
Lesya Bilan
Fraunhofer IAO / IAT University of Stuttgart
I3CONference, Loughborough, 14-16 May 2008
Overview on Fraunhofer IAO and IAT University of Stuttgart

Introduction to Services

Modularisation of Services
– Service Product Models

Systemic Development of Services
– Service Engineering

The I3Con Service Engineering Approach
Profile of IAO – Institute for Industrial Engineering and IAT – Institute for Technology Management


- Founded: IAO – 1981
  IAT – 1991
- Director: Prof. Dr. Dieter Spath
- Budget: 23 million Euros, of which ~1/3 from industry contracts
- Staff: 200 employees
  ~220 student assistants

Figures from 2006, including data of both Fraunhofer IAO and IAT University of Stuttgart
Core Competences of Fraunhofer IAO and IAT University of Stuttgart: Competence Centres (CC)

The Competence Centre Service Management develops together with the clients solutions to improve their service business.

CC Production Management designs peripheral production structures and sets up integrated product and production systems.

CC Human-Computer Interaction supports the user-centred development and evaluation of multimodal user interfaces.

CC R&D Management helps companies to deal with new challenges through shorter innovation cycles and more complex customer needs.

CC Knowledge Transfer links basic research, teachings, applied research and applied implementation.

CC Innovation Management supports companies in conception and design of sustainable and successful innovation.
Overview on Fraunhofer IAO and IAT University of Stuttgart

Introduction to Services

Modularisation of Services
– Service Product Models

Systemic Development of Services
– Service Engineering

The I3Con Service Engineering Approach
Features of Services

1. **Intangibility** of services.

2. Services are **activities** rather than things.

3. Services are produced and consumed **simultaneously** at least to some extent.

4. The **customer** participates in the production process.

(Grönroos 1990)
Focus on Product Services

Services developed within I3CON are **product services** where the product is the building, and the customers derive value by using the building.

This means that the customers are offered:
1) (living) premises as a **physical product**;
2) (living) environment which includes neighbourhood and **services along the life cycle** of a physical product (product maintenance, product operation without the ownership of the physical product).
Product Service Categories

(Tukker & Tischner 2004)
1. Modularisation and visualisation of existing (and newly developed) services
   => Service Product Models

2. Systemic development of new services (and re-development of existing ones)
   => Service Engineering
Overview on Fraunhofer IAO and IAT University of Stuttgart

Introduction to Services

Modularisation of Services – Service Product Models

Systemic Development of Services – Service Engineering

The I3Con Service Engineering Approach
One way towards the industrialization of service provision is the **productization** of service offering: "The transformation of services as products creates clearly defined service objects with a-priori defined features and implementation processes." (Vaattoaara 1999).

Productization can support the increase of productivity in the service sector by creating **re-usable components** or features -&gt; **service product models** support this.

Service product models enable configuration of services.

Productization requires investment in the **specification and development**.
There is a risk of decrease of customer satisfaction if customer value is not understood sufficiently.

=> A service product model could support the understanding of service benefits and requirements along the whole life cycle:

- Service product development
- Sales & marketing (common understanding between the service provider and the customer)
- Service engineering / design & integration
- Service delivery / production
- Management, follow-up and improvement
Overview on Fraunhofer IAO and IAT University of Stuttgart

Introduction to Services

Modularisation of Services – Service Product Models

Systemic Development of Services – Service Engineering

The I3Con Service Engineering Approach
Development of New Service: Typical Problems

Insufficient innovations and development management for services.

Missing organisational structures for service development.

Service are often developed »ad-hoc«. The consequence is a failure on the market.

Required qualifications are often not available in the company, nor on the market.

High complexity, especially with the supporting application of ICT.

Absence of adequate approaches, methods and tools.
## Elements of Service Engineering

### Service Planning
- Potential analysis
- Market analysis
- Service idea evaluation
- Service package formulation
- Offer schedule

### Service Conception
- Develop service concept
- Develop marketing concept
- Develop management concept
- Develop sales concept

### Realisation Programme
- Intro & realisation parameter
- Time & resources frame
- Prepare technical realisation
- Employees training / motivation
- Pilot introduction

### Results:
- Formulated and selected service idea
- Realisable complete service concept
- New service
**Product/service model:** describes the achievement of the service before the service can be offered to the customers (result dimension).

**Process model:** describes how the results of a service are accomplished (process steps, interfaces)

**Resource concept:** assists the planning of the resource assignment, which is required for the subsequent provision of the service (employees, current assets, information infrastructure, etc.)

**Marketing concept:** should be generated simultaneously to the service development; comprises e.g. the marketing strategy and the marketing mix
Overview on Fraunhofer IAO and IAT University of Stuttgart

Introduction to Services

Modularisation of Services – Service Product Models

Systemic Development of Services – Service Engineering

The I3Con Service Engineering Approach
I3Con Construction Services Engineering Approach

Current Status  Service Idea  Service Development  Service Customisation  Service Operation

Tools for input collection

Tools for input assessment

Checklist
- ...
- ...
- ...

Checklist
- ...
- ...
- ...

Checklist
- ...
- ...
- ...

Checklist
- ...
- ...
- ...

Checklist
- ...
- ...
- ...

Checklist
- ...
- ...
- ...

Not all tools are used:
They are **selected** according to the service being developed / adapted!
I3Con Construction Services Engineering Approach

There are two kinds of tools:

a) Some for **collecting** input
b) Some for **assessing** the collected input
I3Con Construction Services Engineering Approach

Tasks and Tools for input collection

- Environm. aspects
  - Socio-cultural
  - Economic
  - Technological
  - ...

- Objectives
  - Corporate strategy
  - Service strategy
  - ...

- Current structures
  - Existing service portfolio
  - ...

Tasks and Tools for input assessment

- SWOT
- Portfolio analysis
  - ...

Extract from the I3Con Service Engineering Approach.
Checklist

✓ Have you assessed all environmental aspects (socio-cultural, economic, technical, competitors ...)?
✓ Have you considered your corporate (service) strategy and objectives?
✓ ....

 Extract from the I3Con Service Engineering Approach.
Achieved Objectives

- Service product models can support the **presentation of the service concept** and the **configuration of services** (possibly also the service concept assessment)
- Service Engineering approach was **specified and adapted** to the requirements of construction services development
  => Step-by-step phase model supported by construction-specific tools and guideline
- The concept was **tested and validated** with industrial partners
Thank you!

Contact:
Lesya Bilan
Fraunhofer IAO / IAT University of Stuttgart
Competence Centre R&D-Management

Lesya.Bilan@iao.fraunhofer.de