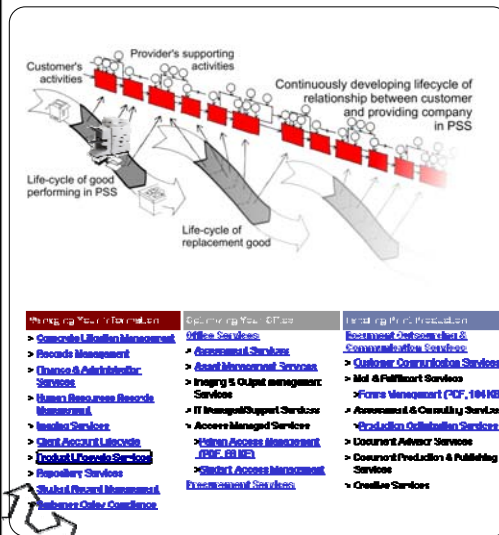
### Example: Xerox

1. Offering leasing options for equipment.
2. Supplying paper (on order).
3. Supplying toner & maintenance (automatic via www).
4. Maintenance and repair services (automatic & on order).
5. Replacing equipment.
6. Reusing/refurbishing components.



## PSS business case 1/4

### Xerox - Service-relationship lifecycle



#### Example: Xerox

1. Analysing current needs and practises of the customer.
2. Choosing management strategy.
3. Adapting the equipment to selected strategy (supplying new, integrating existing ...).
4. Managing assets (as in previous slide).
5. Educating users (changing workflow).
6. Monitoring actual performance and adapting management.
7. ...



## PSS Business Case 2/4

### Toshiba Medical - Re-defining core business

- ▶ Re-focus, new support, networking, new business types etc.



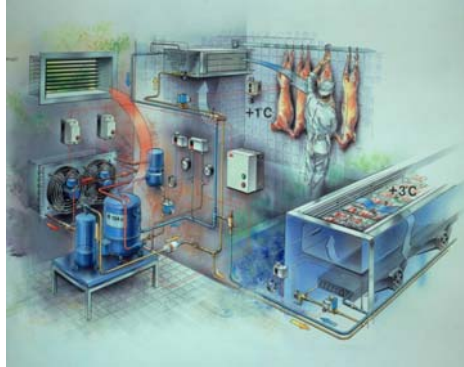
[Toshiba Medical]



## PSS business case 3/4 Danfoss RetailCare

▶ Danfoss A/S, a Danish industrial corporation, manufactures regulators and control components for refrigeration plants

- ▶ Traditionally the company faces a fierce competition due to its status as component supplier
- ▶ Due to research investments, Danfoss has gathered good knowledge of the building and operation of efficient refrigeration plants



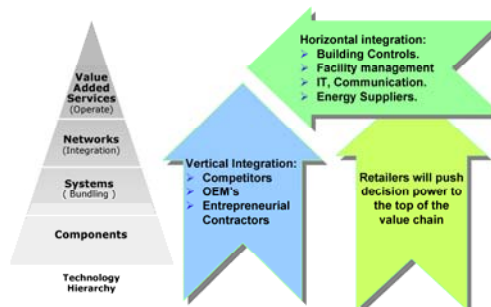
**Danfoss**

## PSS business case 3/4 Danfoss RetailCare

▶ In the RetailCare System, Danfoss issues a product offer to supermarket companies, that includes not only the installation, but also a continuous monitoring and optimisation of the customer's refrigeration plants

▶ Danfoss thereby works towards the following goals:

- ▶ Improving the company's position in the value chain
- ▶ Improving the visibility of their products virtues
- ▶ Optimal exploitation of the customers plants efficiency potential - Yielding cost reductions for the customers



## PSS business case 3/4 Danfoss RetailCare

The company takes upon responsibility of product life phases and new roles are defined



## PSS business case 4/4 Steelcase strategic business shift



### From office furniture to workplace performance

**Mission: "To provide a better work experience."**

*Steelcase's business at the moment is very much based on the sale of office furniture (chairs, desks, storage), but they are moving to more integrated workspace solutions and believe that what they are actually offering to their clients are solutions for better business performance.*

[[www.steelcase.com](http://www.steelcase.com)]

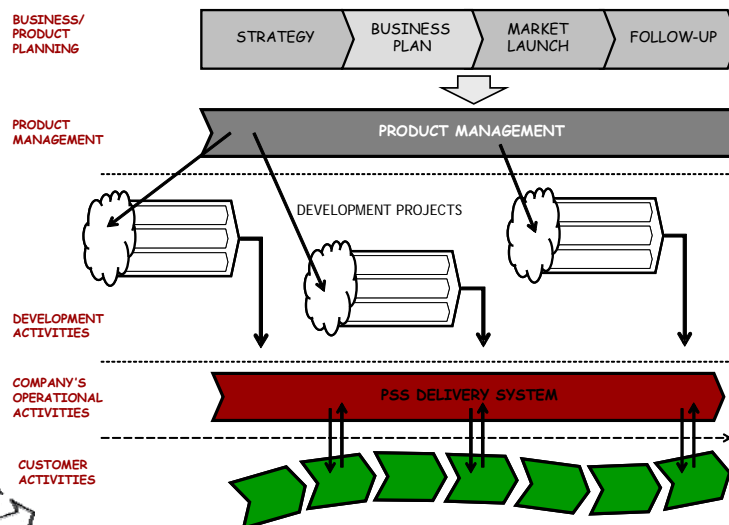


## New perspectives with integrated PSS development

- **Customer activities** are part of the value creation process
- Company takes upon **responsibility** of product life phases and new roles are defined
- **Knowledge and competencies** aimed at customer's activities
- Creating **new relationships** and different networks of stakeholders



## PSS integration on different levels of the company



## Adding complexities to the business agenda

- An extended stakeholder gallery
  - Who owns the idea?
  - How to protect co-developed 'products'?
- Increased product liability
  - Responsibility during lifecycle
  - Licensing issues
- Closer contact with- and detailed response to end-user
  - Supplying both product, application and service
  - Supporting an activity
- Offering a wider palette of products
  - Protection of mass-customised products?
  - Protection of platforms, but not of customisables?
- New opportunity/necessity to re-consider core business
  - The physical artefact becomes slightly less central
  - New value-chain constellations, and therefore agreements



## Business motivation for PSS

- ▶ In many industrial sectors there is an old **tradition for delivering integrated solutions** consisting of products and services: Aeroplanes, shipbuilding, medical equipment, ...
- ▶ Companies may provide with PSS **what customers actually want to pay for** - the utility of products and services according to their needs without having to worry about operation, maintenance and disposal of the product.
- ▶ Creates **ongoing relationships** between company and customer.
- ▶ Allows companies to **enhance their competitiveness** by expanding features, value and benefits not apparent with traditional product-oriented offerings.



## Discussion & conclusion

- PSS development = Strategic business creation?
- Following two life cycles: product and customer activity.
- The focus on activities instead of products as the mediator of value.
- The characteristics of services involve the customer in the co-creation of value.
- The integration of products and services.



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