

Service Engineering: Systematic Development of New Services

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SERVSIG

Services Marketing Consortium

Bethesda, October 22, 2003

Introduction

Service Research in Germany

Service Engineering

Conceptual Framework

Case Study

Perspectives

Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO (Fraunhofer Institute for Industrial Engineering)

- Founded:
 - 1981
- Number of employees:
 - 250
- Research volume:
 - €28 million p.a.
- Head of institute:
 - Prof. Dieter Spath
- Project volume:
 - 400 research and consulting projects p.a.



Institute Center, Stuttgart

Current service research at Fraunhofer IAO



service markets

tertiarization processes
cultural settings



service products

service engineering
e-services



service systems

service performance measurement



service employees

service competence management

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Service Engineering

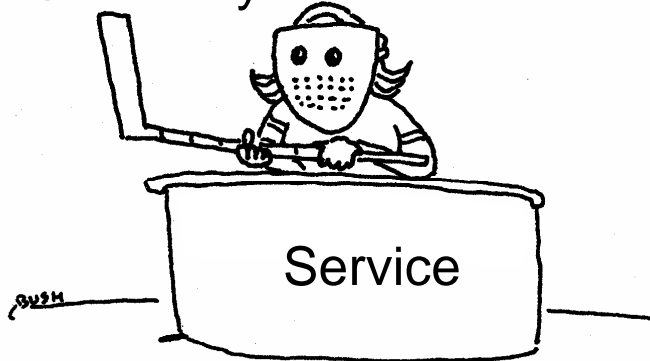
Conceptual Framework

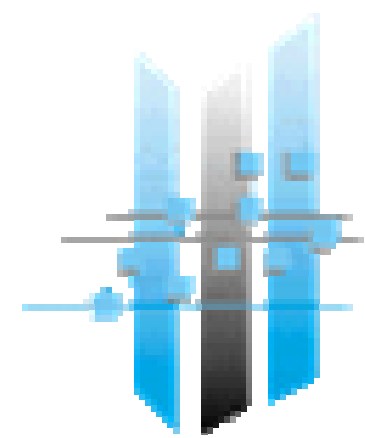
Case Study

Perspectives

The early nineties

- In spite of increasing economic importance there was no special German research program for service topics.
- Scientific publications concentrated on service management, service marketing, and service quality, and were strongly influenced by American works.
- No institutionalization of service research in the early nineties (the first German professorship of service management was established in 1997 at the University of Eichstätt – Professor Stauss).



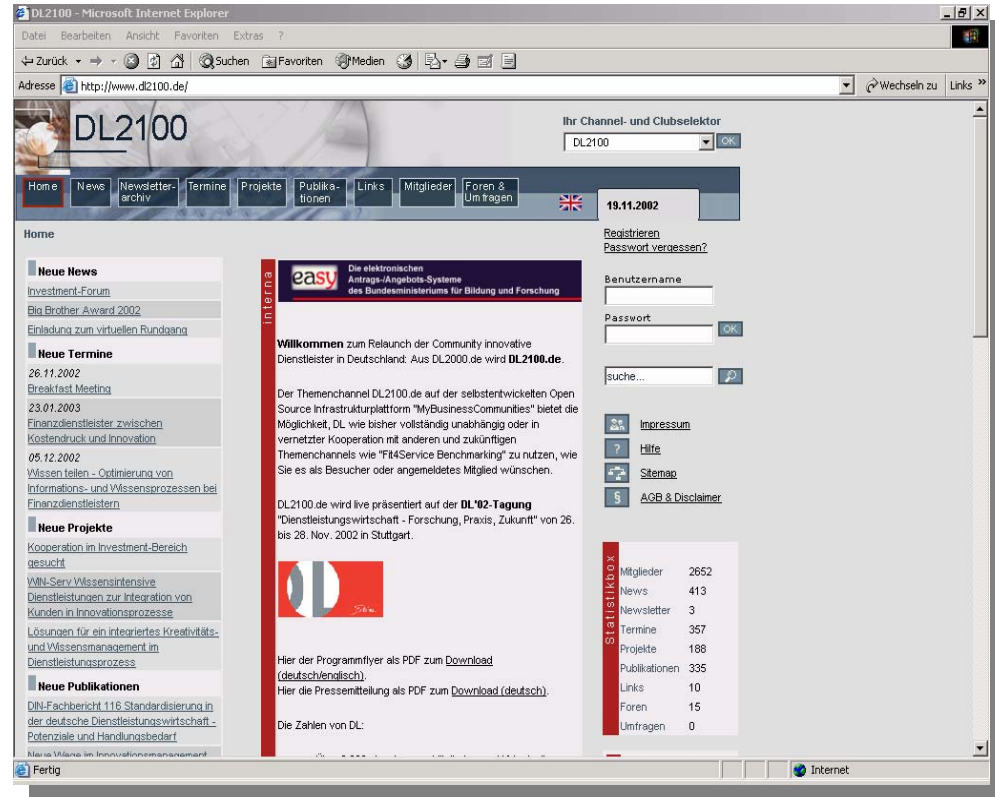


»Services for the 21st Century« - a German initiative

- 1995-1997:
Study »Service 2000plus« with more than 300 experts from academia, industry and politics under the overall guidance of Professor Hans-Jörg Bullinger (IAO).
- 1997-1998:
Funding of so-called »Prioritären Erstmaßnahmen«, i.e. »measures of high priority«,
114 projects with a total volume of 35.7 million German marks.
- **Since 1998:**
Special research program for services.

DL2100.de – Internet community for service research

- more than 2,700 registered members
- profiles of about 200 research projects
- about 350 publications
- monthly published newsletter
- **since October in German and English**



<http://www.dl2100.de>

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New business segments through innovative services

Instead of only focusing on optimisation measures like ...

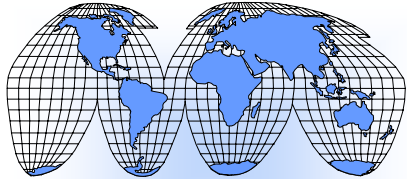
- cost reduction through optimisation of processes and resources,
- increase in efficiency through concentration on core competencies,



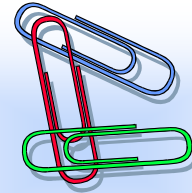
... it is necessary to look for possibilities of growth like ..

- development of new services,
- bundling of services,
- customer-oriented re-design of services,
- hybrid products and value added services.

Current challenges for German Companies



internationalisation

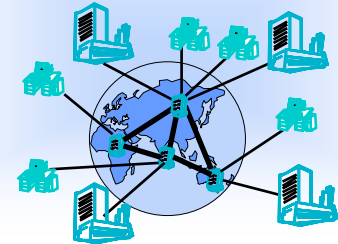


**merging
of industries**



**increasing pressure
for innovation**

**new information and
communication technologies**



**liberalization and
deregulation**



New services – but how? → **Typical problems**

**lack of
innovation management**

**lack of
organizational structures**

**complexity of hybrid
products and service
bundles**

**lack of
requisite qualifications**

**lack of integrated tools
to support the development process**

**lack of suitable
models and methods**

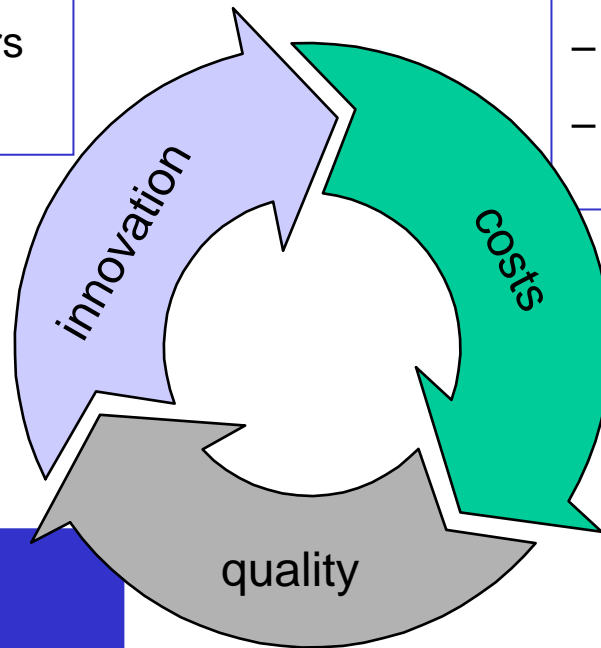
Service innovations in three steps

innovation by developing new services

- individualising of service offers
- utilising service modules

innovation by optimisation of processes

- reducing the effort
- shortening throughput time
- cost cutting by process re-engineering



