FRANKFURT UNIVERSITY OF APPLIED SCIENCES

Innovation Management

Module 3:
International Tourism Management, Intercultural and Innovation Management

12.09.2021
Christina Koch

Roadmap

1	- Our roadmap - World-Café: unbiased exchange on innovations - Definition of innovation - Role of innovation management in economics	09:00 – 10:30
2	- The innovation process: journey from problem to solution - Excursus: Design Thinking	11:00 – 12:30
3	- Structural and organizational set-up of innovation management in a company - Excursus: Agile and SCRUM - Leading innovations	13:15 – 14:15
4	Innovation networks	14:15 – 14:45
5	Global Trends	15:00 – 15:30
6	Case Study	15:45 – 16:30
7	Wrap up	16:30 – 16:45

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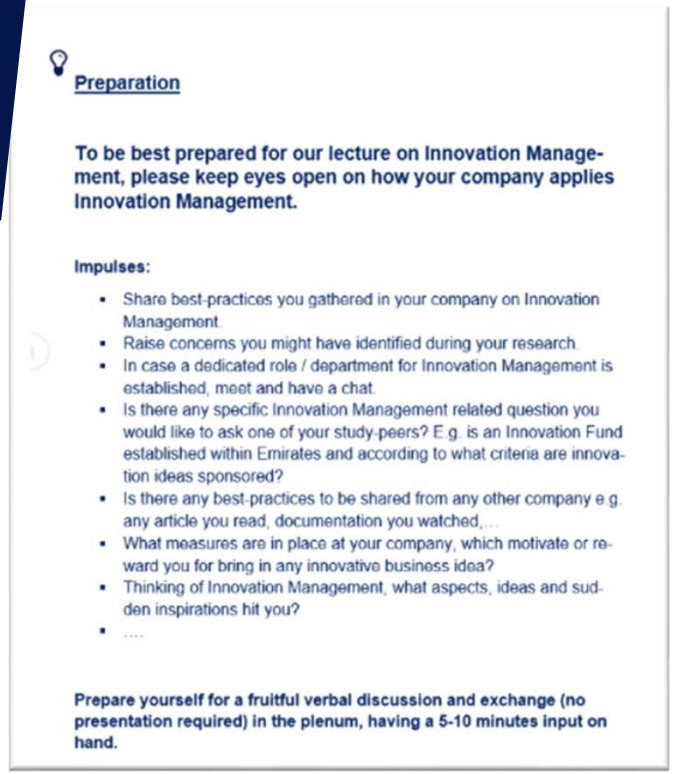
Action

Your ideas and experiences matters the most



Preparation

To be best prepared for our lecture on Innovation Management, please keep eyes open on how your company applies Innovation Management.

Impulses:

- Share best-practices you gathered in your company on Innovation Management.
- Raise concerns you might have identified during your research.
- In case a dedicated role / department for Innovation Management is established, meet and have a chat.
- Is there any specific Innovation Management related question you would like to ask one of your study-peers? E.g. is an Innovation Fund established within Emirates and according to what criteria are innovation ideas sponsored?
- Is there any best-practices to be shared from any other company e.g. any article you read, documentation you watched,...
- What measures are in place at your company, which motivate or reward you for bring in any innovative business idea?
- Thinking of Innovation Management, what aspects, ideas and sudden inspirations hit you?
- ....

Prepare yourself for a fruitful verbal discussion and exchange (no presentation required) in the plenum, having a 5-10 minutes input on hand.

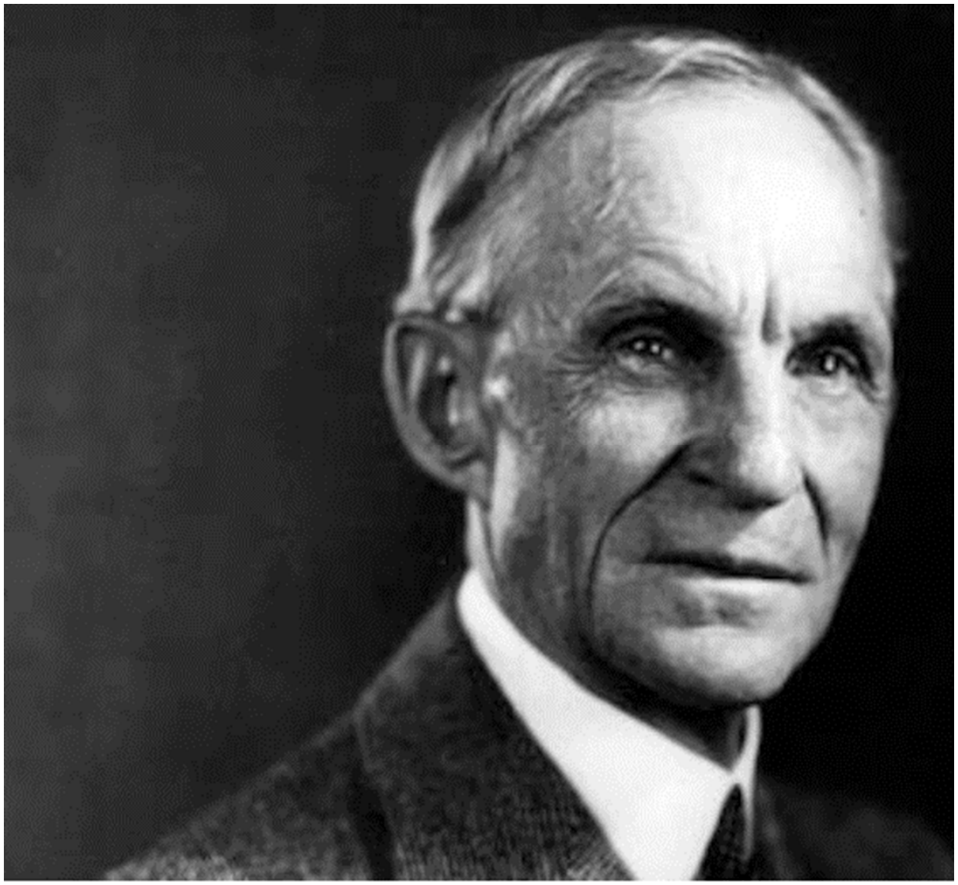
Let's apply the World (Knowledge) Café method!

1) Get equipped with a cup of coffee.
2) Group up in teams of 3-4 persons, assign 1 person as host.
3) Present your preparation within your group and exchange on your ideas/thoughts/experiences; host to take notes on pin-board. (20 minutes)
4) Rotate. Host "stays" with the pin-board and presents the discussion outcome to the next group. Continue the discussion based on the newly gained input. (15 minutes)
5) Hosts to present the condensed conversation to the plenum.

   (5 minutes per host)

Juanita Brown, David Isaacs: The World Café. Shaping Our Futures Through Conversations That Matter, McGraw-Hill Professional, 2005

Innovations are generated ever since. However, 20th century became an accelerator



If I had asked people what they wanted, they would have said faster horses.

Henry Ford

Definition of innovation

The **process** of translating an **idea or invention** into a **good or service** that creates **value** or for which **customers** will **pay**. To be called an innovation, an idea must be **replicable** at an **economical cost** and must satisfy a specific **need**.

http://www.businessdictionary.com/definition/innovation.html

Multiple definitions of innovation reveal multiple perspectives

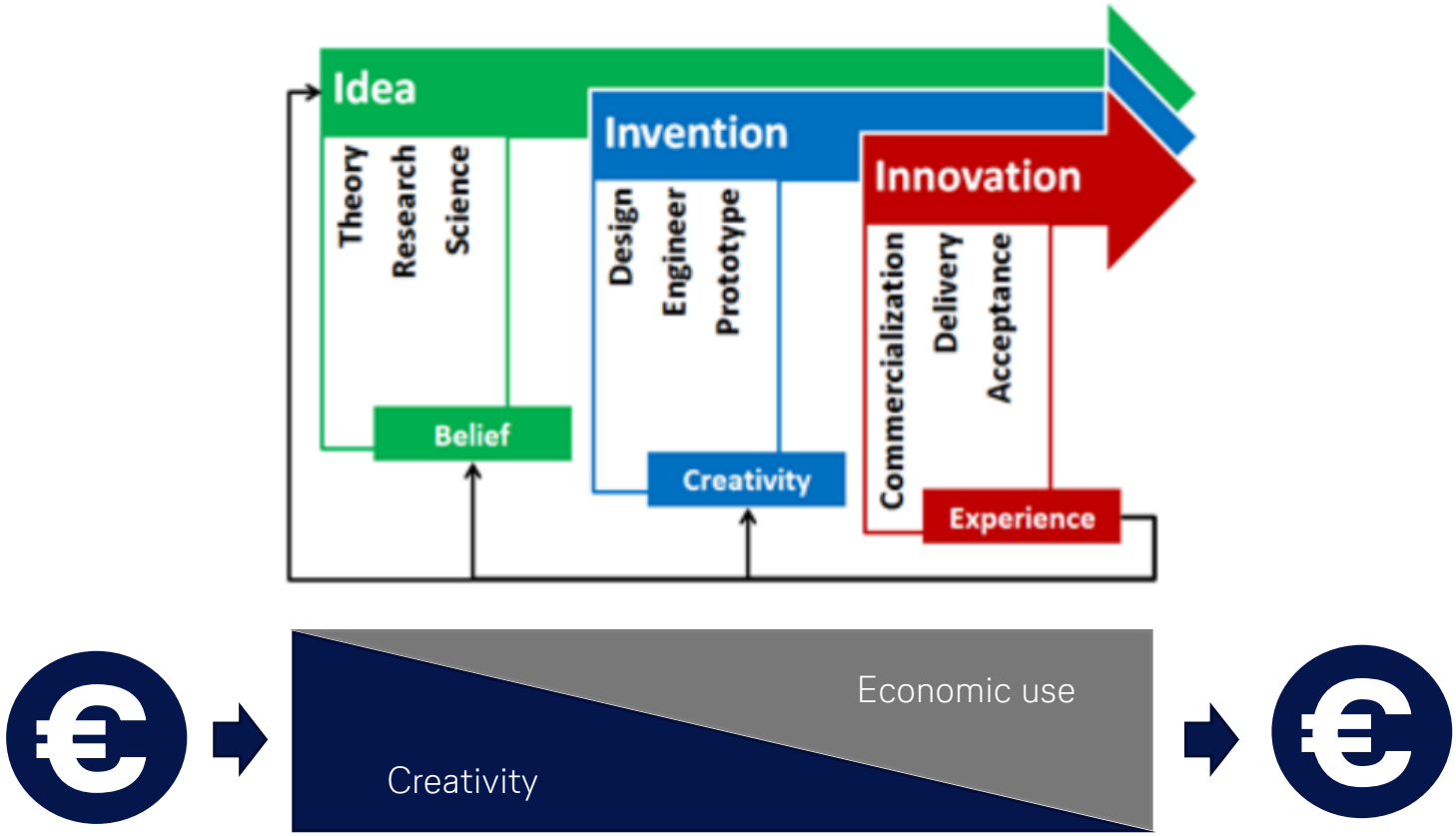
Schumpeter (1947), S. 149	"[…] the defining characteristic is simply the doing of new things or the doing of things that are already being done in a new way (innovation)."
Thompson (1965), S. 2	"By innovation is meant the generation, acceptance, and implementation of new ideas, processes, products or services."
Zaltman/Duncan/Holbek (1973), S. 10	„[…] we consider as an innovation any idea, practice, or material artifact perceived to be new by the relevant unit of adoption. The adopting unit can vary from a single individual to a business firm, a city, or a state legislature."
Damanpour/Evan (1984), S. 393	"In this investigation, innovations were considered to be responses to environmental change or means of bringing out change in an organization."
Rickards (1985), S. 28 f.	„[…] innovation […] is the process of matching the problems (needs) of systems with solutions which are new and relevant to those needs, and which can be supplied by the innovating organization (means)."
Pennings/Harianto (1992), S. 358	"We start from the assumption that organizations have accumulated an extensive range of skills, which give them a competitive advantage over others. Innovations evolve from these skills, so while innovation is a new addition, it is a the same time an outgrowth of previously acquired know-how."
Fagerberg (2004), S. 4	„Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice."

