

Service Engineering

Development of new smart services

Clemens Fischer, MSc. in Eng.

- **Research Topics:**

- Service Engineering
- Digitalisation
- Smart Manufacturing/Future Workplaces

- **Experience:**

- University of Applied Science – Industrial Management
- BMW AG – Quality Management
- REWE International – Warehouse Management



New technologies enable new Services

- **measure** stock quantities and re-order **automatically**
- **monitor** the infrastructure (machines, roads, buildings)
- **track** logistic units/work steps to improve quality
- **prevent** the customer from downtimes
- **improve** the performance of machines and employees



innovationatwork.ieee.org



produktion.de

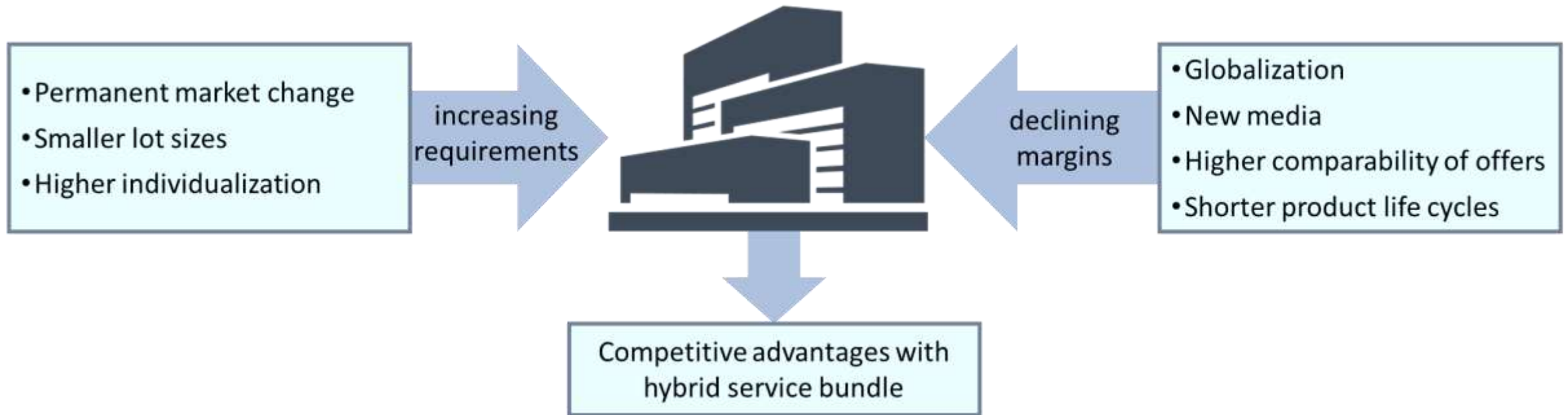


amazon.de



techrepublic.com

Industrial Challenges

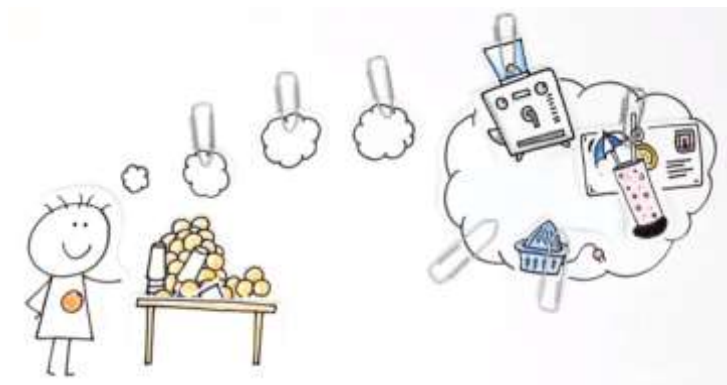


Fischer 2018; Richter et al. 2016; Leimeister 2012

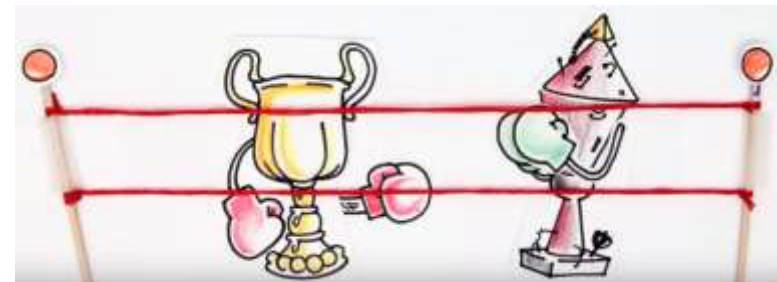
SUCCESS needs INNOVATION

Why do companies fail?

- Miss radical innovations – caused by
 - too busy with the day-to-day business
 - serve today's customers
- Better
 - development of future opportunities



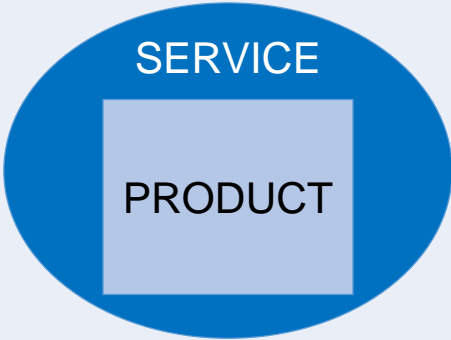
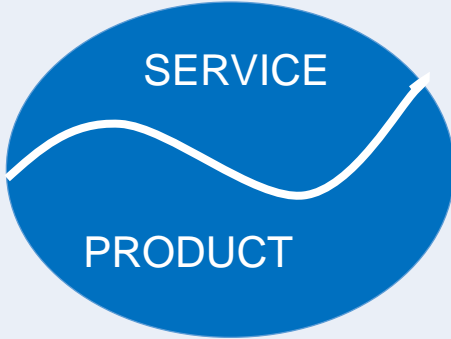