source: Küpper, 2001

innovation by optimisation of quality

- strengthening customer focus
- optimising customer interfaces



Typology of Services

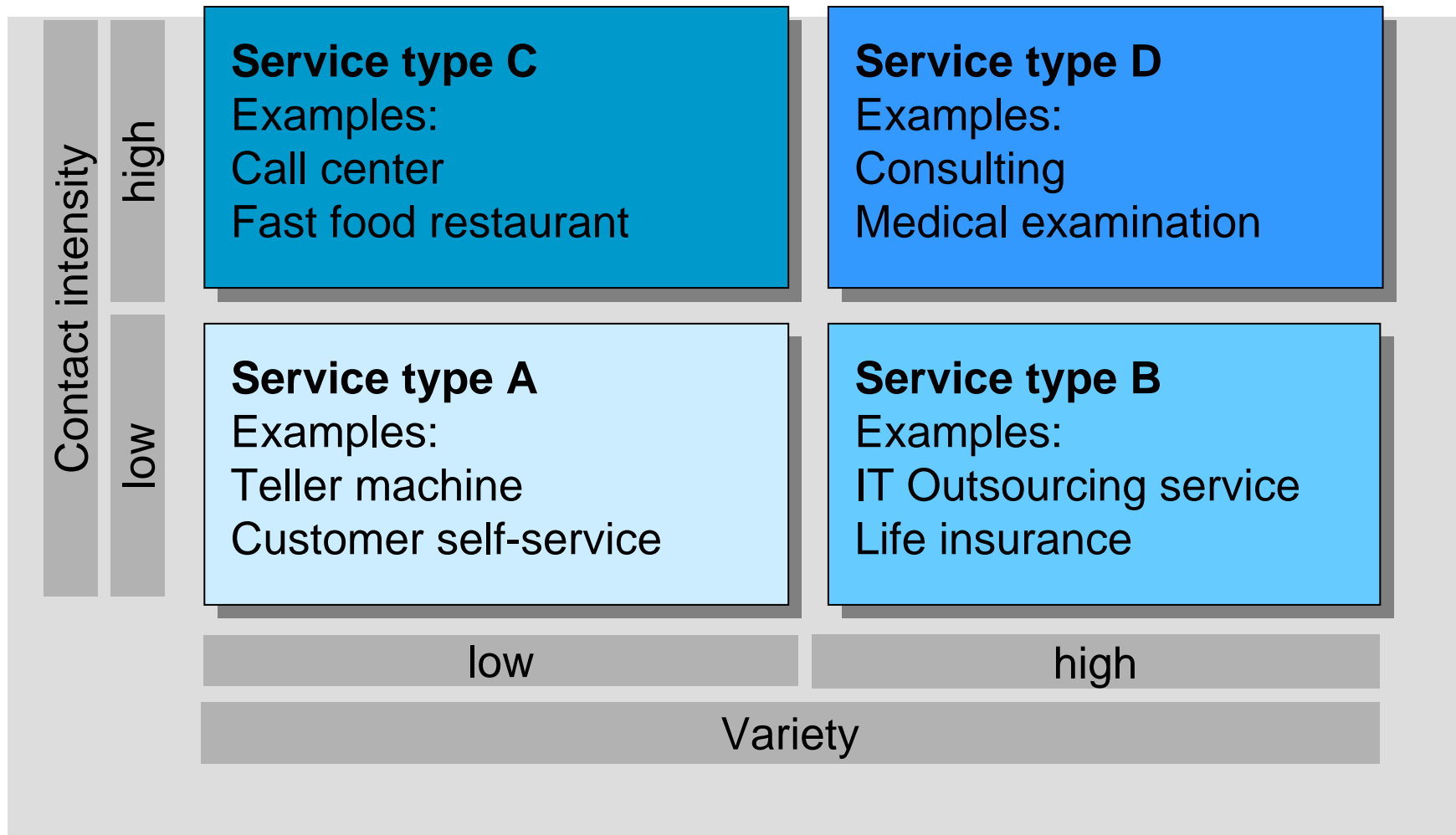


Figure 4
Service Engineering – Methodical Development of New Service Products
Bullinger, Fähnrich, Meiren^{THM/833}

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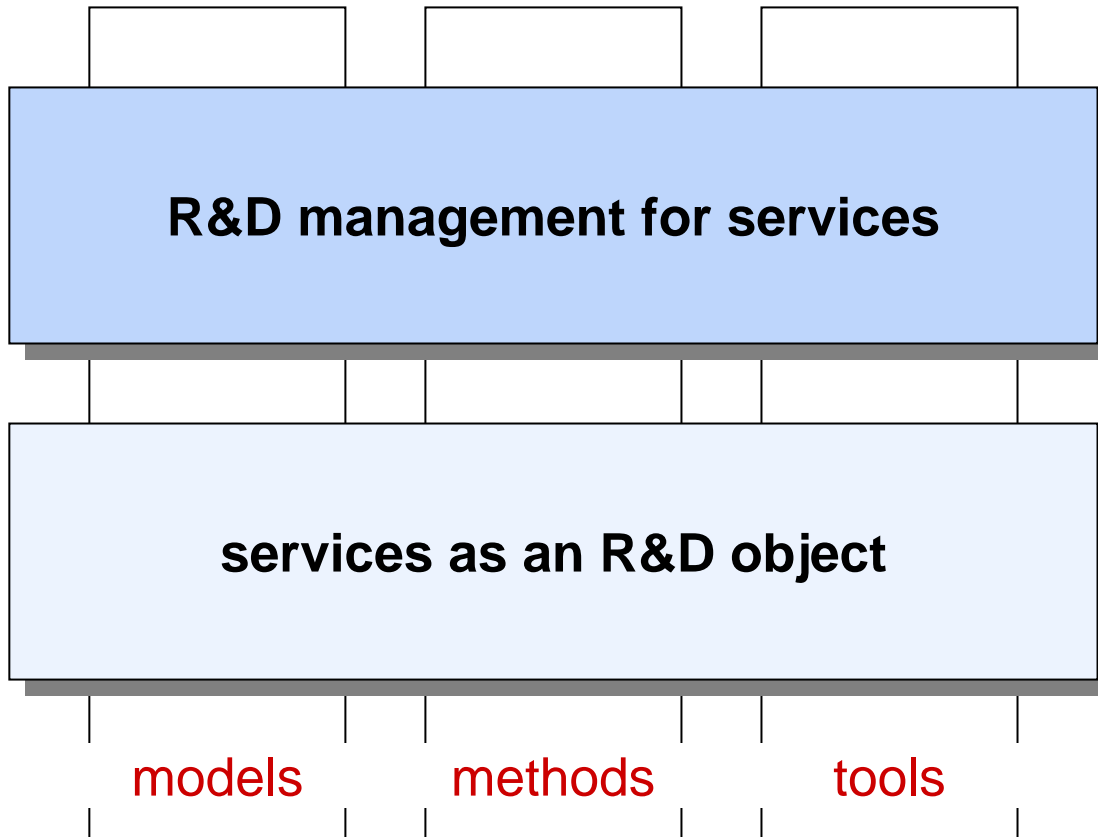
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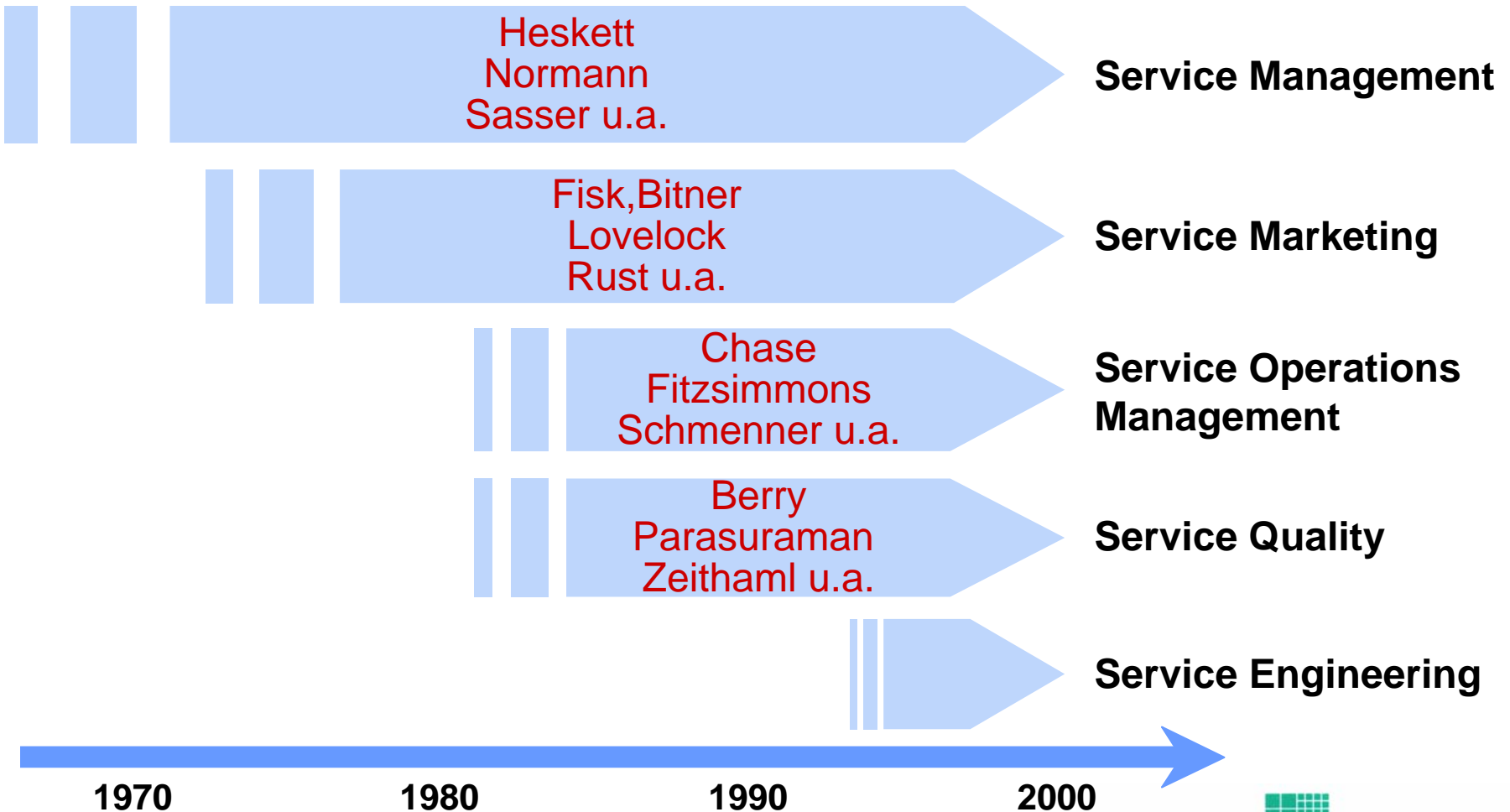
Service Engineering

Closing the gap from idea to realisation of new services



Service Engineering is concerned with the systematic development and design of services using suitable models, methods and tools.

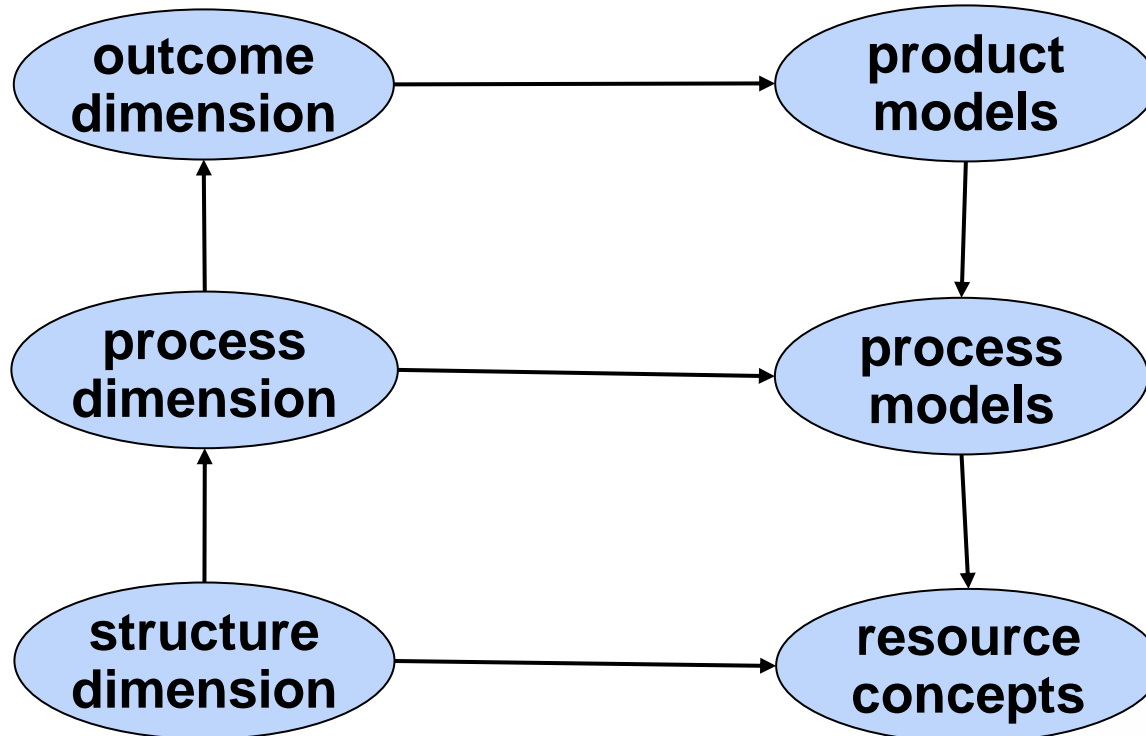
Selected fields of service research



Services as a development object

From theory ...