Common characteristics of innovation

- Novelty (innovatio = renewal)
- Uniqueness
- Uncertainty and risk (market, technology, organization)
- Complexity
- Conflict potential (e.g. genetic modified corn, ...)
- Application & market introduction

Kirstin Derenthal: Innovationsorientierung von Unternehmen, 2009

Difference between idea, invention and an innovation lies in the application in an economical manner



Definition of innovation

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Come up with one almost-innovative example which per definition is NOT an innovation – or an idea/invention which failed!

http://www.businessdictionary.com/definition/innovation.html

The 6 dimensions of innovations

Dimension		
1. Content	What is new with this innovation?	▪ Product, service, business model, process ▪ Functional, technological, organizational
2. Intensity	How new is the innovation?	▪ Incremental vs. radical ▪ Technology vs. purpose
3. Context	For whom or in which context is this innovation new?	▪ Society, branch, company, department
4. Process	Where does the innovation start and where does it end?	▪ Idea, invention, R&D, implementation
5. Normative	What makes innovation successful?	▪ Financial benefit
6. Initiator	By whom are innovations generated?	▪ Internal, joint-ventures, M&A

Jürgen Hauschildt: Dimensionen der Innovation, 2005

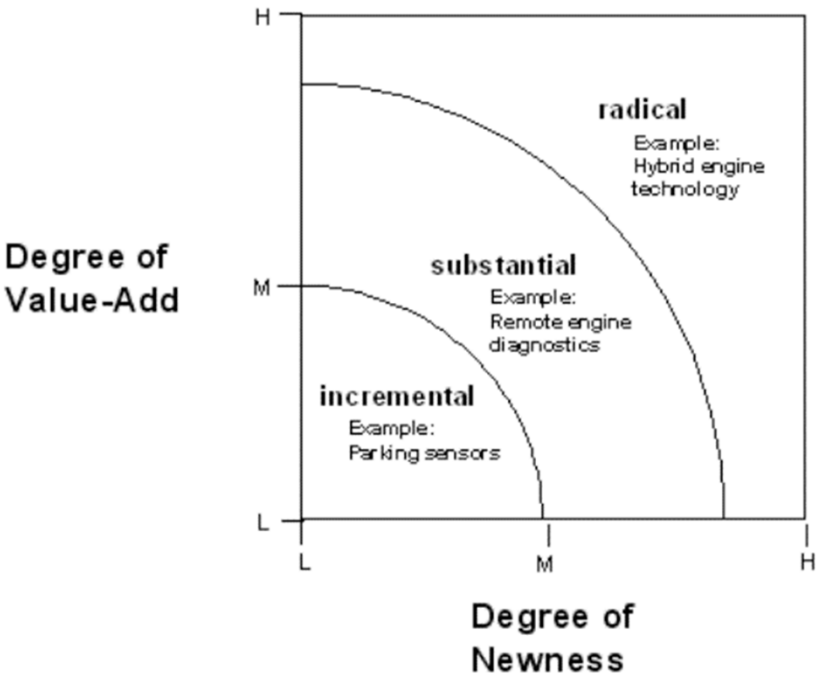
1. **Content:** What is new with this innovation?

PRODUCT		▪ Technical features ▪ Functionality ▪ Quality
SERVICE		▪ Features ▪ Quality ▪ Speed of solution ▪ Interaction channels and media
BUSINESS MODEL		▪ Combinination of product, service and pricing ▪ New markets ▪ New customer groups
PROCESS		▪ Change within the value-chain ▪ Internal processes ▪ Processes with customer-touchpoints

2. Intensity: How new is the innovation? (1/3)

Spot the new one!

2. Intensity: How new is the innovation? (2/3)



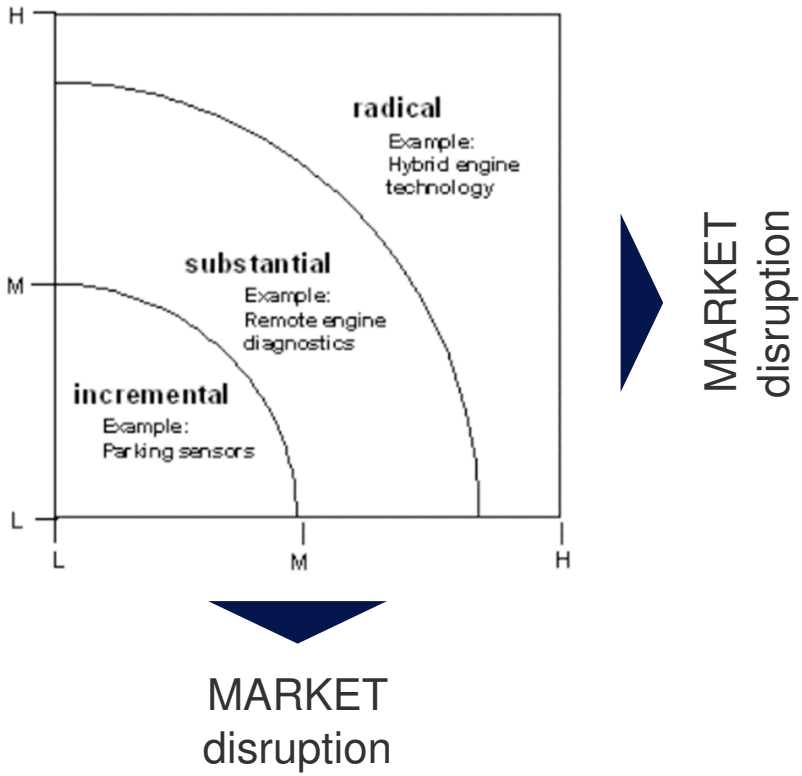
Incremental

- typical in existing markets
- driven by changing customer needs
- further develop current products

Radical

- high degree of novelty/innovation degree
- high complexity
- high economic and technical risk
- significant opportunities

2. Intensity: How new is the innovation? (3/3)

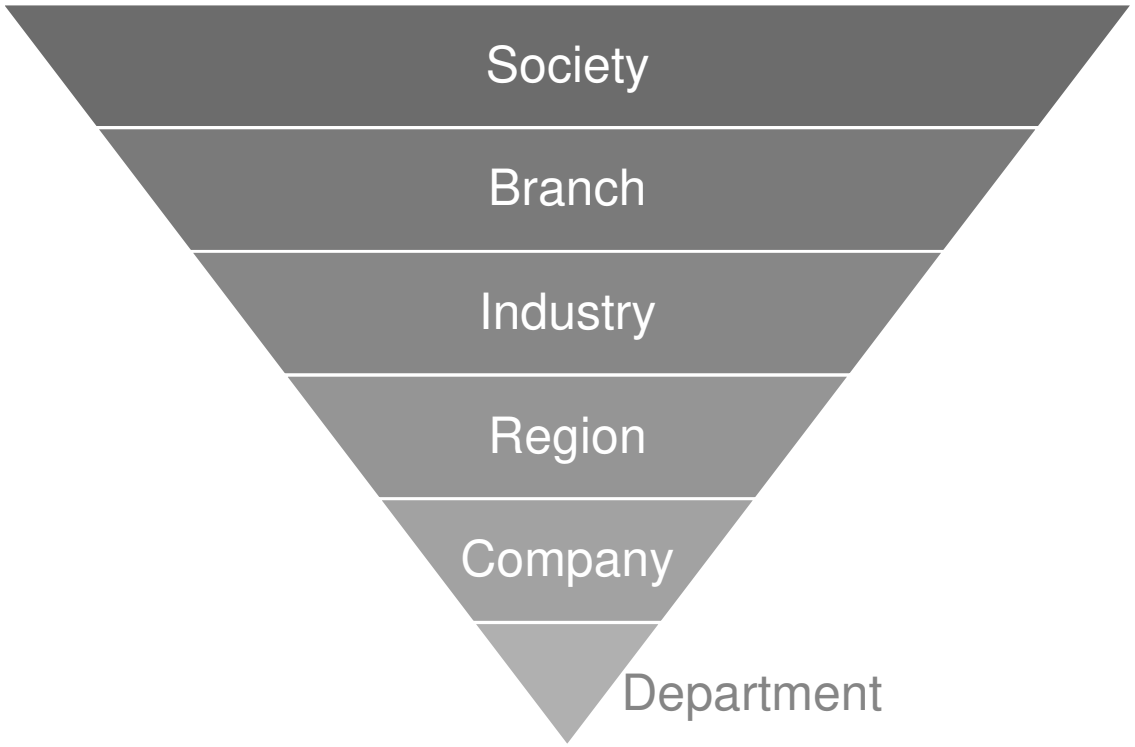


A **radical** innovation is one that employs **substantially new** technology and offers substantially higher customer or user benefits relative to existing products, services, or processes.