**Today's success
is the enemy
of the success of tomorrow**



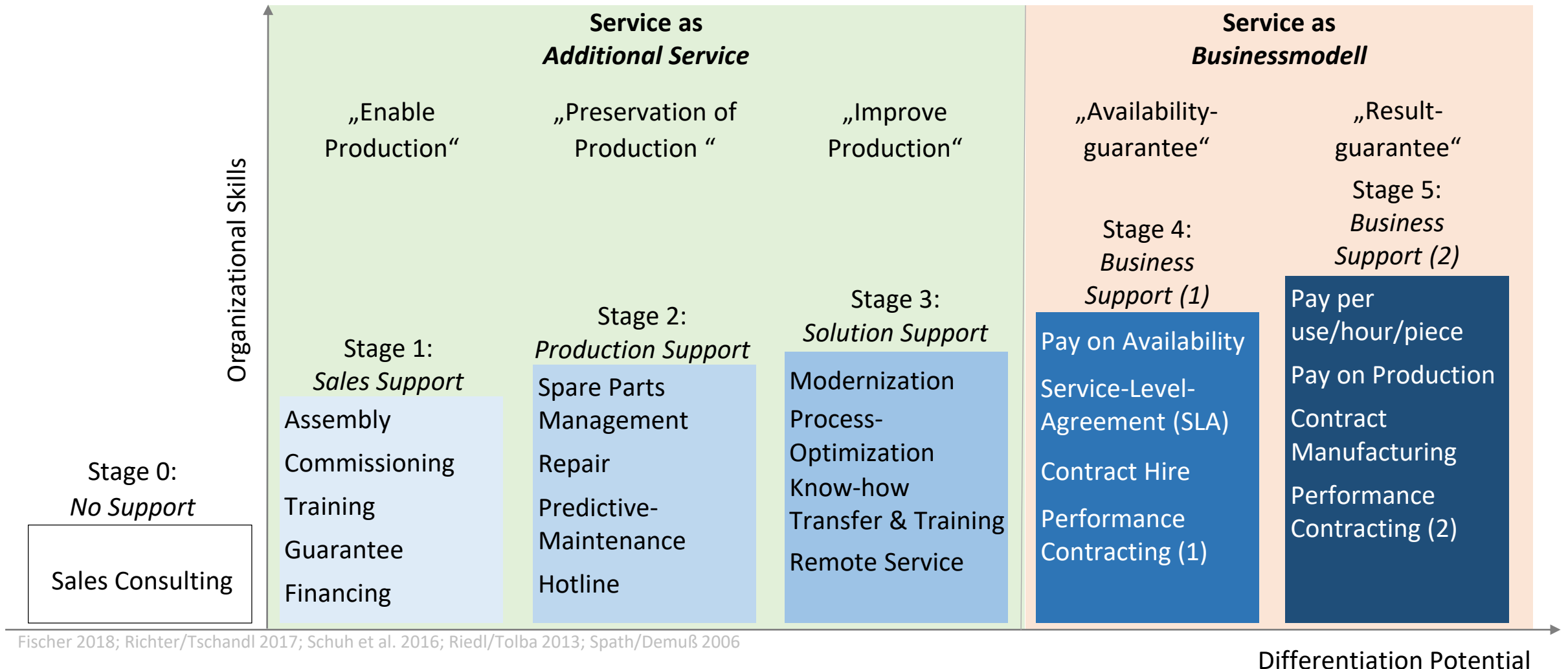
Youtube.com

Product/Service – Hybrid?

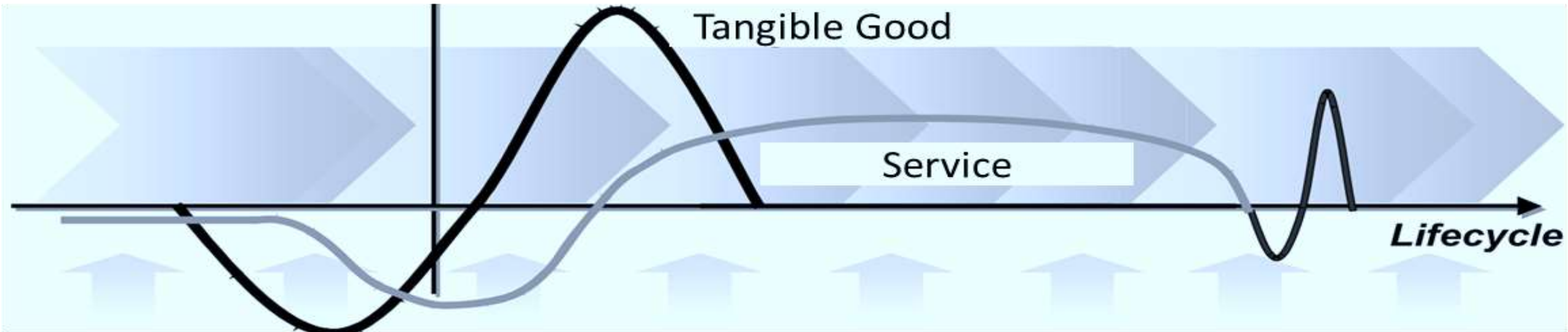
Product-business	Product-/ Service business	System business	Customised solutions business	Service Business
				
<p>"no service" Sale of products Services are not charged</p>	<p>"side by side" Sale of individual services in addition to the product</p>	<p>"complementary" sale of a service as an integral part of the offer</p>	<p>"integrated" Sale of a complete solution</p>	<p>"no product" Sale of performance promises</p>