... to development



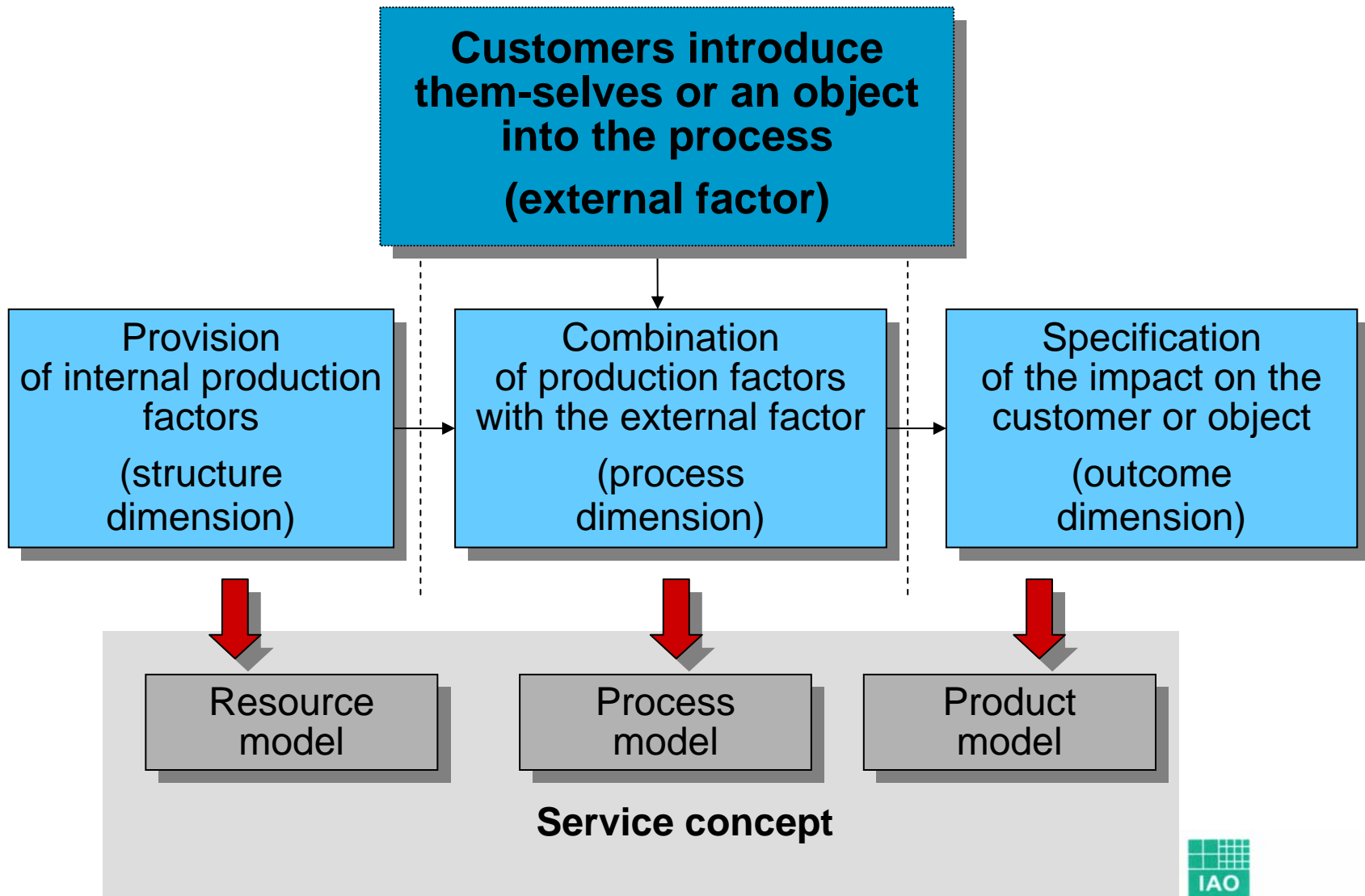


Figure 2
Service Engineering – Methodical Development of New Service Products
Bullinger, Fähnrich, Meiren^{THM/833}

Developing services Step 1: product model

product model

A product model describes, **what** a service delivers

- description of the service
- data models
- (definition of service modules)

TCO-Check

Warum Total Cost of Ownership?

Investitionen in Informationstechnik basieren mehr und mehr auf wirtschaftlichen Betrachtungen. Dadurch wird die Transparenz hinsichtlich der tatsächlichen Kosten für den Bereich der Informationstechnik zur zwingenden Voraussetzung für die Entscheidungsfähigkeit der Unternehmensführung. Insbesondere die Betriebskosten von Unternehmensnetzen, verteilten Systemen sind häufig nicht transparent. Viele Kostenkomponenten werden bei einer Analyse der Betriebskosten häufig nicht oder nur unzureichend betrachtet. Einen Ausweg bieten moderne Verfahren zur Ermittlung der Total Cost of Ownership (TCO), die es ermöglichen, sämtliche direkten als auch der indirekten Kosten zu ermitteln. Damit bildet TCO den Ausgangspunkt zur Identifizierung von Verbesserungspotenzialen und zur Ableitung von Maßnahmen.



Vorgehen



Projektstart

Zum Projektstart wird ein sogenanntes Partner-Team initiiert, das aus Management-Vertretern Ihres Unternehmens und unseren Projekt-Verantwortlichen besteht. In diesem Kreis wird die Konkretisierung der Planung für den TCO-Check vorgenommen. Das gemeinsame Verständnis für die konkrete Vorgehensweise, die Zusammenarbeit und die zu erzielenden Ergebnisse wird entwickelt. Der Kreis der in den TCO-Check einbezogenen Kunden-Mitarbeiter wird festgelegt.

Kick-Off-Workshop

Allen am TCO-Check beteiligten Mitarbeitern des Kunden wird die Vorgehensweise, die Analyse-Methodik sowie das konkrete Vorgehen in den Interviews vermittelt. Die Interview-Planung wird vorgenommen und Regeln für die Zusammenarbeit werden vereinbart.

Informationserhebung

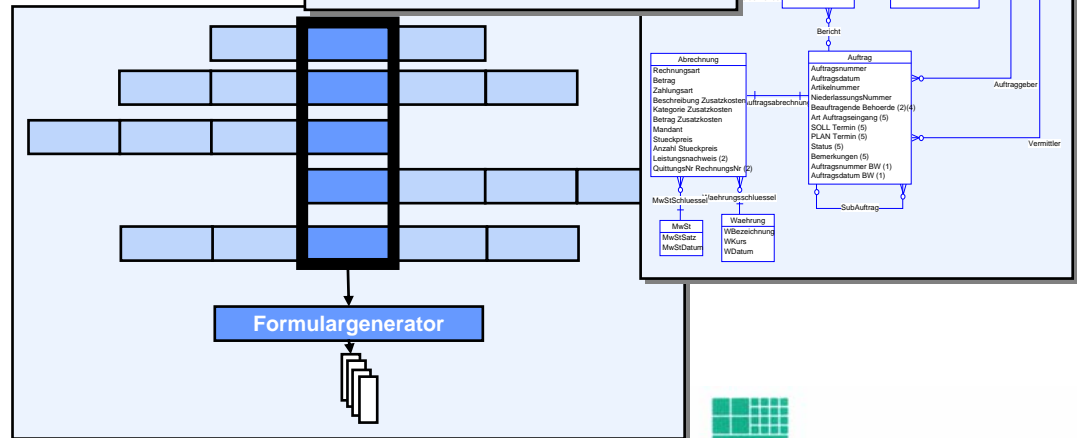
In dieser Phase werden strukturierte Interviews mit den vereinbarten Zielgruppen durchgeführt und durch die gezielte Erhebung relevanter Daten ergänzt. Es kommt ein Leitfaden zur TCO-Analyse zum Einsatz. Durch Einbezug mehrerer Management-Ebenen findet ein Cross-Check von Antwortmustern statt.

Analyse und Aufbereitung

Die erhobenen Daten werden gemäß eines standardisierten Kostenschemas strukturiert, Verbesserungspotenziale und Handlungsbedarfe in informationstechnischen Prozessen werden dargestellt und bewertet. Die aufbereiteten Ergebnisse werden einem branchenspezifischen Best Practice Vergleich unterzogen.

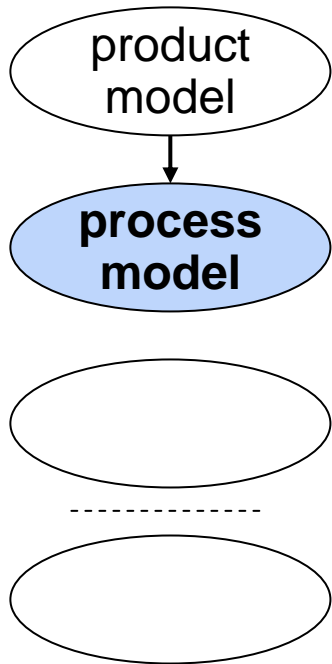
Management-Präsentation

Eine Präsentation der aufbereiteten Ergebnisse vor Vertretern des Top-Managements Ihres Unternehmens bildet den Abschluss des TCO-Checks.