A **disruptive** innovation introduces a different set of features, performance, and price attributes relative to existing products, **satisfy mainstream** customers.

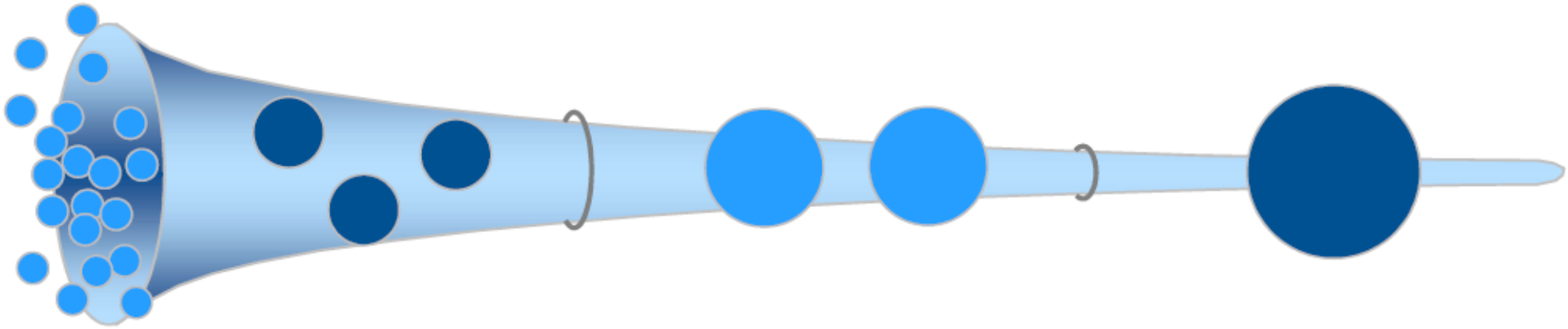
Sorescu, Alina, Rajesh Chandy, and Jaideep Prabhu (2003), Sources and Financial Consequences of Radical Innovation: Insights from Pharmaceuticals," Journal of Marketing, 67(4), October, 82-102.

3. Context: For whom or in which context is this innovation new?



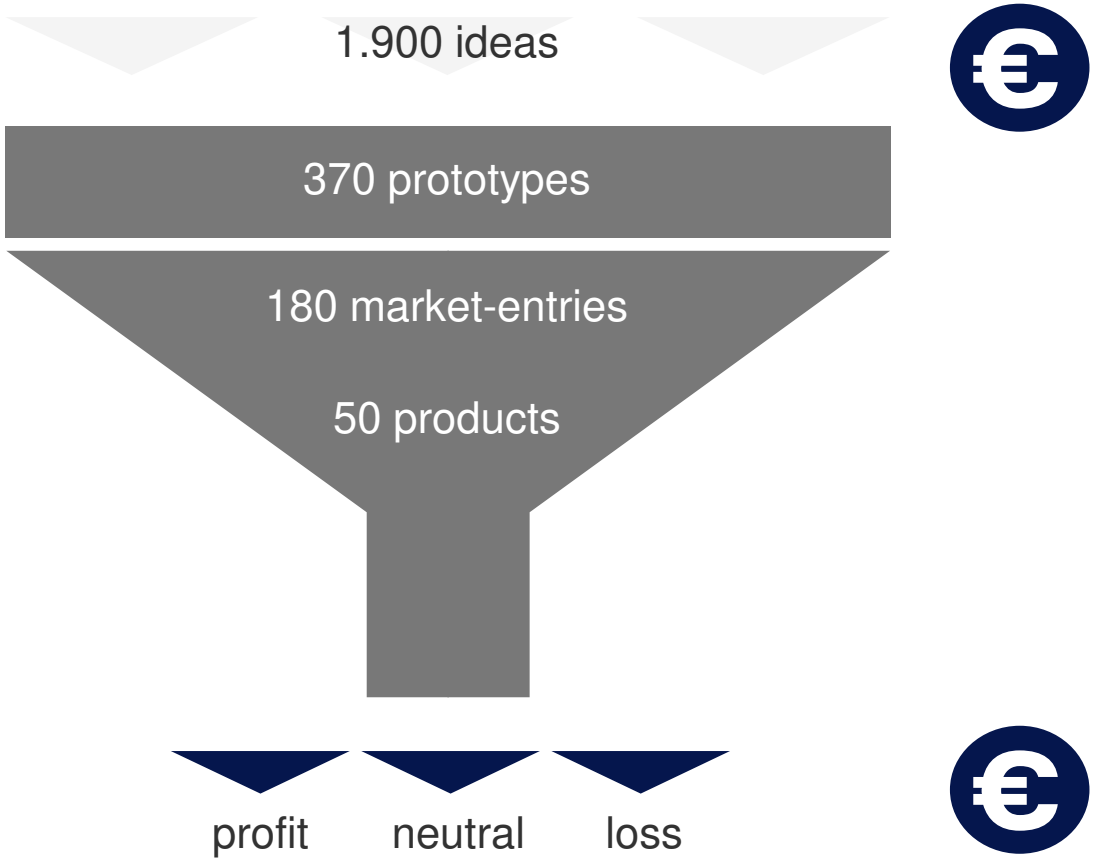
- Innovations are perceived subjectively
- Innovations can be implemented at any market-level
- The market-group has to recognize the innovation and the respective value-added

4. Process: Where does the innovation start and where does it end?



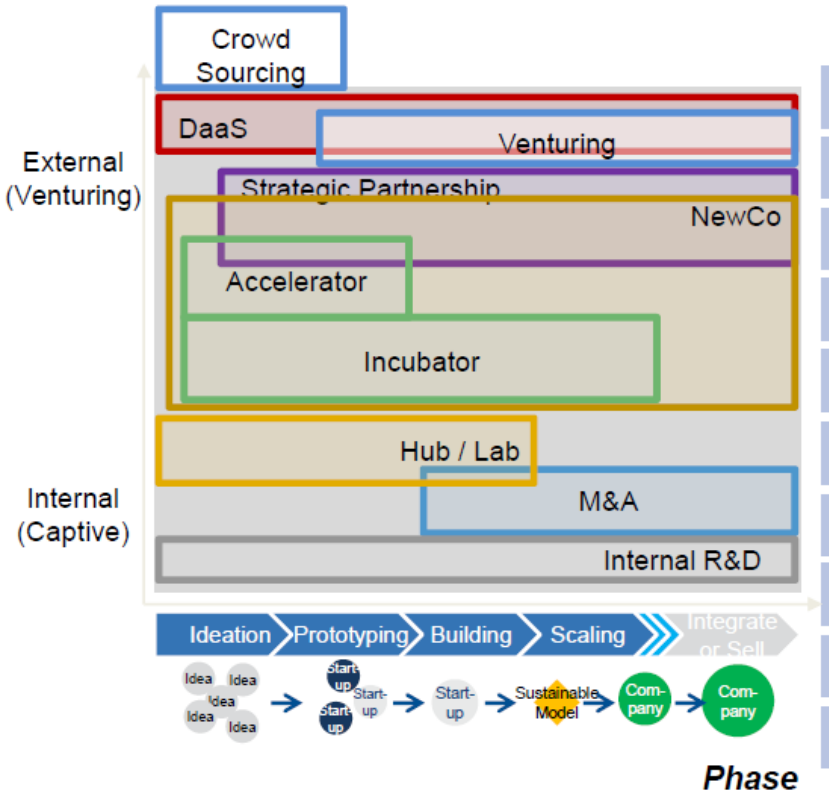
Idea Research Development Implementation

5. Normative: What makes innovation successful?



- Only 0,6% of all ideas and invention turn out to become a successful innovation product or service
- Investment cost need to be considered in the overall business case of any innovation