Richter 2018; Spath/Demuß 2006; Hildenbrand 2006

Product/Service – Different Stages






Services along the Life Cycle/Customer Journey



Decision Phase	Purchase Phase	Operational Phase	Modernization/Outbound
<ul style="list-style-type: none"> • Online offers • Catalogues • Fairs/Exhibitions • Samples • Advice 	<ul style="list-style-type: none"> • Plant design • Simulation (VR) • Financing • Installation • Documentation • Training 	<ul style="list-style-type: none"> • Spare parts/ repair/ guarantees • Maintenance contracts • Availability assurance • Hotline, Teleservice • Process optimization • Adaptations/Extensions 	<ul style="list-style-type: none"> • Modernisation • Reconfiguration • Withdrawal • Recycling

Chances/Risks/Barriers of Smart Services

	Driving forces	Restraining forces
Service – Provider 	<ul style="list-style-type: none"> • Competitive differentiation • New growth potential • Additional contribution margins • Increase customer loyalty • Development of application knowledge 	<ul style="list-style-type: none"> • Lack of knowledge about customer requests • Missing business models • Lack of structure and process organization • Lack of service engineering • Lack of cooperation models
Service – User 	<ul style="list-style-type: none"> • Concentration on core competences • Outsourcing • No developing of know-how for the operation of complex machines • increased plant availability / productivity 	<ul style="list-style-type: none"> • Danger of know-how loss • Dependence on the service-provider • Impact on your own organizational structures • Intransparent economy • Lack of confidence
IT-Tools 	<ul style="list-style-type: none"> • Internet technology • Multimedia communication • IoT 	<ul style="list-style-type: none"> • Poor IT security • Missing standards • Inexperience

Study – Future Industrial Service employees

All-Rounder

- Technicians need more basics
- Controlling
- IT
- Accounting



Freepik

Data Analysis

- “data scientists” will be needed
- predictive maintenance



ultimatearm

Social Skills

- Strong demand for social skills
- Security in negotiation
- Self-motivation
- Interest in new things