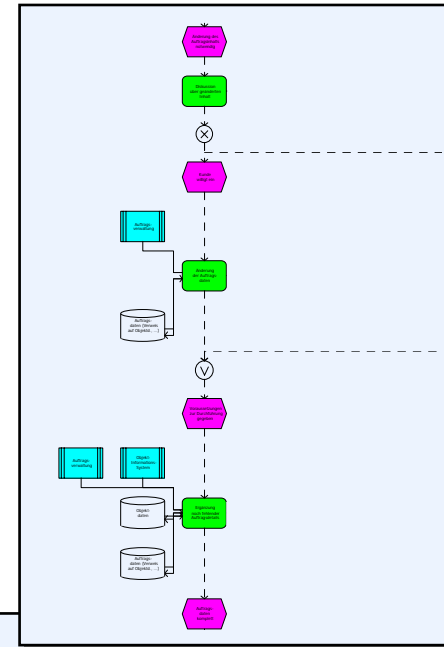
Developing services

Step 2: process model



A process model describes, **how** a service delivers

- definition of process steps
- definition of interfaces

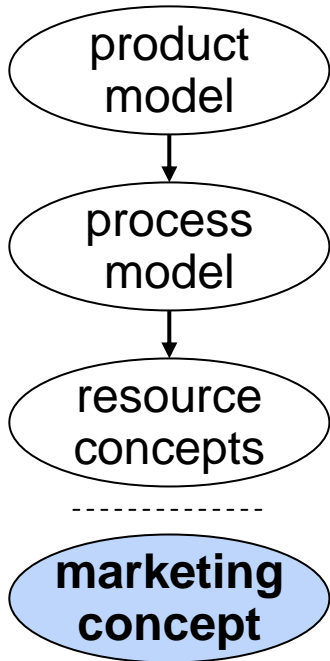


Reducing inefficiencies

- non-value adding processes
- interfaces
- media breaks
- sequential processes

Developing services

Parallel step: marketing concept



Marketing concepts should be developed in **parallel** (and not after the design phase)

- marketing strategy
- marketing mix

marketing strategy

- definition of market segments and target groups
- strategic positioning
- definition of marketing system

»4 R« of service marketing

- Referrals
- Retention
- Related Sales
- Recovery

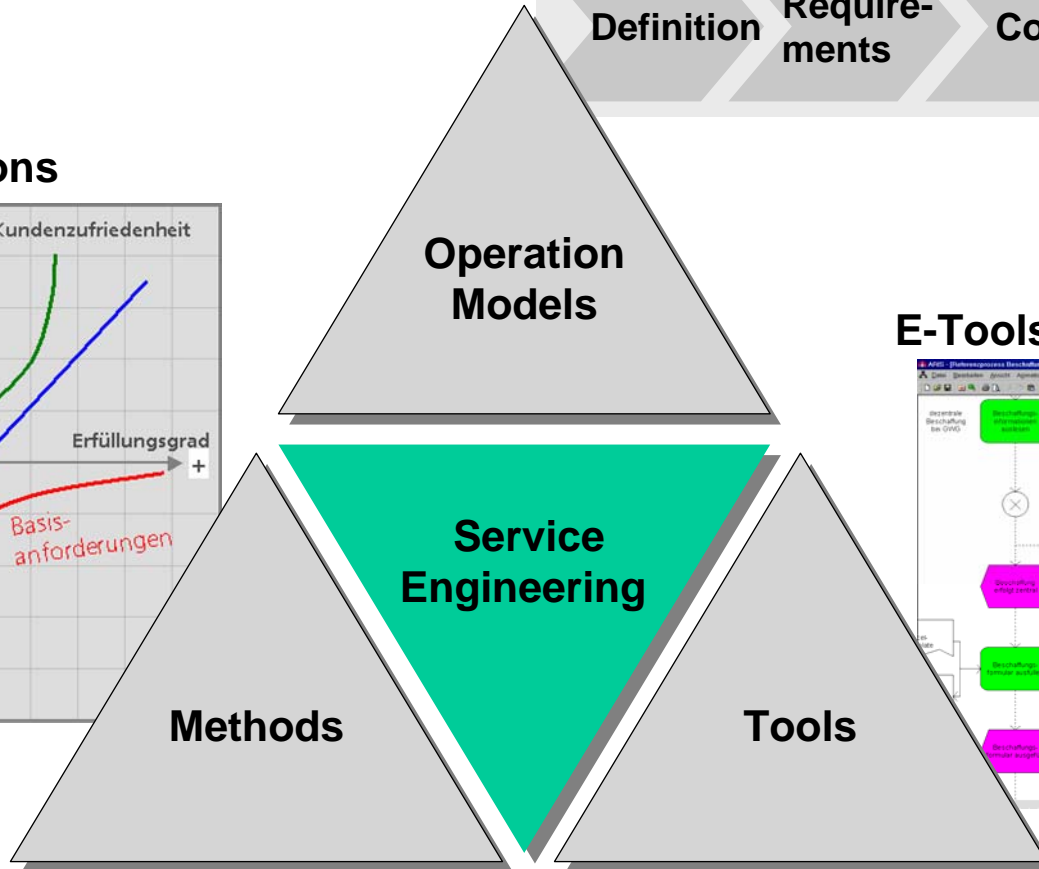
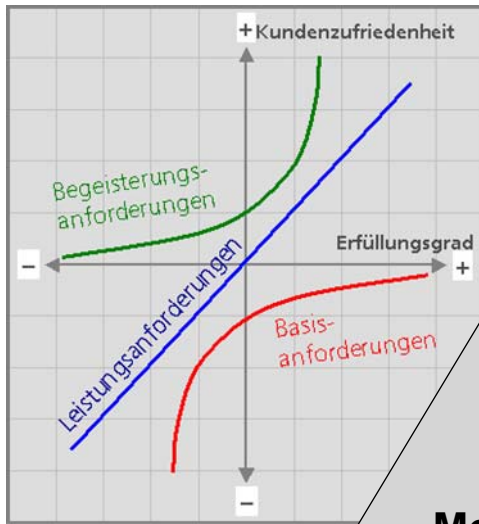


Component Parts of Service Engineering

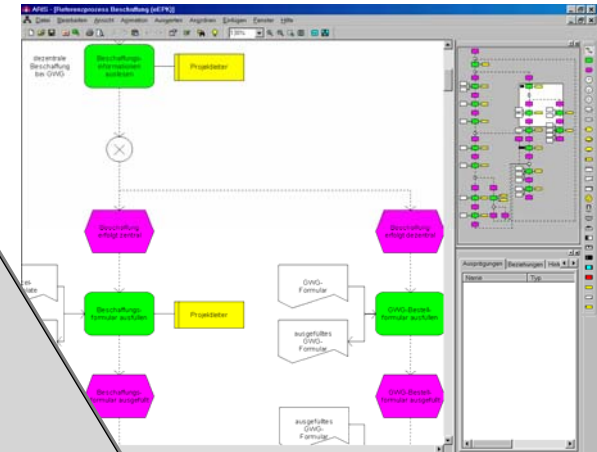
Phase models



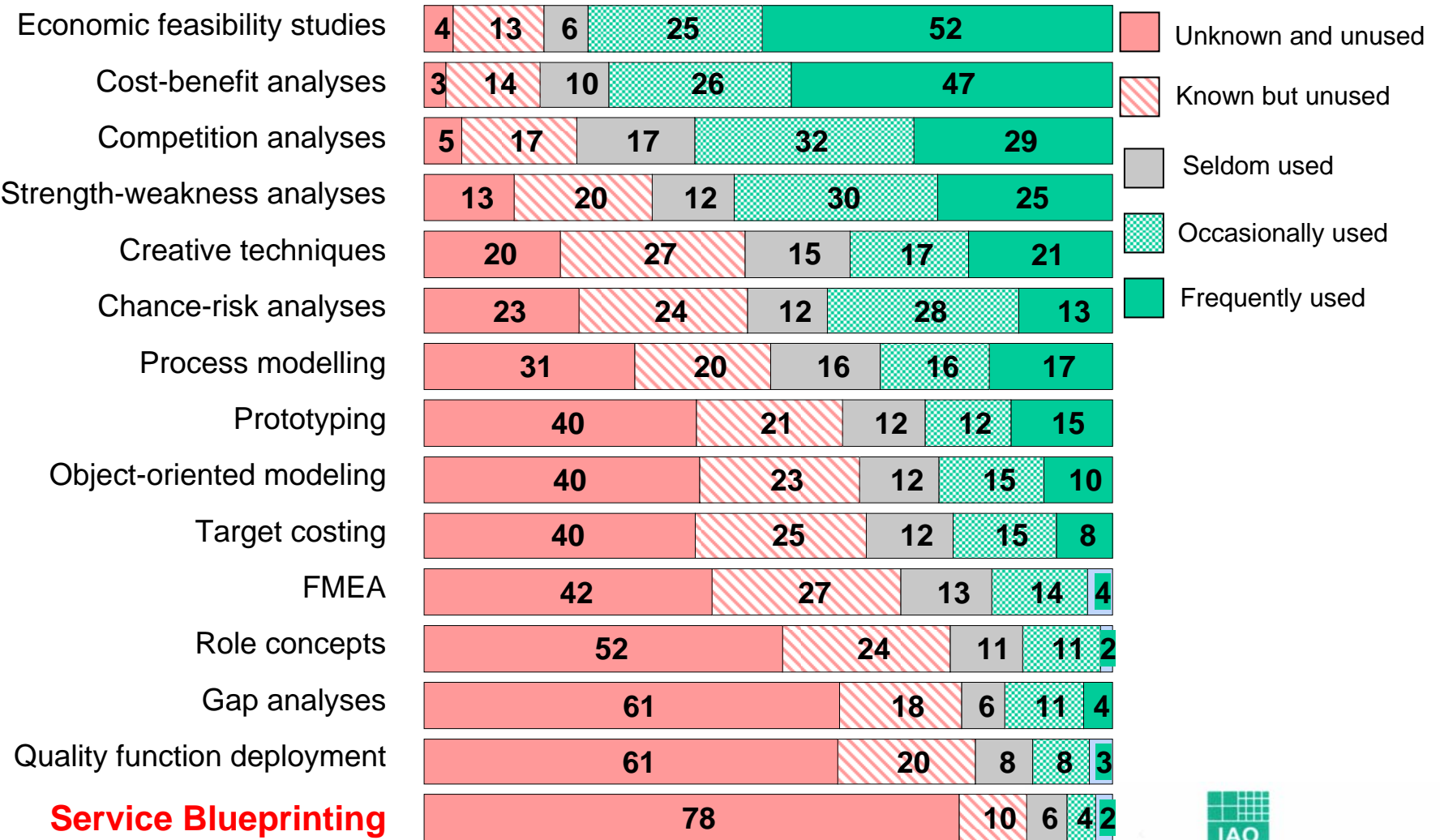
Classifications



E-Tools for Process Modelling



Need to Catch-Up in the Utilization of Service-Specific Methods



Source:
IAO-Studie, 1999

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Service Research in Germany

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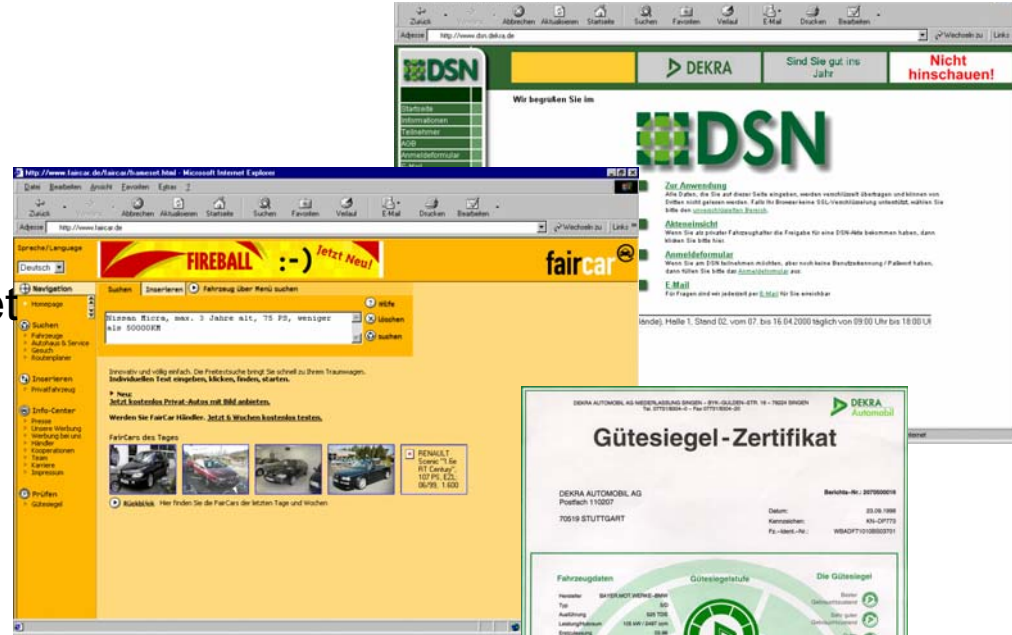
Conceptual Framework