6. Initiator: By whom are innovations generated? (1/2)

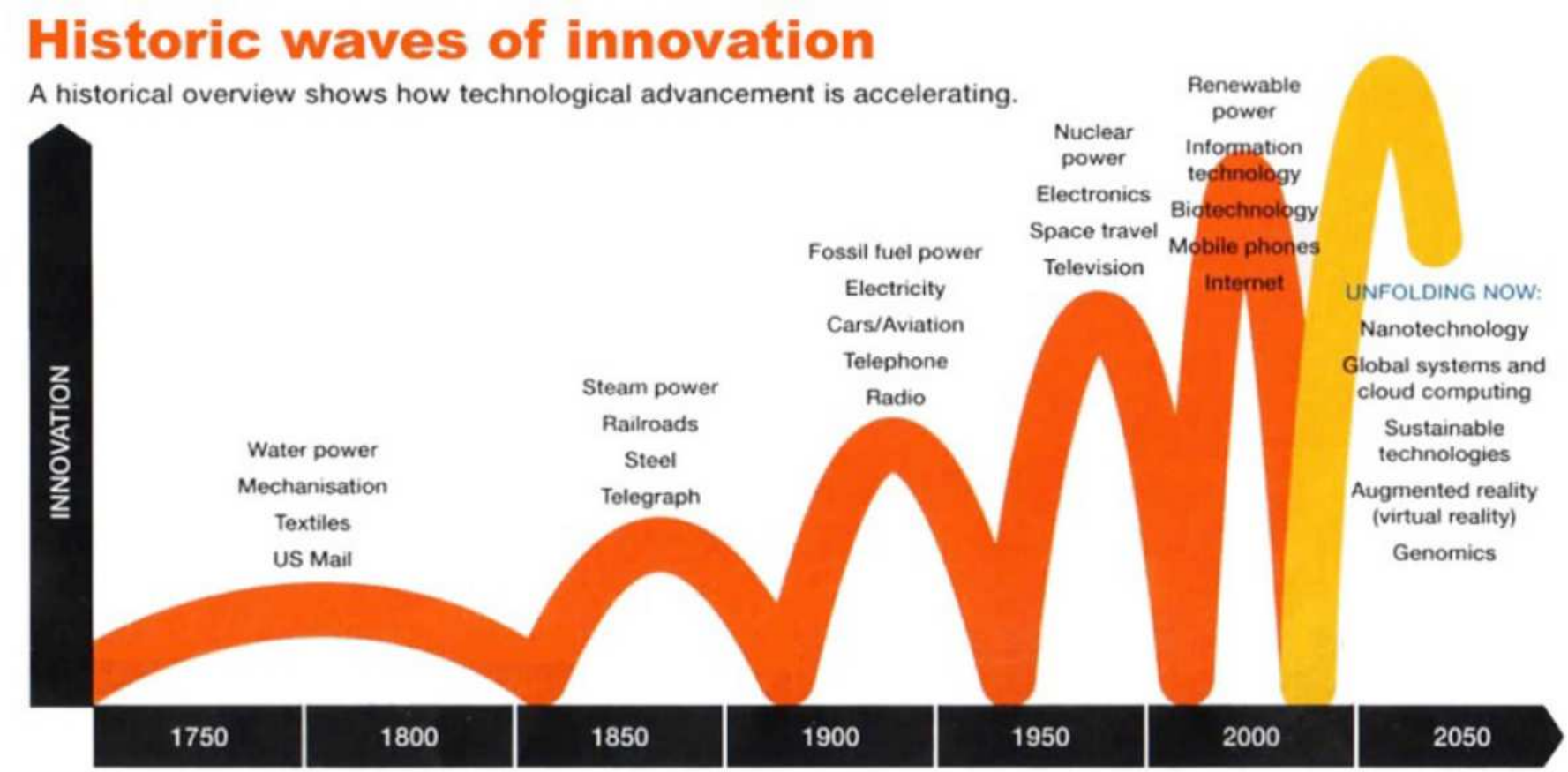


1	Disruption as a Service	External joint venture drives disruptive startups
2	Venturing	Equity investments to assess and access new growth opportunities
3	Strategic Partnership	Partnership with focus in additional revenues for business unit
4	NewCo Approach	Foundation of independent unit with strong relationship to corporate
5	Accelerator	Short term boost of start ups in early phases (90 days to 4 months)
6	Incubator	Support of and cooperation with startups in early stages
7	Hub / Lab	Internal innovation unit with organizational decoupling
8	M&A	Acquisition of developed companies with existing business
9	Internal R&D	Internal product roadmap
10	Crowdsourcing	External users (crowd) drive innovation

6. Initiator: By whom are innovations generated? (2/2)

		Characteristics	Prerequisites	Start Up Phase	Advantages
1	Disruption as a Service	External joint venture drives disruptive startups	Strategic objectives, funding	Start from scratch	Holistic from ideation to industrialization, entrepreneurial drive, startup network
2	Venturing	Equity investments to assess and access new growth opportunities	Funding, foundation of venture capital fund necessary	Small existing companies, growth potential	Equity shares, large profit potential, extension of existing portfolio
3	Strategic Partnership	Partnership with focus in additional revenues for business unit	Agreement between partners (Joint venture, Licensing, Distribution agr.)	Existing companies with high degree of innovation	Know-How and market potential, quick Know-How acquisition, competitive adv.
4	NewCo Approach	Foundation of independent unit with strong relationship to corporate	Foundation of unit with own P&L and HR	Start from ideation phase	Flexible degree of integration, decoupling from corporate
5	Accelerator	Short term boost of start ups in early phases	Foundation of accelerator required, Low equity investment	Existing companies in early start up phases	Raw diamond potential, Quick testing of various fields
6	Incubator	Support of and cooperation with startups in early stages	Foundation of incubator required, equity investment	Existing companies in early start up phases, first prototypes existing	R&D outsourcing, large profit potential, Know-How acquisition, employee trainings
7	Hub / Lab	Internal innovation unit,100% subsidiary, organizational decoupling	Foundation of subsidiary, Top-management backing, usually interim organization	Start from ideation or prototyping phase	Day 1 benefits w transparency & idea mgmt. role within org can be shaped flexibly
8	M&A	Acquisition of developed companies with existing business	Significant capital investment	Existing companies with proven business model	Know-How and market potential, proven business model, high transparency
9	Internal R&D	Internal product roadmap	Know-How and capacity requirements, R&D facilities	-	IP development, targeted investments, process and organizational fit
10	Crowd-sourcing	External users (crowd) drive innovation	Community (e.g. online platform), clear "problem"	-	Get creative ideas, increases loyalty

Mankind always created innovations in any of its dimensions



K. Hargroves and M. Smith: The natural advantage of nations, 2005.

Motivation for innovation (1/3)
Industries disappear and new trends arise

Motivation for innovation (2/3)

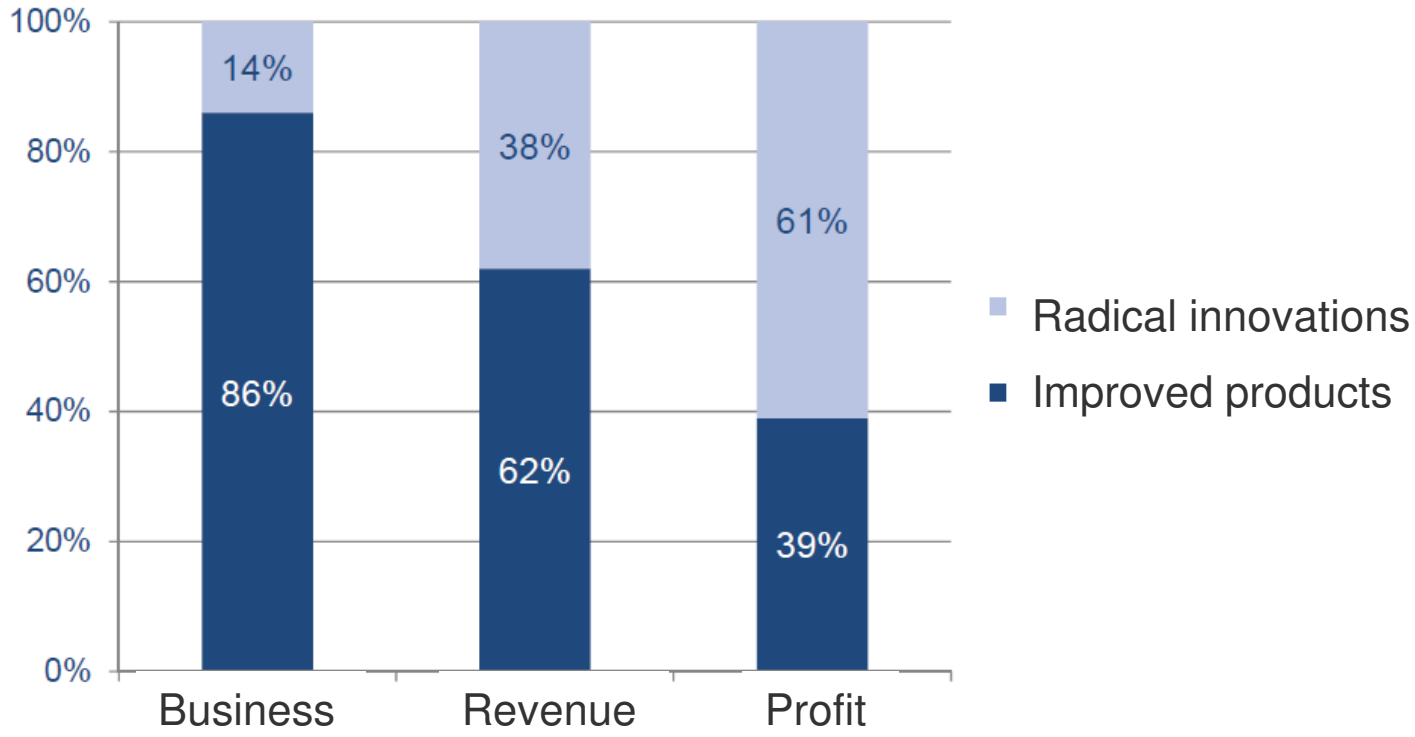
Missed (product) innovations might lead to bankruptcy

- Full-flat beds
- Entertainment
- Comfort

- Noise reduction
- Fuel consumption

Motivation for innovation (3/3)

Innovations enable improvements in profit margins



Chan, Manborgue, 1997

Role of innovation management in economics

Role of innovation management in economics: Innovation management and company‘s strategy (incl. vision and mission) needs to be interlinked

Strategy & strategic management

- Leading a company with a long-term vision and mission
- Understanding the company, business model, markets and anticipating changes
- Giving guidance, deriving measures and implement change process

- **Strategy process:**
  - **Environment & market analysis** (where do we stand?)
  - **Strategy creation** (where do we want to go to?)
  - **Implementation** (how do we get there)
  - **Strategic evaluation** (how do we measure and steer?)