Freepik

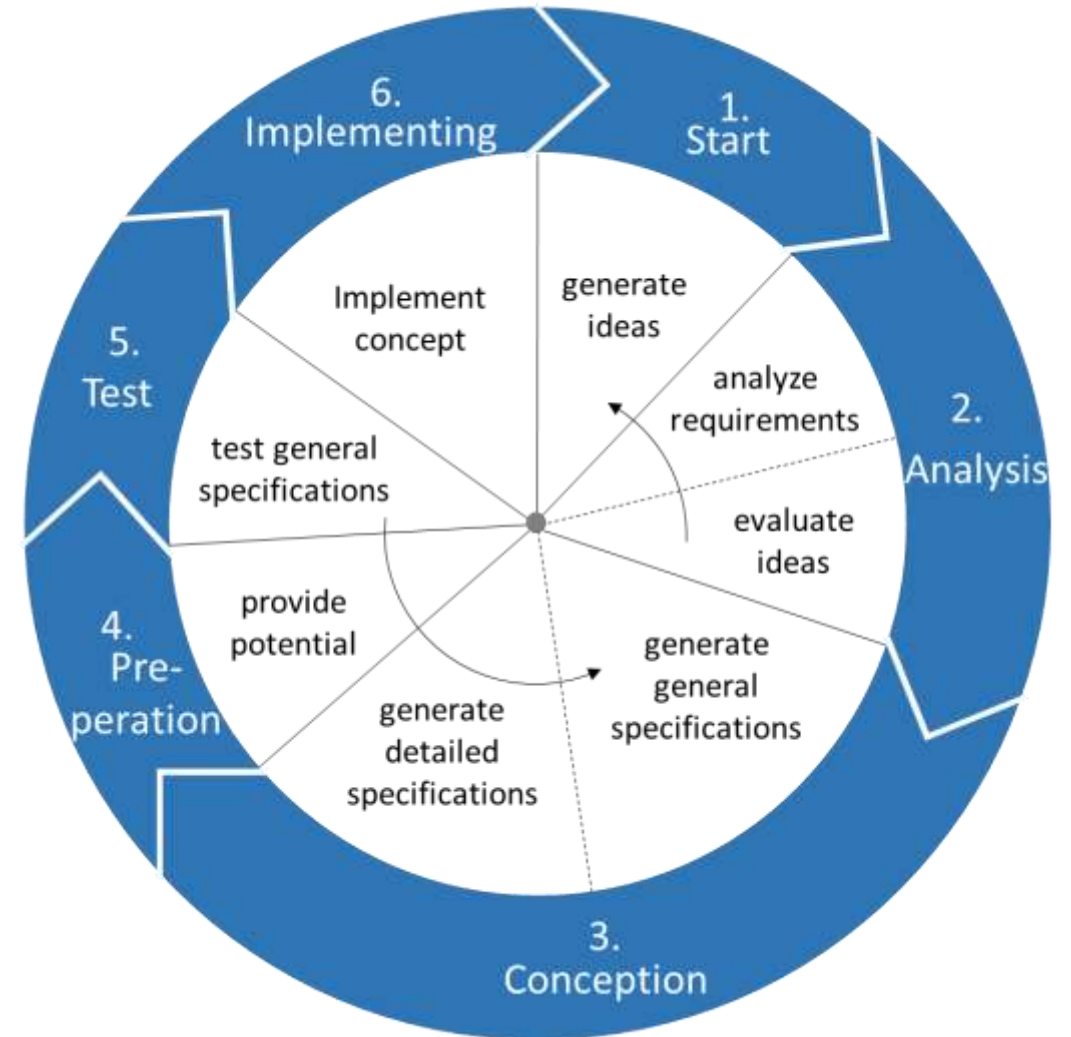