Case Study

Perspectives

Case study: DEKRA Development of new services

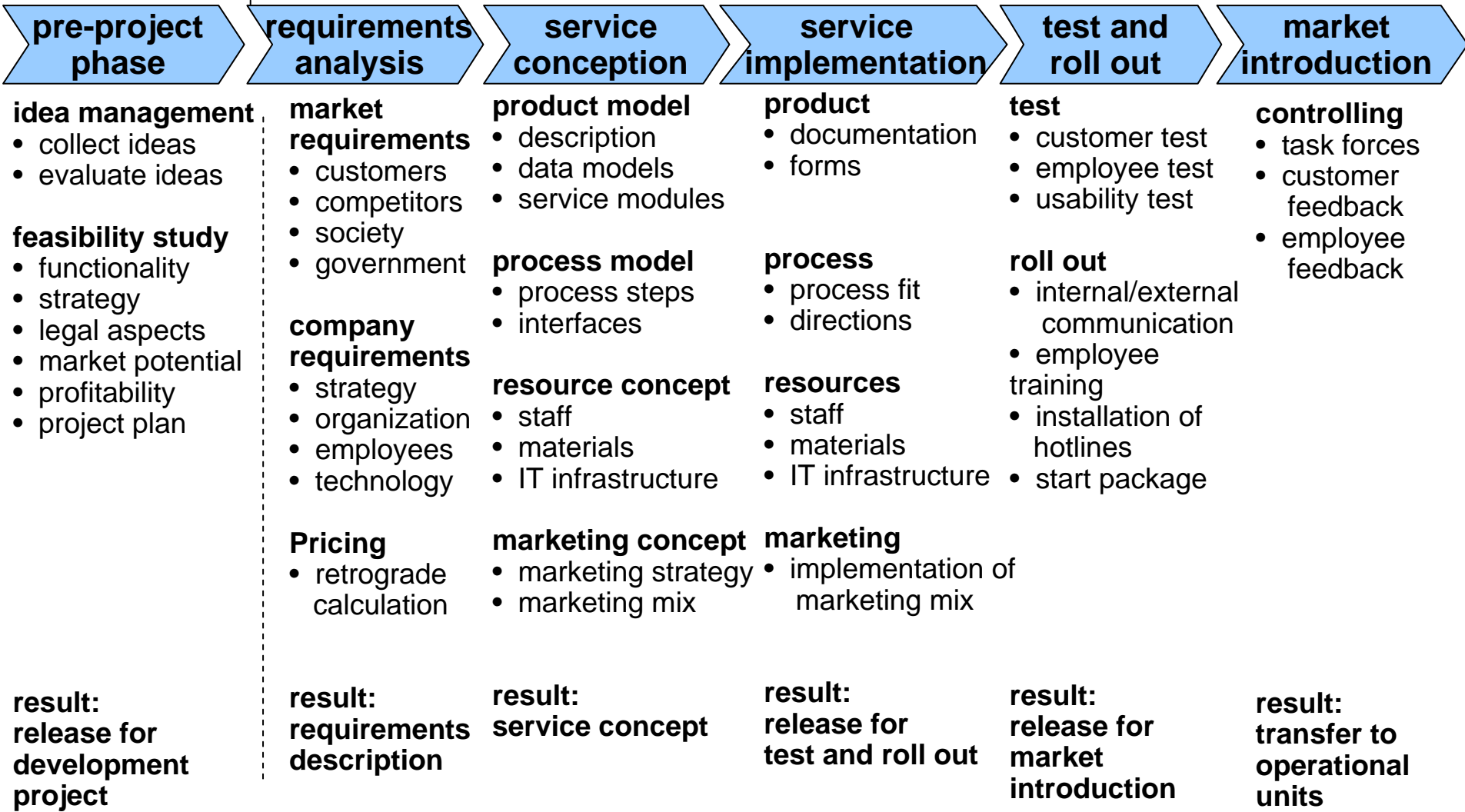
- **DEKRA-Schadennetz**
virtual internet-file for car appraisals
- **FairCar**
Internet-based second-hand market for cars (<http://www.faircar.de>)
- **DEKRA-Siegel**
certificate for used cars
- **DEKRA-Zulassungsdienst**
registration of new cars
- **DEKRA:**
8,000 employees
headquarter and 87 locations in Germany
provider of technical services



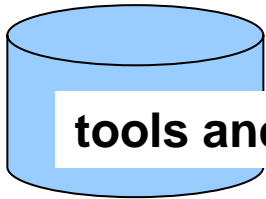
Service Engineering and Management

Case study: DEKRA

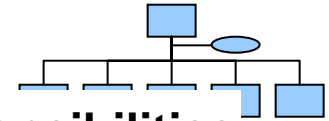
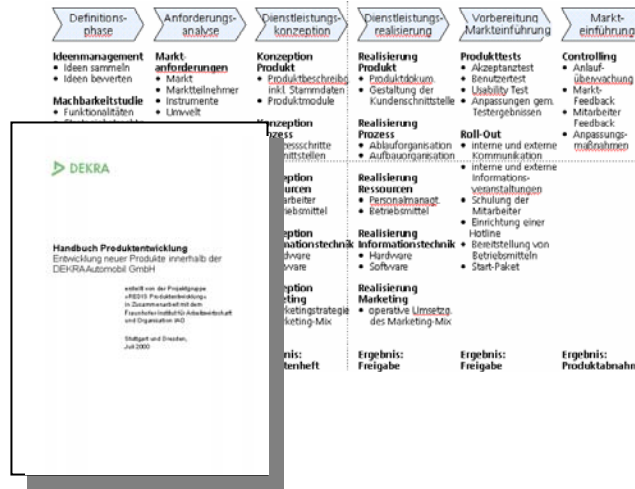
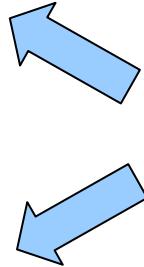
Modules of the service development process



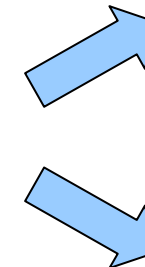
Case study: DEKRA Implementation of the service development process



tools and templates



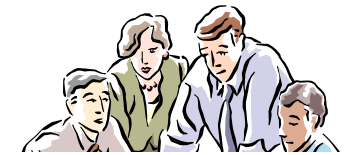
responsibilities



Zielgruppe	Projektdokumentation (elektronisch)	Projektmanagement (elektronisch)	Entwicklungsphase in den Phasen von der Idee bis zur Realisierung	Workshops für sonstige Projektziele	Prüfung des Projekts	Einrichtung von RUF-Feedbackkanälen	Beratungsservice DEKRA Consulting
Vorstand	x	00					
Bereichsleiter/Leiter	x	00	00				x
Leiter von Entwicklungsbereichen	x	00	00	x	x	x	x
Gebietsleiter							
Niederlassungsleiter							
Mitarbeiter							
Mitarbeiter							
DEKRA-Consulting		00					x
REDIS-Kernteam		00		x			
Projektteam REDIS PE	x	00		x			

internal marketing

00: auf Nachfrage



workshops and trainings

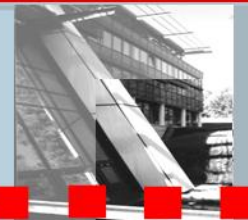


Case study: DEKRA

Results

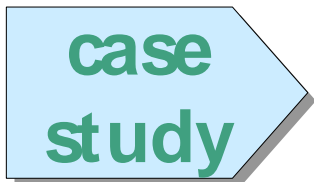
- **realization of business development strategies**
service development as an operative linkage between idea and implementation
- **competitive advantages**
differentiation through innovative services
- **higher success rate on market**
systematical integration of market and customer perspectives
- **profitability**
consideration of target prices and target costs
- **time-to-market**
shortening of development times
- **knowledge management**
know how transfer between development projects





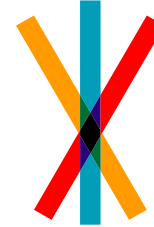
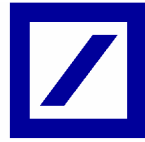
CASET