Innovation & innovation management

- New products, services or business models
- New for a company, industry, branch or society
- 3 types of companies: Companies that,…
  1) try to lead customers where they don’t want to go to
  2) listen to customers and respond to their needs
  3) lead customers where they want to go to but don’t know it yet

- **Innovation process:**
  - Impulse
  - Idea collection
  - Evaluation
  - Decision
  - Execution
  - Launch

Homburg, 2012
Hamel, 1994

A mature environment analysis is the basis for deriving any business strategy

Environment analysis

- Politics
- Economic growth and stability
- Culture
- Society
- Ecological and environmental dynamics
- …

Methods
- P.E.S.T.E.L.
- …

Market analysis

- Branch and industry
- Competitors
- Partners
- Customers
- …

Methods:
- Porters 5 Forces
- **Ansoff Matrix**
- Stakeholder analysis
- **Strategic change**
- …

Business analysis

- Processes
- Organizational structure
- Corporate culture and values

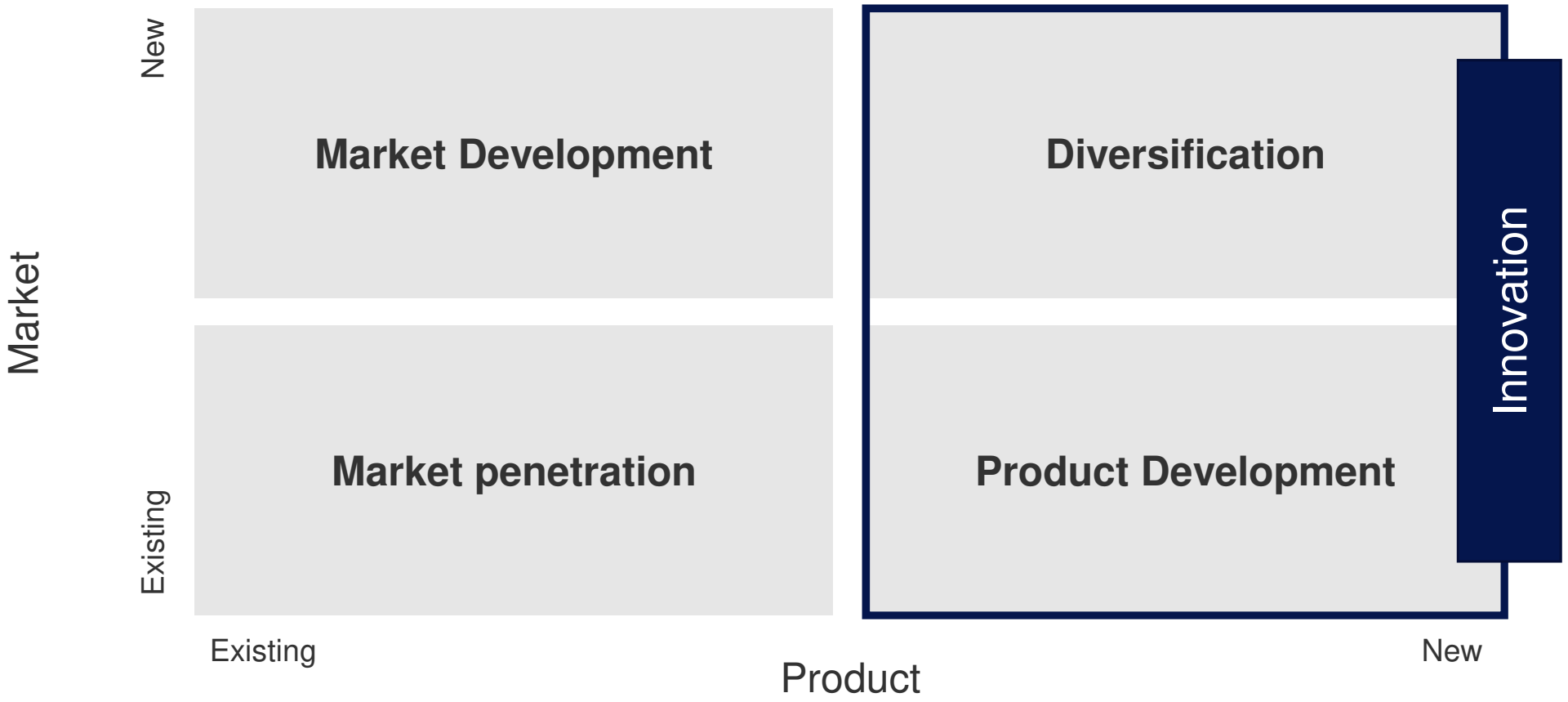
Methods:
- **Process analysis**
- Value-chain analysis
- Core-competence analysis
- …

Positioning analysis

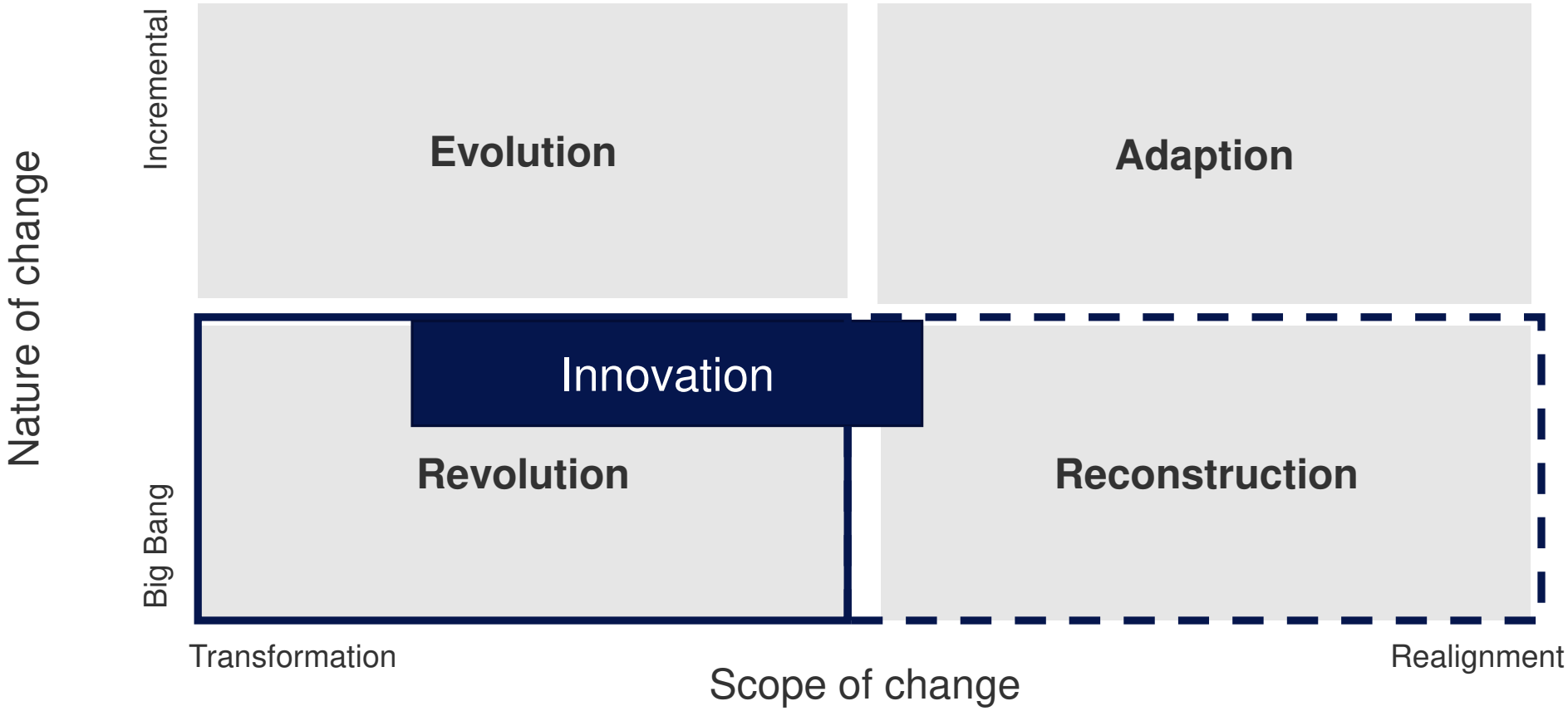
- Positioning within the given market and environment

Methods:
- SWOT analysis
- **BCG analysis**
- …

EXAMPLE Market analysis: Depending on the growth strategy (**Ansoff Matrix**), innovation efforts are the ultima ratio

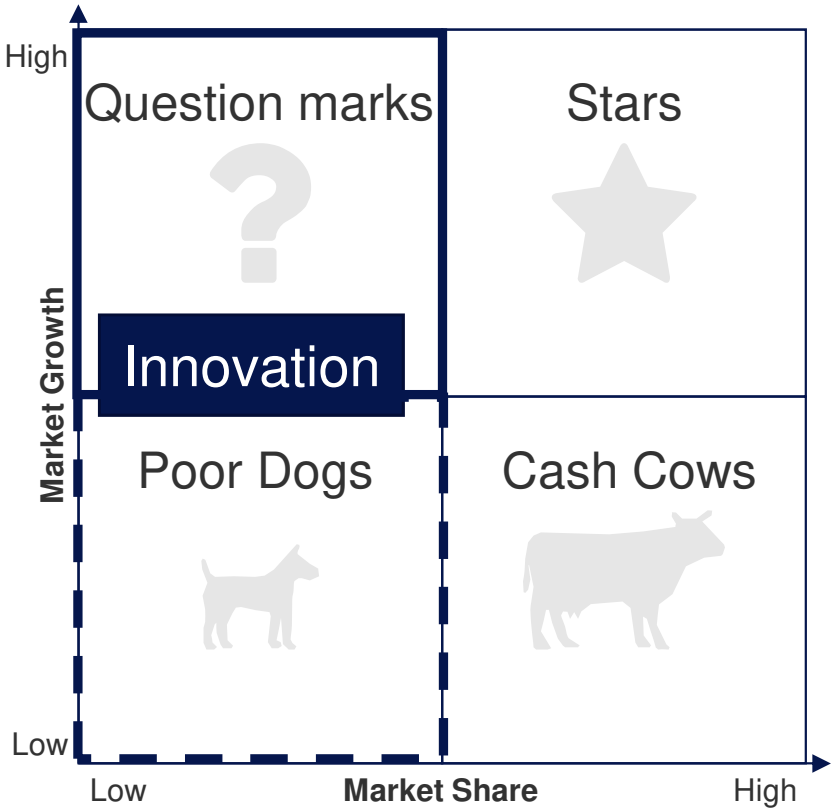


EXAMPLE Market analysis: In order to define a strategy the „**types of strategic change**“ need to be analyzed in the given market environment