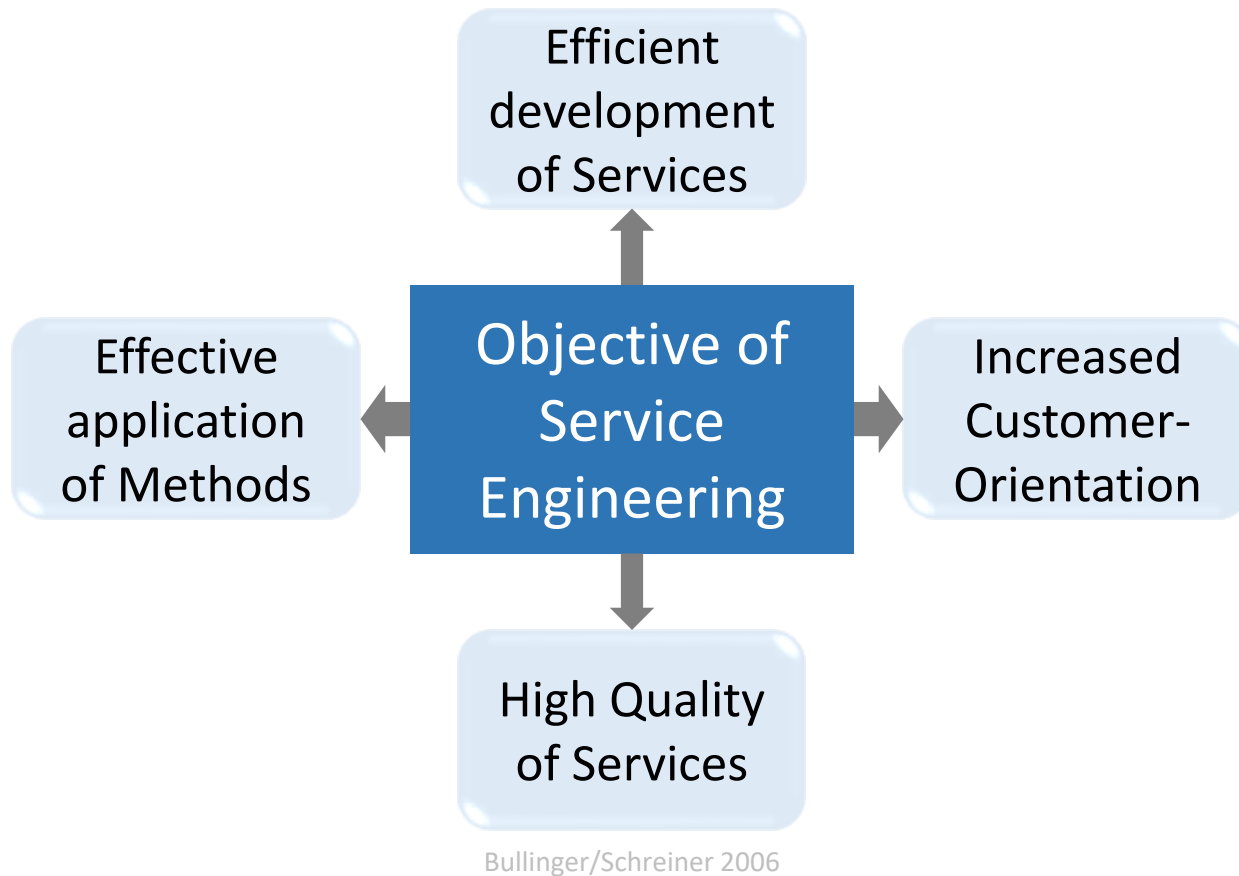
Service Image