Computer Aided Service Engineering Tool



Partners of CASET

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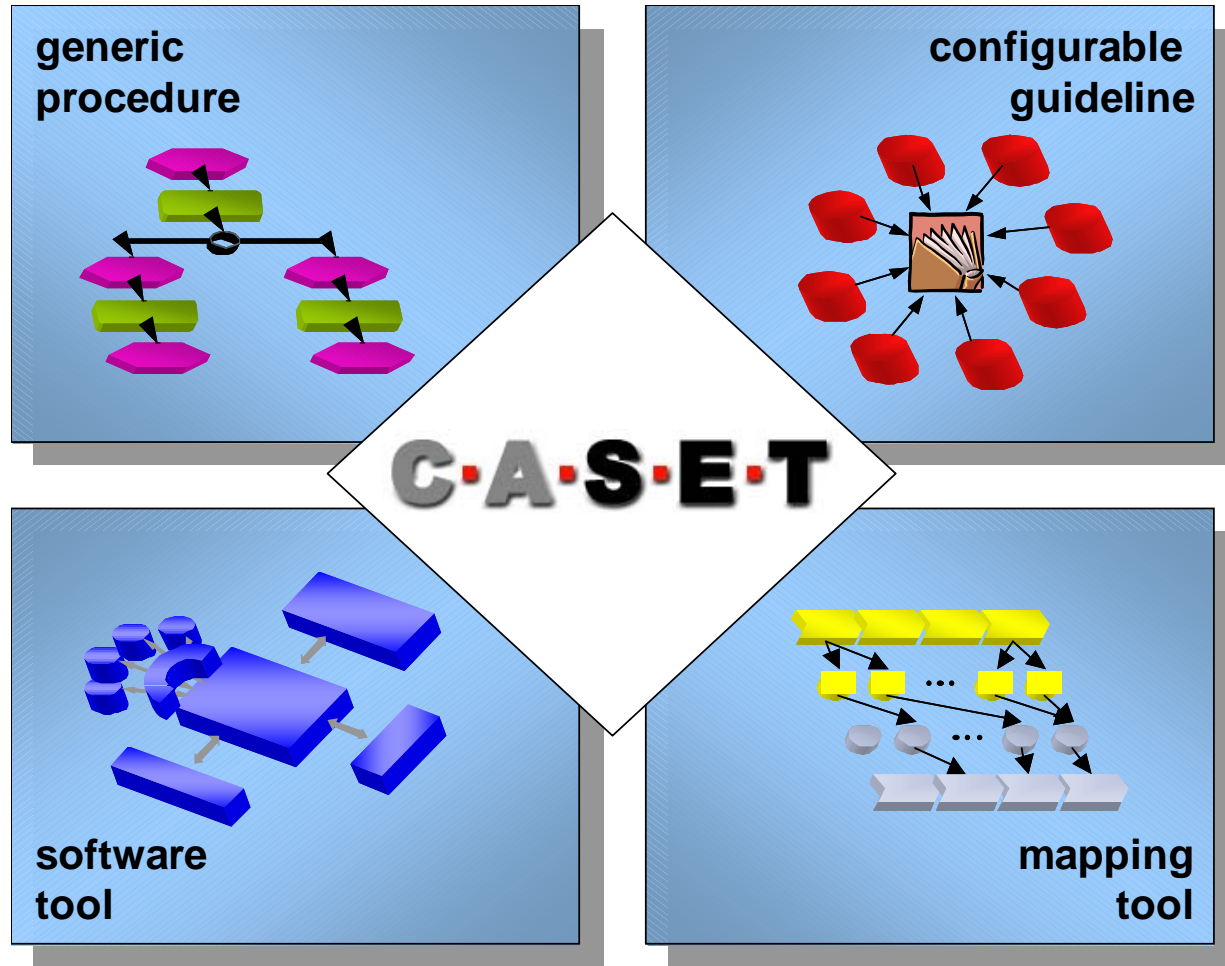
Computer Aided Service Engineering Tool



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Components



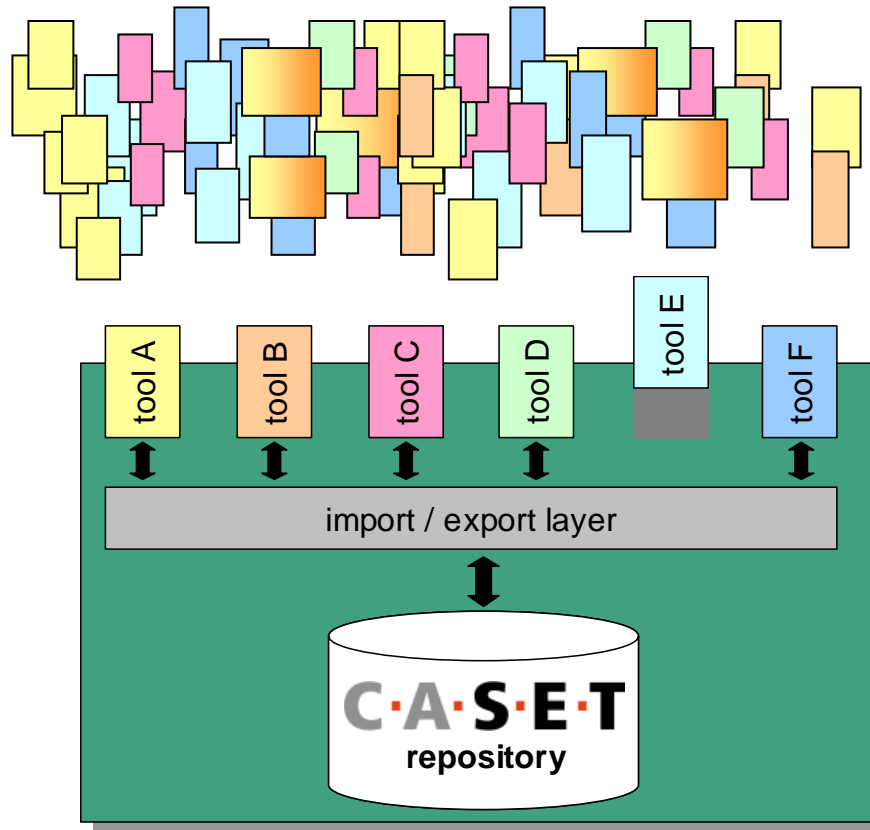
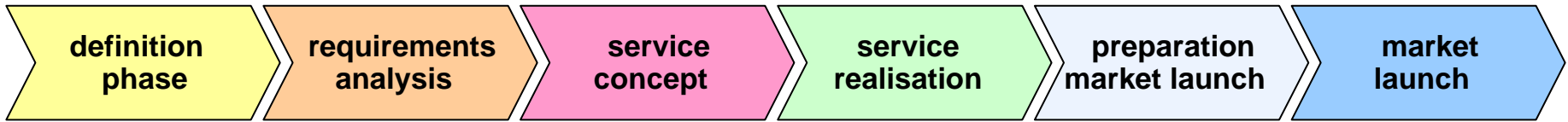
Computer Aided Service Engineering Tool



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Organisation

Computer Aided Service Engineering Tool



case study



- Home

- Leitfaden

- Eigene Projekte

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 - 090901-804
 - 280801-700
 - 021001-111
 - 080302-142
 - 080302-141
 - 080302-140
 - 070302-139
 - 070302-138
 - 040302-137
 - 040302-136
 - 040302-133
 - 040302-135
 - 040302-134

Vertrieb- / Filialstrategie

mail

Marktfähigkeit

K.o.-Kriterium		ja	nein	Kommentar				
<input type="checkbox"/>	Bedürfnisbefriedigung / Kundennutzensteigerung	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	mail
<input checked="" type="checkbox"/>	Zukunftsfähigkeit	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	mail
<input type="checkbox"/>	Kommunizierbarkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="text"/>	mail
<input checked="" type="checkbox"/>	Vertrauenswürdigkeit	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	mail
<input type="checkbox"/>	Intuitive Verständlichkeit	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	mail

Technische Realisierbarkeit

K.o.-Kriterium		ja	nein	Kommentar				
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<input checked="" type="checkbox"/>	Ressourcen verfügbar	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	mail
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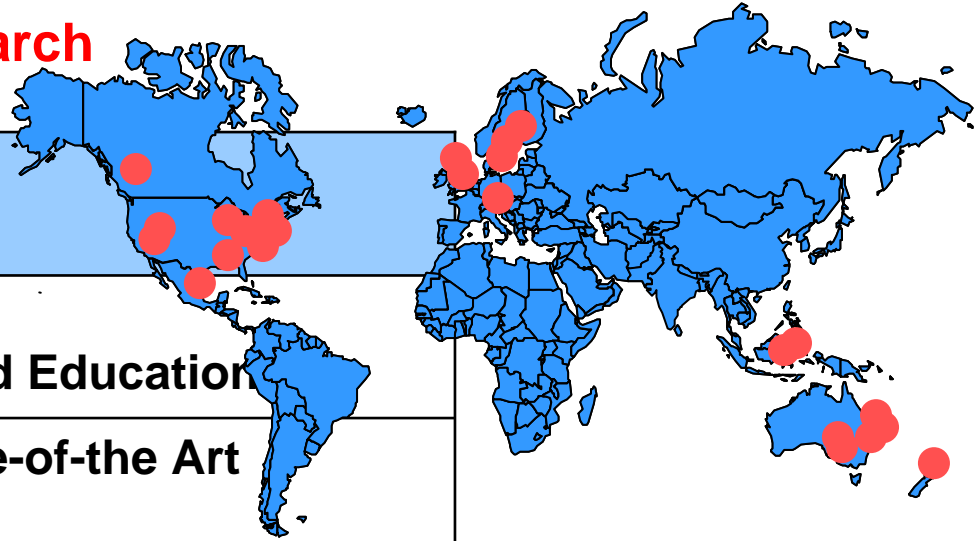
Service Engineering

Conceptual Framework

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Perspectives

Expert interviews on service research



Profile	
Initiator	German Ministry for Research and Education
Objectives	Analysis of State-of-the Art and trends Identification of needs for future research
Scope	Basic research topics Applied research topics Mega trends and growth sectors
Method	Interviews with 25 international experts
Period	July and August 2002



Analysis model

1 Basic research topics

- 1.1 Service definitions, typologies and morphologies
- 1.2 Service models and systems
- 1.3 Service specifications and standards

2 Applied research topics

- 2.1 Service innovation (new service development, design, engineering)
- 2.2 Service management (marketing, operations management, human resources)
- 2.3 Benchmarking and assessment