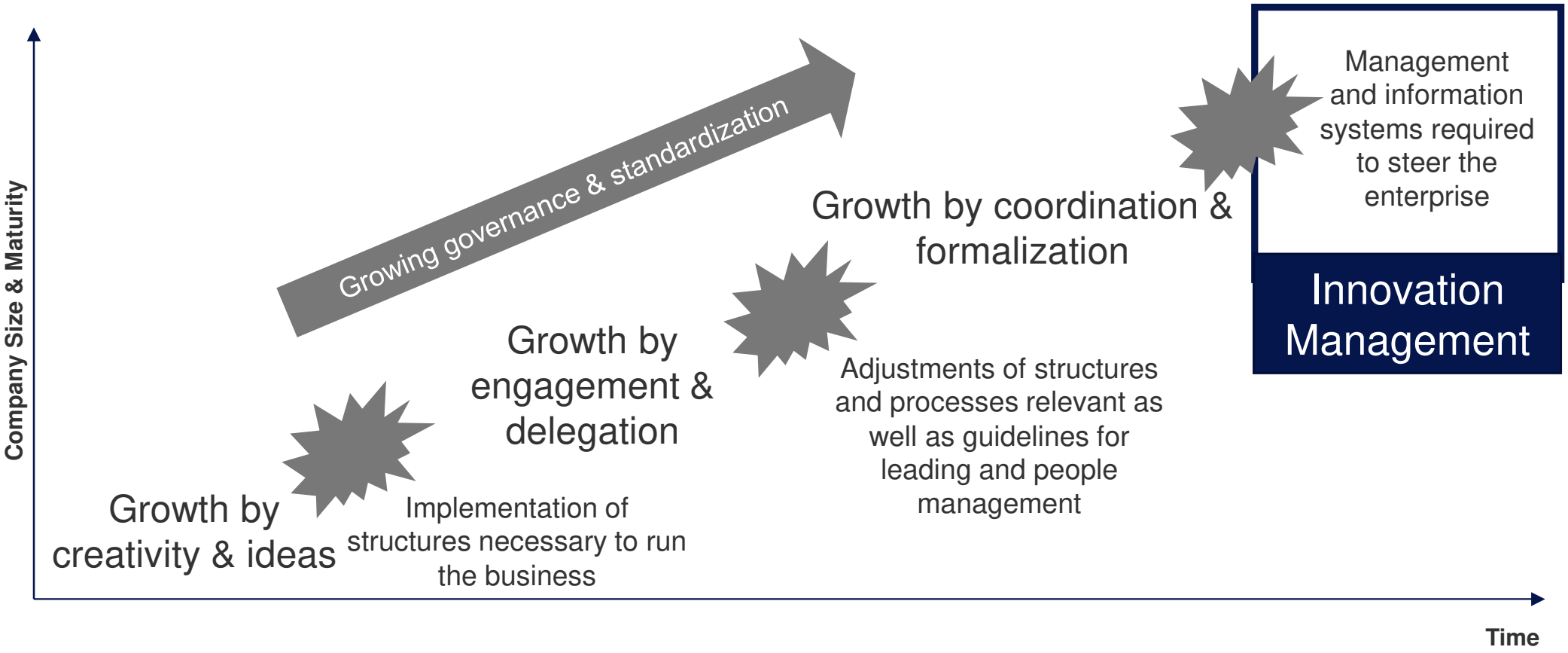


Balogun and Hope-Hailey: Exploring strategic change; 2008

EXAMPLE Positioning analysis: Depending on the product strategy (**BCG Matrix**), innovation efforts are the ultima ratio



EXAMPLE Business analysis: The **process of growing** requires adjustments as the company grows by itself



Reisinger; 2007

EXAMPLE Business analysis: Innovations always impact employees and thus triggers a **change process**

Preparation	Mobilization	Movement	Integration
▪ Ramp up efficient teams ▪ Define clear vision ▪ Identify implementation barriers ▪ Create a change story ▪ …	▪ Communicate need and urgency to change ▪ Implement dialogs to involve all employees & stakeholders ▪ …	▪ Empower people to drive the change ▪ Communicate quick-wins and lessons learnt ▪ Celebrate successes ▪ …	▪ Incorporate change in company's and employees' DNA ▪ …

An innovative enterprise is based on open-minded, curious, change-loving employees

Reisinger; 2013

Role of innovation management in economics:
A sustainable business model is key for every successful innovation

Definition/Elements of a business model:

- Customer Value
- Revenue model
- Value-chain architecture

A good business model begins with an insight into human motivations and ends in a rich stream of profits.

Joan Magretta

The simplest business model: Offering a product or service with a customer value that results in the willingness to pay a at a price that exceeds the cost of production.

Recap

My key-take-aways of the last session are the following:

Go to www.menti.com

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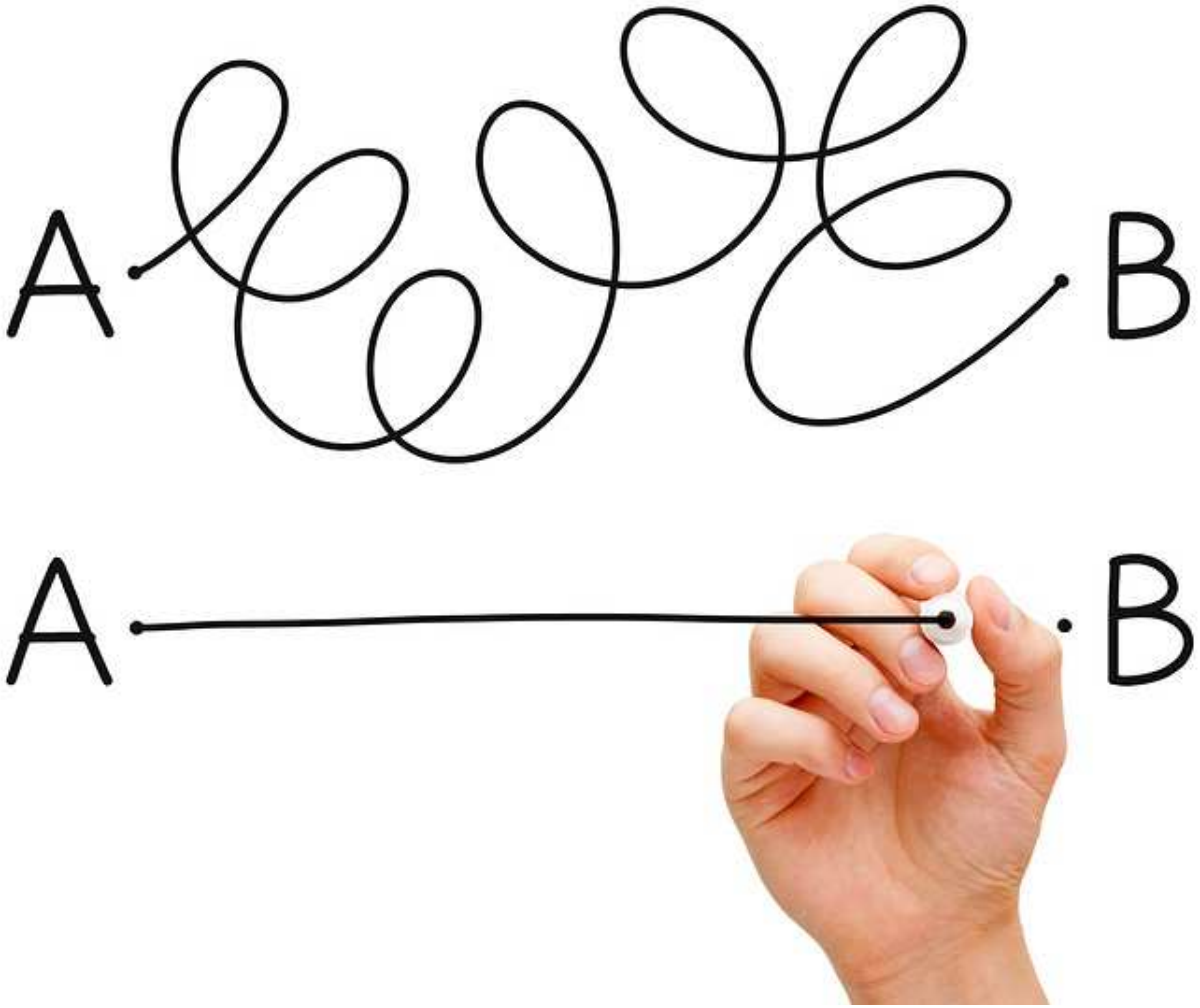
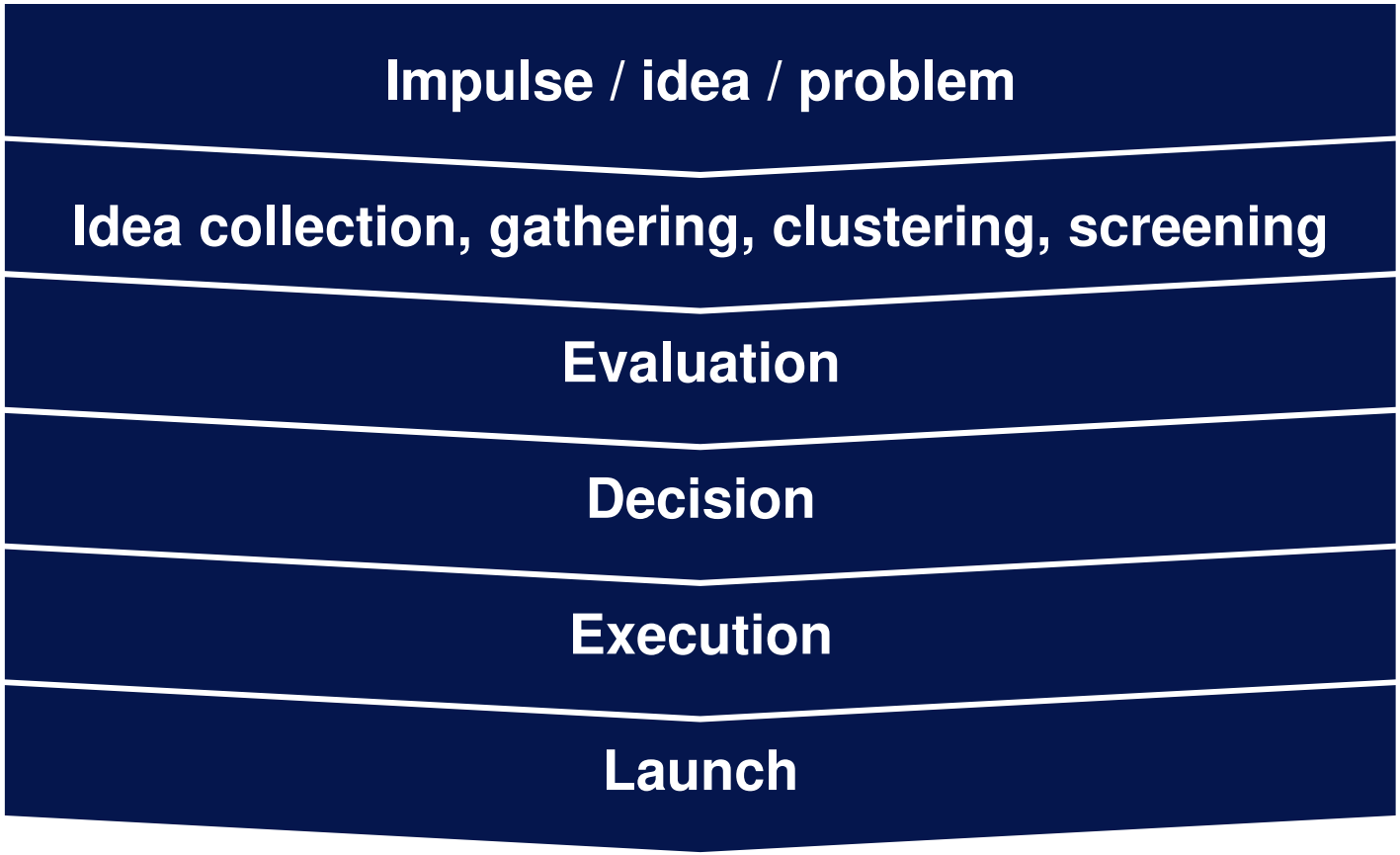
The innovation process: journey from problem to solution