Image of the service is rather negative in public, or is often only associated with gastronomy and trade.



Flat Icons

Generate new services/ business models Iterative Cycle

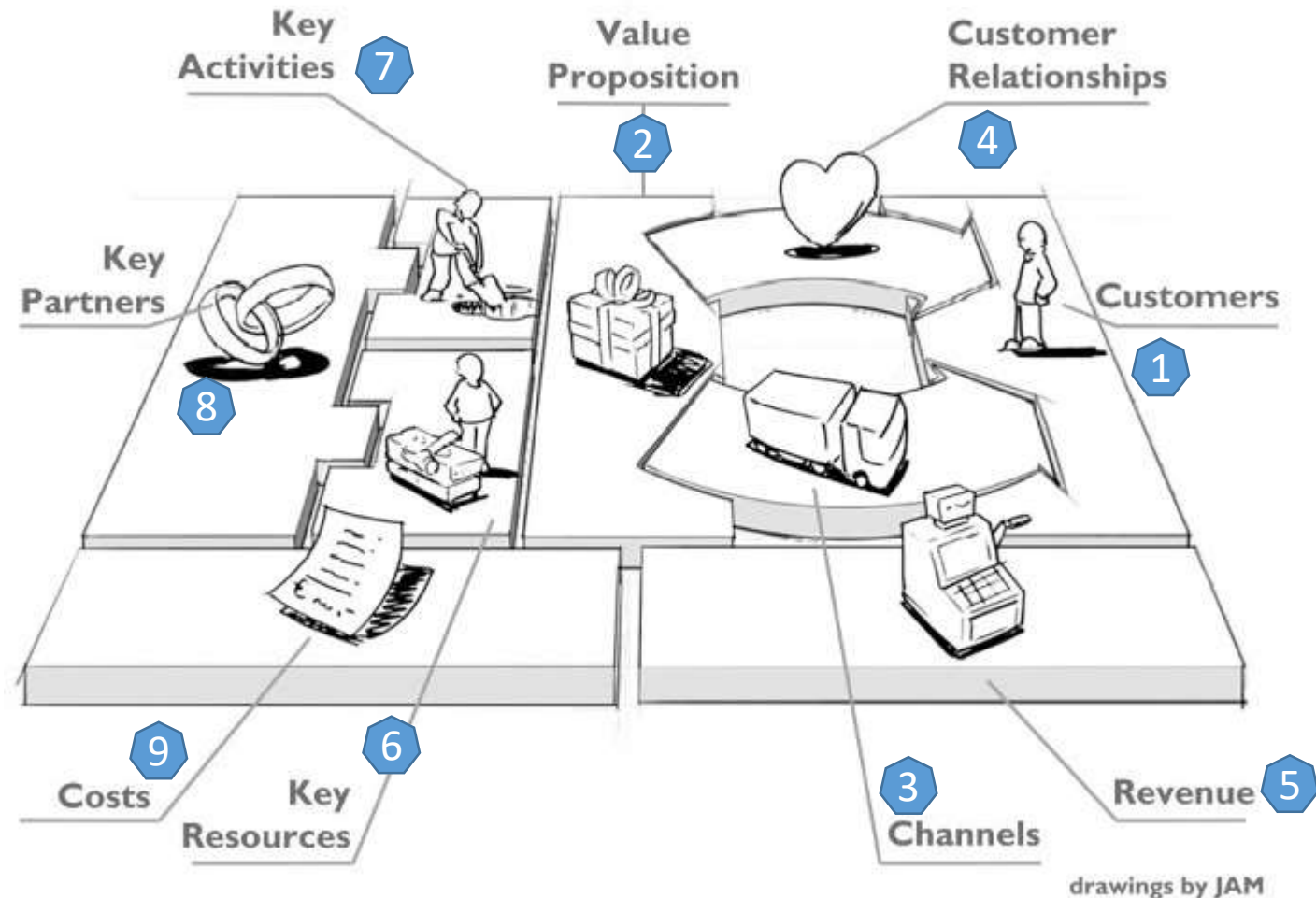


Leimeister 2020; Fischer 2018; Richter/Tschandl 2017; Leimeister 2012; Bullinger/Schreiner 2006

New services with new business models

Canvas

1. + Who is the customer
 2. + What is the product value for them
 3. + What do we have to tell them
 4. + How should we tell them
 5. = How do we generate revenue
-
6. - What do we need to produce
 7. - What do we have to do for producing
 8. - Whom do we need to produce
 9. = How much is it?