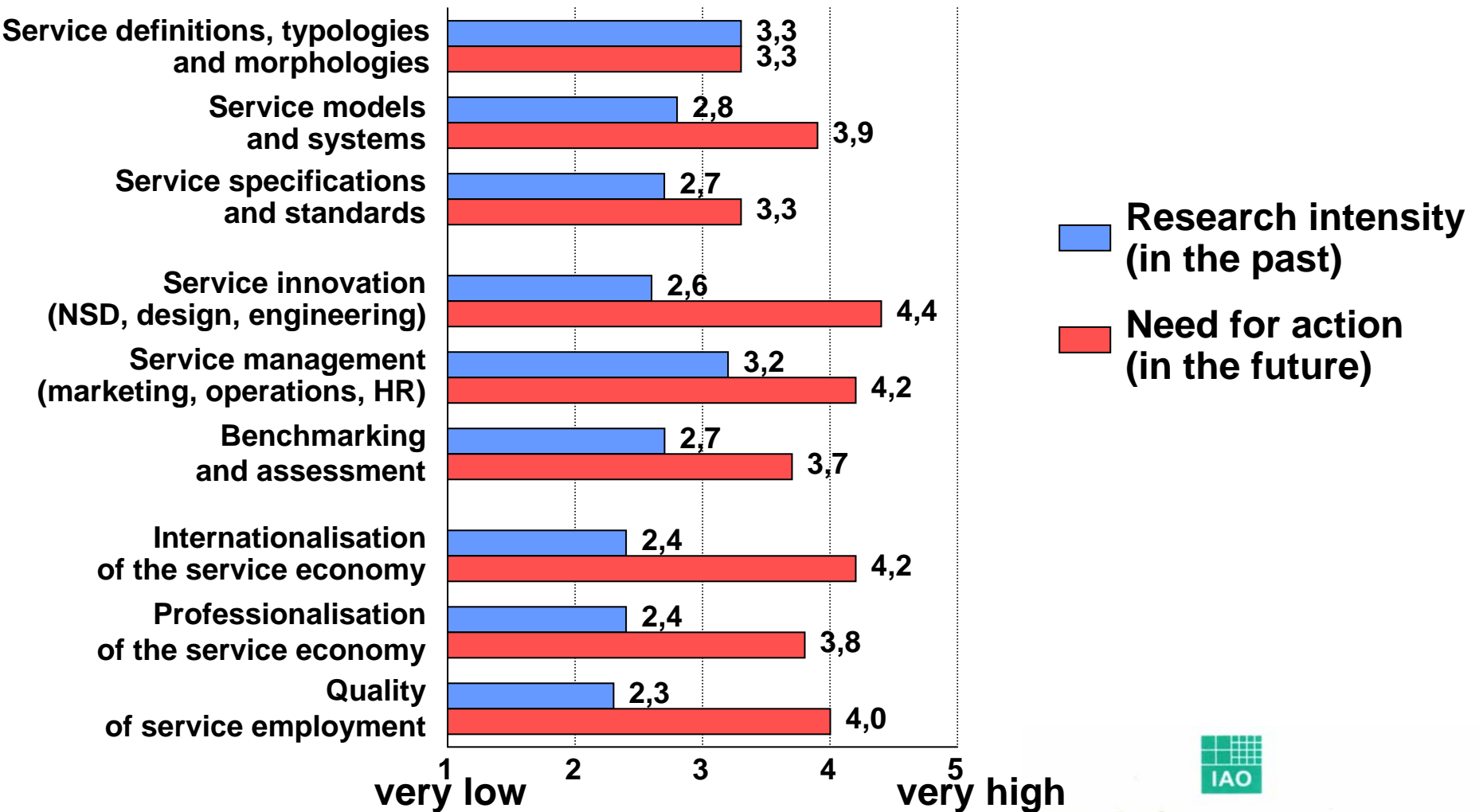
3 Mega trends

- 3.1 Internationalisation of the service economy
- 3.2 Professionalisation of the service economy (outsourcing, automation, etc.)
- 3.3 Quality of service employment

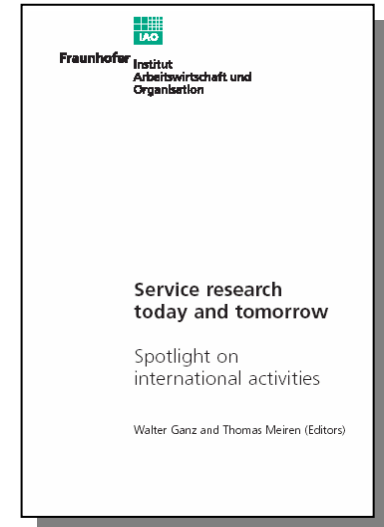
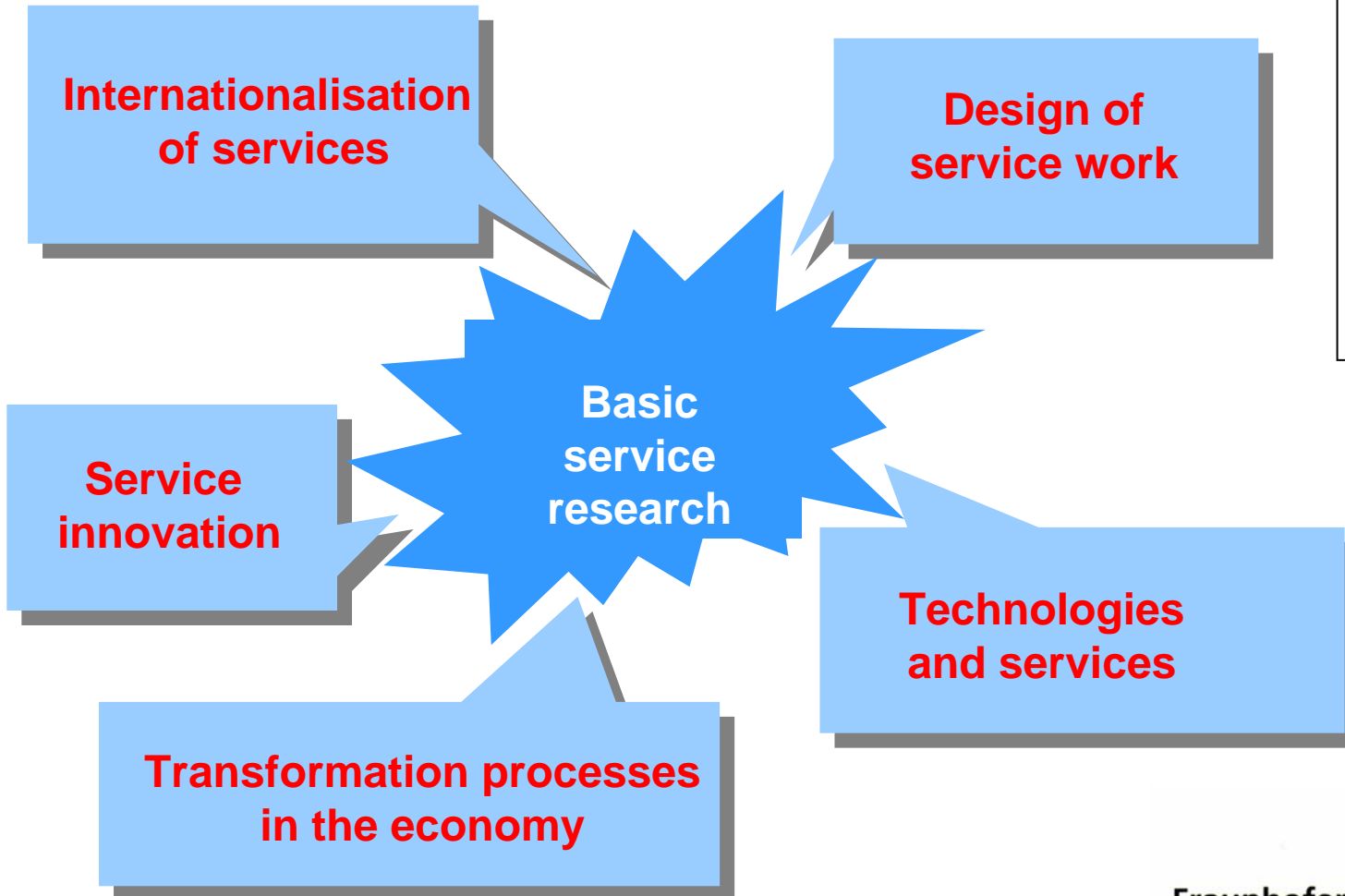
4 Growth sectors

- 4.1 Business services
- 4.2 Educational services
- 4.3 Financial services
- 4.4 Information services
- 4.5 Media and telecommunications services
- 4.6 Non-professional services («unskilled jobs«)
- 4.7 Public services
- 4.8 Services in manufacturing industries
- 4.9 Social and health services

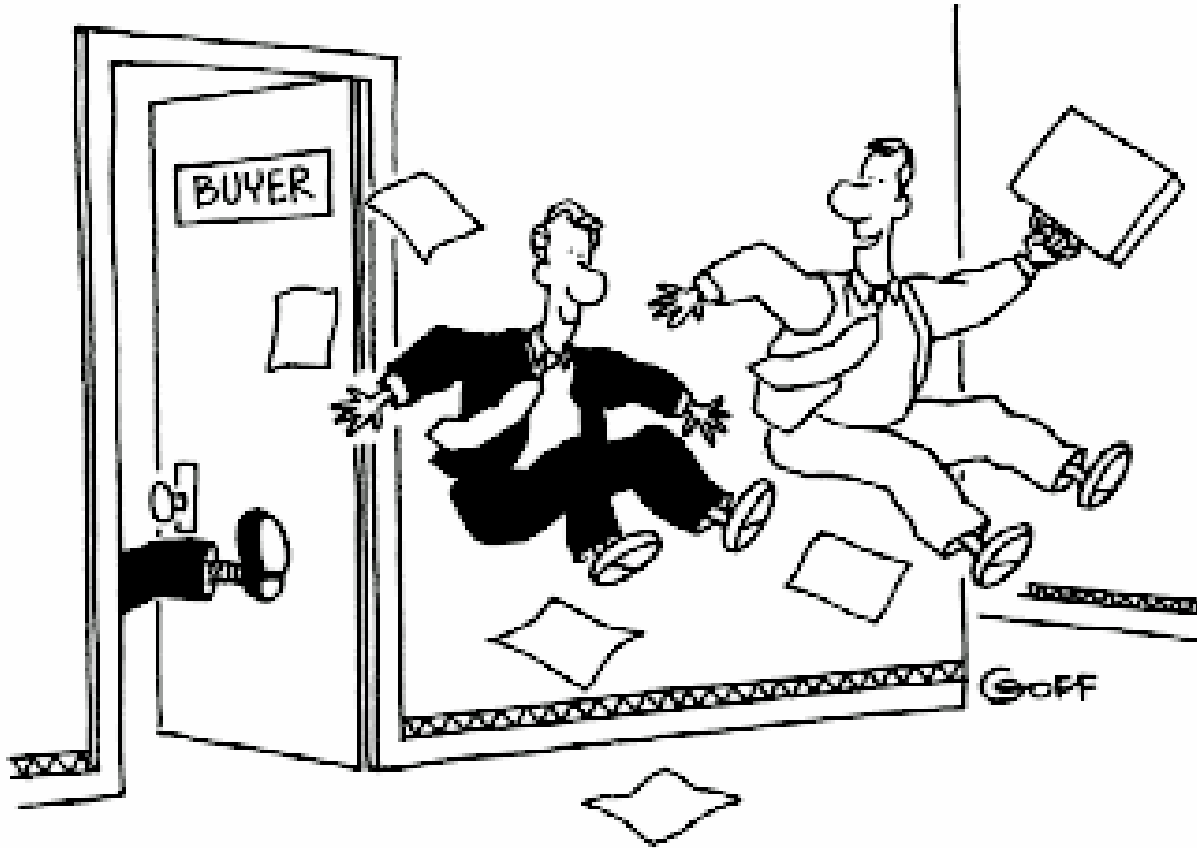
Expert weightings



R&D needs



Service innovations according to the trial-and-error method



»I have a good feeling about this. He kicks us a shorter distance every time«.

Thank you very much for your attention. Questions?