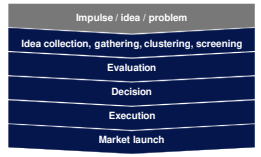


The innovation process



D. Vars & A. Brehm: Innovationmanagement, 2015, p.226

Impulses, ideas or problem statements might be raised by a vast range of transmitter and is based of different sources



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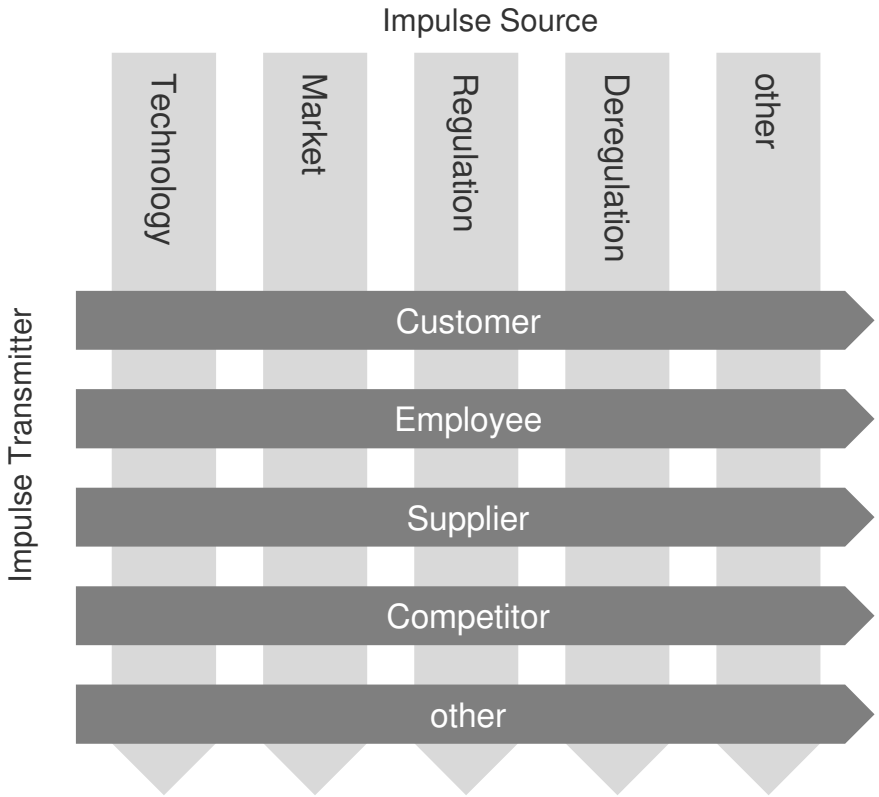
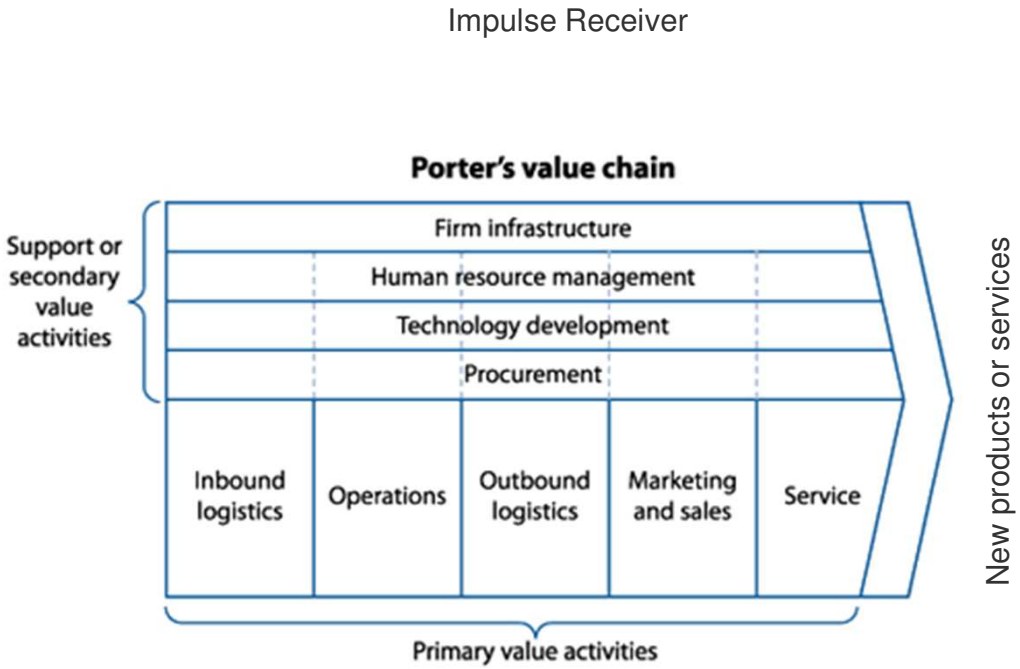
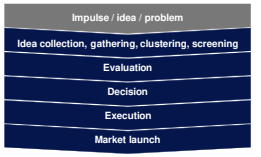
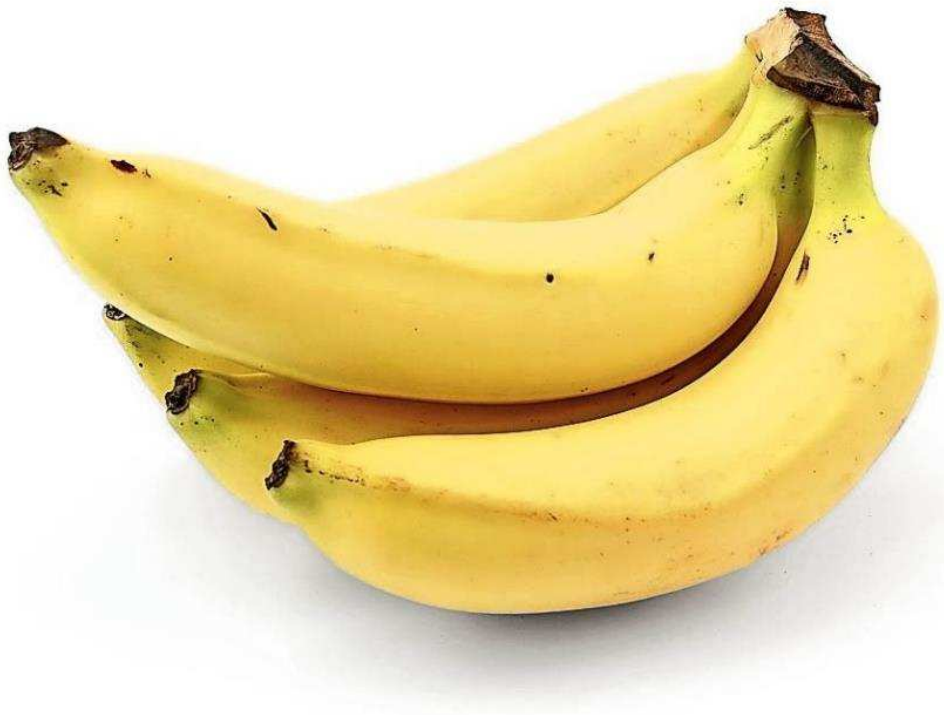




D. Vars & A. Brehm: Innovationmanagement, 2015, p.226

Often, nature inspires us to come up with innovative ideas inspiration

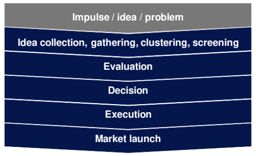




Snack with a remarkable positive user-experience

- Color that indicates whether it is yet/still ready to eat
- Clean and easy eating
- Shock-resistant wrapped
- Biologically degradable
- High nutrition value
- Suits for veggies / vegans and most allergy sufferers
- Filling
- …

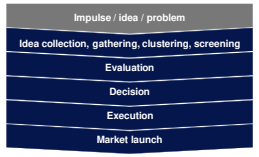
High-speed brainstorming



Let’s apply the high-speed brainstorming method!

1) Group up in 2 teams, assign 1 person as “tally mark responsible”. 
2) Assemble in a circle / line-up.
3) You have 1 minute.
4) With high speed brainstorm and shoot out “one thing you can use a safety pin for” (e.g. earring). In case one persons runs out of ideas, you can skip.
5) The “tally mark responsible” counts the ideas and acts as time keeper.