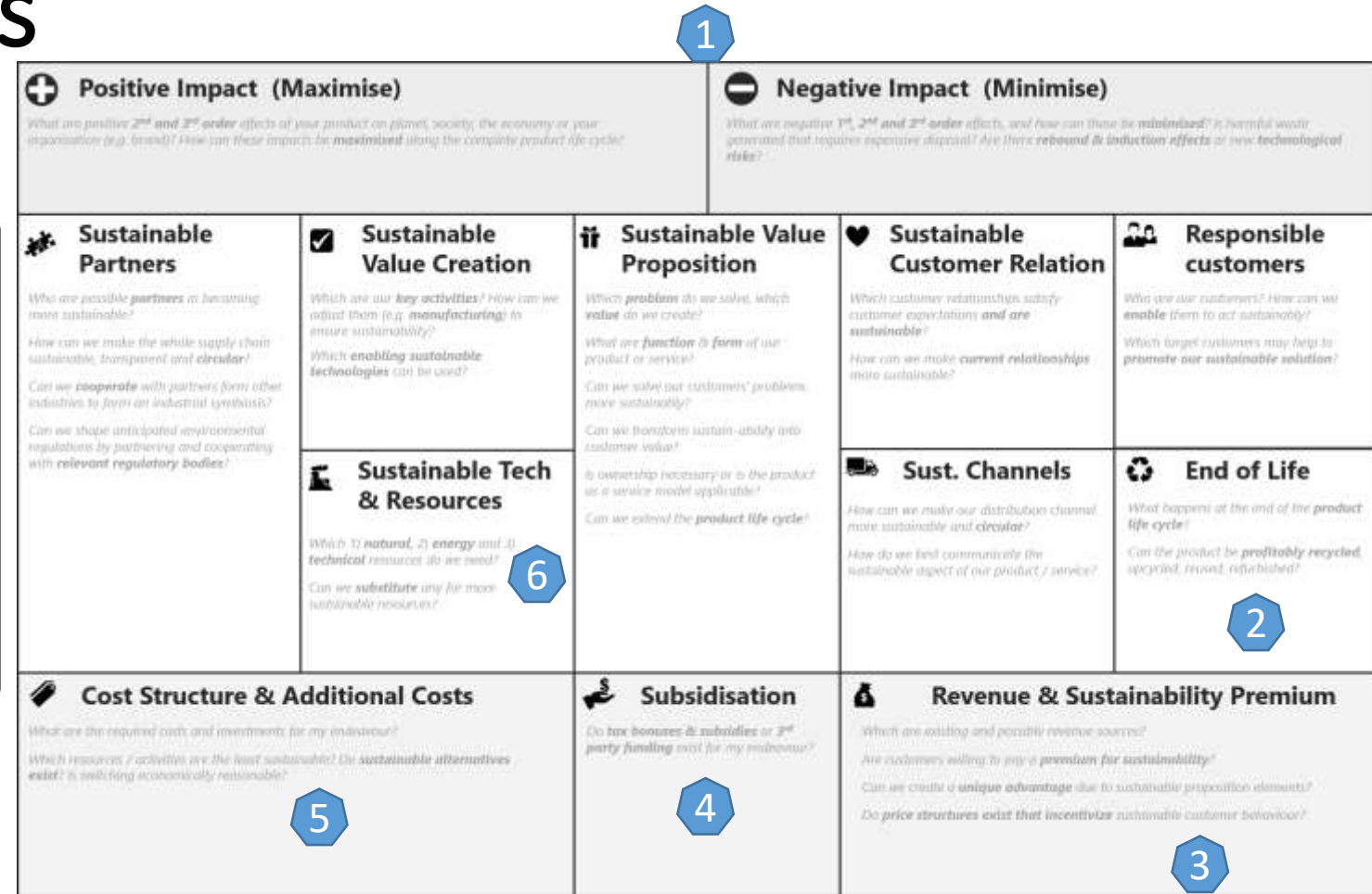


ut11.net

New services with new business models

Sustainable Canvas

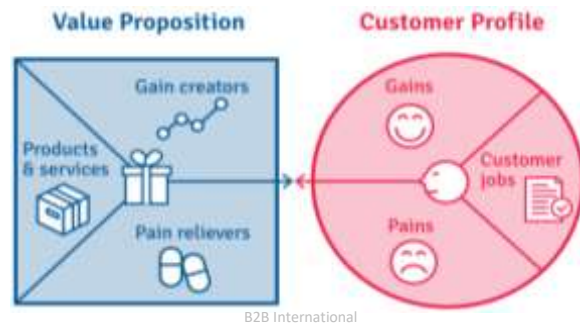
1. What effect do my product has +/-
2. What to do with the product in the end
3. Are customer willing to pay more?
4. Is there a financial benefit?
5. What are the real total costs
6. Which are the total ressources needed?



Threebility.com

Further Business Modelling - Tools

Value Proposition Canvas



B2B International

Pattern Cards



BMI Lab

BPMN



Knowledge.boc-group

Business Model Navigator

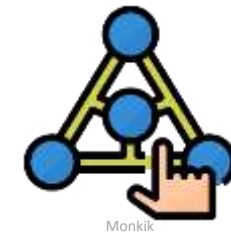


*Bf Gallen Business Model Navigator™ (2013)

BMI Lab

Some Benefits of Services

- Take maintenance of complex products off the customer's hands
- Long-term customer loyalty
- Cross-selling, up-selling due to direct feedback
- Value chain transfer to the customer (Pay per Use)
- New business models / fields
- Sustainable lifetime extension of machines



Where does the journey go?

- Digital Twin
- Smart Lease
- Augmented Reality – Remote Services
- 3D printed spare parts
- Green Services
- Optimized OEE
- Mass Customization
- Regular turnover
- Multi side markets



blechonline.de



Job-wizards



SpareParts3D



Mercedes Benz



EPEA GmbH



Service Engineering
An exciting future lies ahead!!!