Your contact for further information

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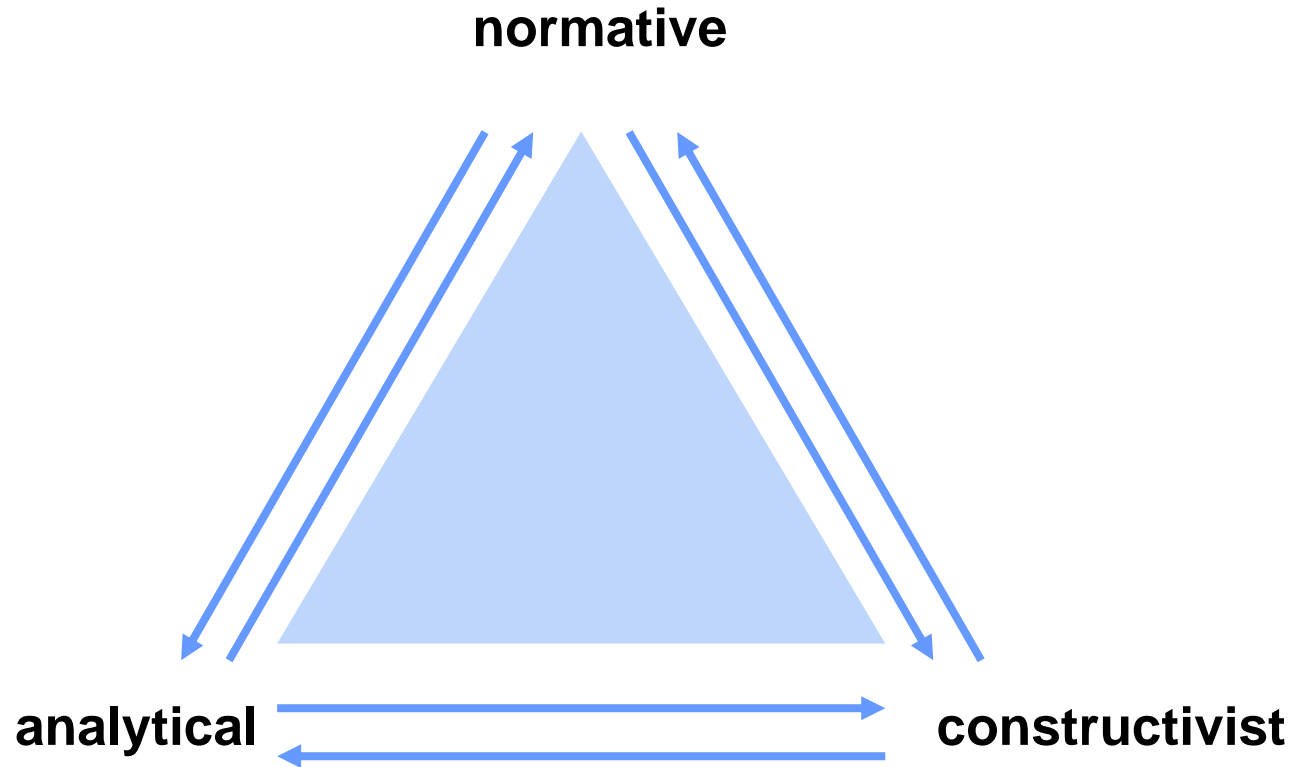
Telefax +49 (0) 7 11/9 70-2299

e-mail: Walter.Ganz@iao.fhg.de

WWW: <http://www.iao.fraunhofer.de>



General approaches to service research



Service Engineering and Management

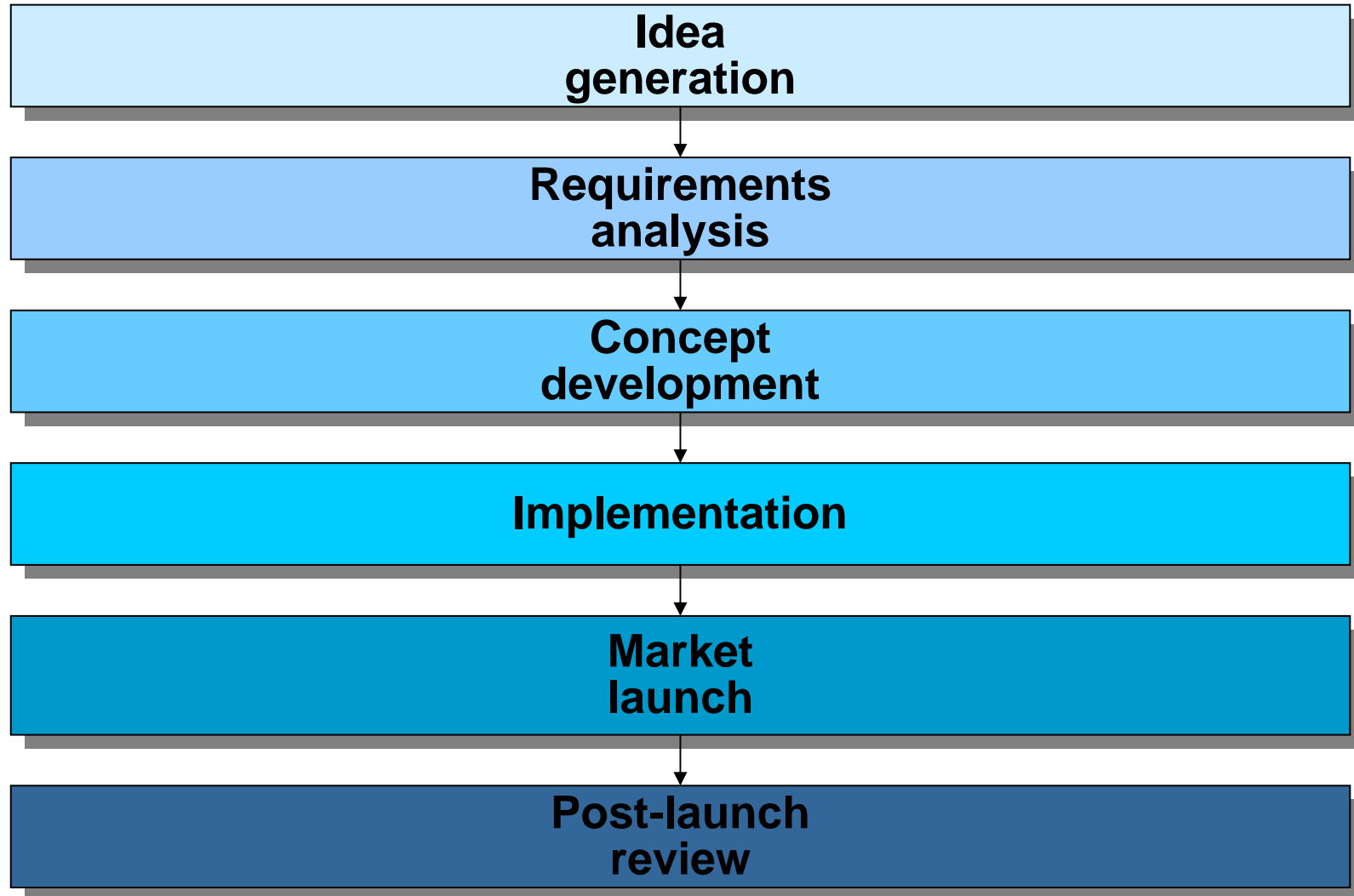


Figure 5
Service Engineering – Methodical Development of New Service Products
Bullinger, Fähnrich, Meiren

Service Engineering and Management

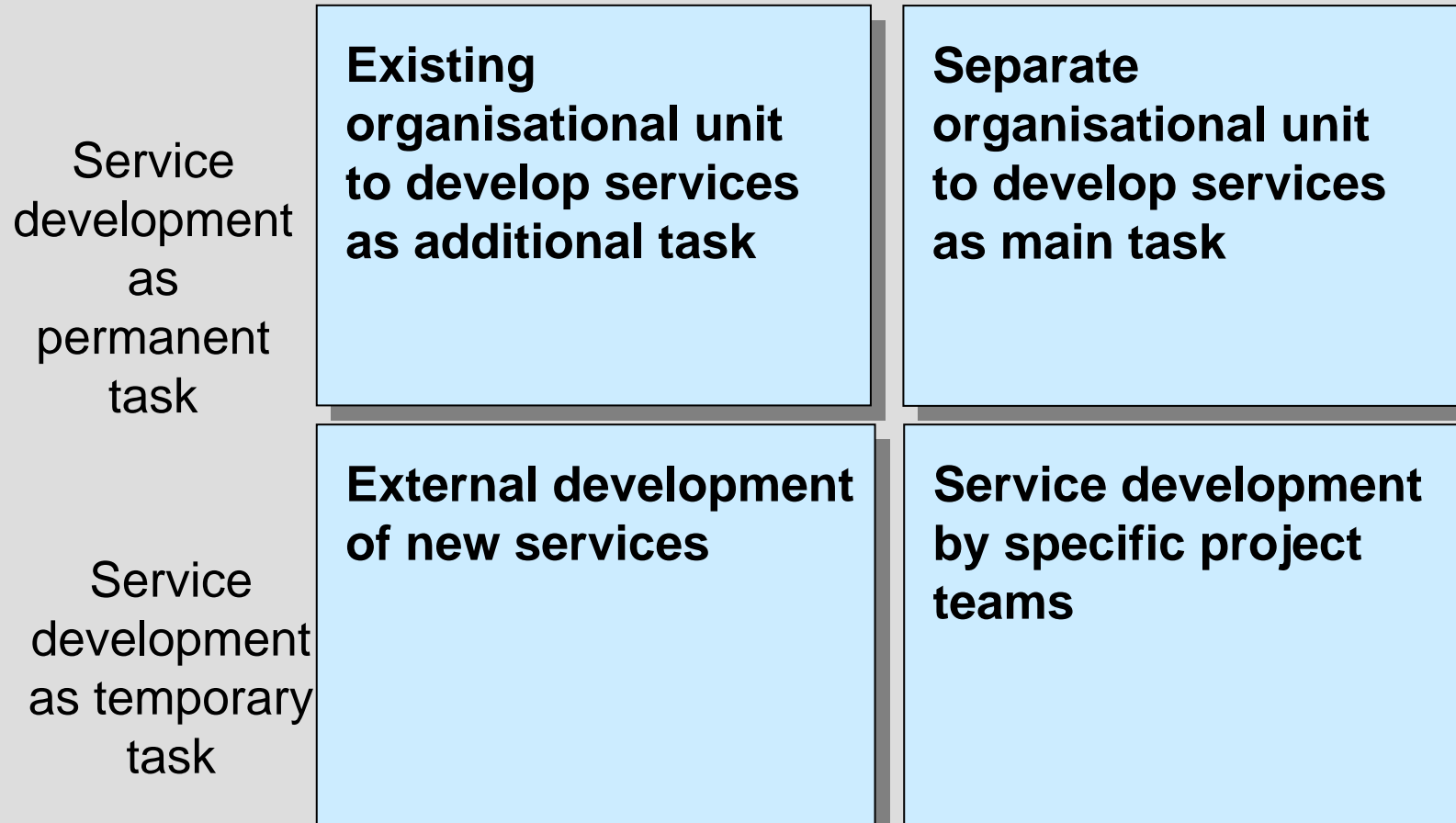


Figure 7
Service Engineering – Methodical Development of New Service Products
Bullinger, Fähnrich, Meiren
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THM/833