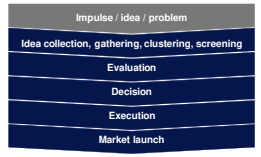
Systematic Inventive Thinking – a structured method of creativity



The traditional view of creativity is that it's **unstructured** and **doesn't follow rules or patterns**. That you need to think outside the box, brainstorming without constraint, until you find a solution. That you should **go wild** making analogies to things that have nothing to do with your products, services or processes.

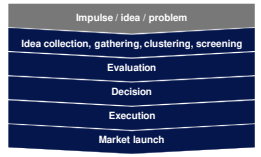
https://drewboyd.com/

Systematic Inventive Thinking
1) **Subtraction technique**



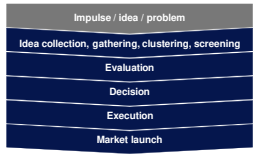
The Subtraction Technique encourages innovators to **remove something from an existing product or service**. This is often something that was previously thought to be essential to the product or service, but removing it could help.

Systematic Inventive Thinking
2) **Division technique**



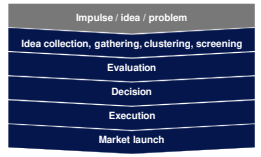
Using the Division Technique, many creative products and services have had a component **divided out of them and placed somewhere else** in the usage situation, usually in a way that initially seemed unproductive or unworkable.

Systematic Inventive Thinking
3) **Multiplication technique**



With the Multiplication Technique, a component has been **copied but changed in some way**, usually in a way that initially seemed unnecessary or odd.

Systematic Inventive Thinking
4) **Task unification technique**



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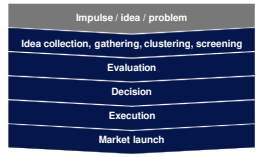
With some creative products and services, certain tasks have been brought together and **unified within one component of the product or service** – usually a component that was previously thought to be unrelated to that task.

Facial moisturizers with sunscreen protection

Virtual subway store

Deodorizing and warming socks

Systematic Inventive Thinking
5) **Attribute dependency technique**



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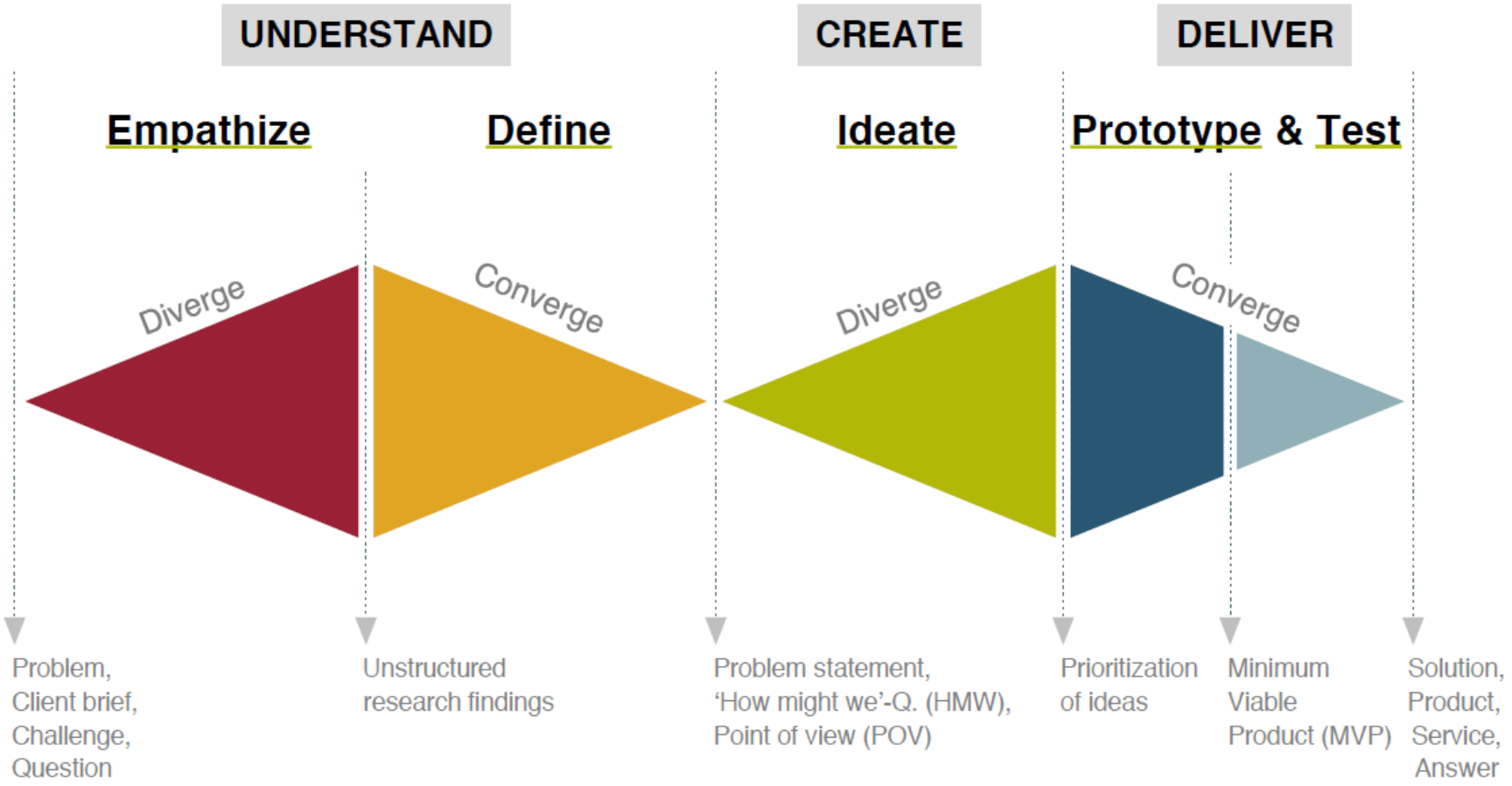
In many innovative products and services, **two or more attributes** that previously seemed unrelated **now correlate with one another**. As one thing changes, something else changes.

Windshield wipers that change speed as the amount of rain changes

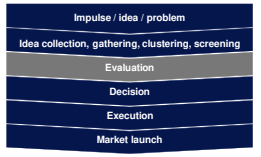
Happy hour

Radio volume that adjusts according to the speed of a car

The **Idea collection, gathering, clustering and screening** can be supported by applying Design Thinking (see Excursus)



Within the **Evaluation Phase** a set of defined criteria serve as objective measure to economically assess ideas



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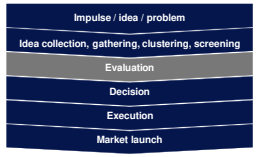
	Example
Define initial situation and target	Our core competency is food production; we are specialized on meat; we observe the immerging trend of veggie / vegan demand; we aim to broaden our product portfolio and offer meat substitutes
Define decision criteria and importance / weighting	ROI (30%) , time to product launch (10%) , ease of development (15%) , investment costs (30%) , forecast in sales figures (15%)
Define target per decision criteria	ROI > 5 %, time to product launch < 1 year ,…
Gather data for each decision criteria for every idea	Burger patties, sausage, mincemeat, steaks,…
Conduct the evaluation	Per decision criteria, per idea, and overall evaluation; despite the fact that patty burgers show higher initial investment cost, the ROI is outperforming

The cost-utility analysis / scoring model is a well proven methodology to evaluate different ideas in a structured way

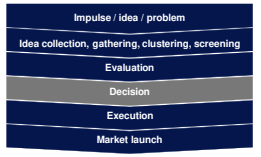


criteria	weight	alternative 1		alternative 2		...	
		Eval.	w. Eval.	Eval.	w. Eval.		
1. criterion	13.5	2	2.7	7	9.45		
2. criterion	25	9	22.5	5	12.5		
...	...	...	...	...	...		
	cost-utility		Σ		Σ		

Cost-utility analysis is a method which is most often used when benefits cannot easily be expressed in monetary or metric values.

The utilities in cost-utility analyses are in fact preferences of each person, a selected group, or the whole population.

Strategic consideration have to be made by the investors / or management while **deciding** on any execution

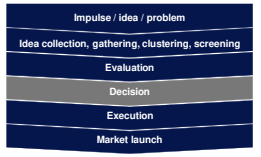


Even if a MVP is successful, the product needs to fit to the strategy

Qualitative aspects

- Does the innovation fits to a companies strategy?
- Does the innovation complement a companies existing products (according to their product-life-cycle)?
- How complex is it for a company to drive the execution (e.g. factory or supplier-base already set up?
- …

Hard facts and figures convince the investors / or management to **decide** positively on any execution



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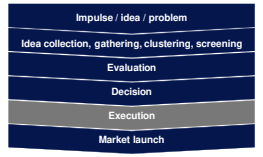
Multiple MVPs compete for a limited investment budget

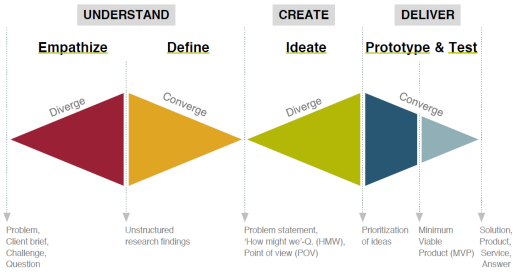
Quantitative aspects

- Amortization / Break-Even
- Contribution Margin
- Unit costs
- Depreciations
- Expected Profit
- Growth expectations
- Return-on-invest
- Opportunity costs

When entering the **Execution Phase** stable business processes displays the bold experiment spirit

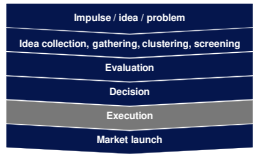


From MVP to an efficient and stable production line



- Production process
- Governance incl. risk management
- Supplier steering
- Resources (workforce, machines, facilities, warehouse)
- Sales channels
- Pricing
- …

When entering the **Execution Phase** innovation funds dry out and a solid business case is required



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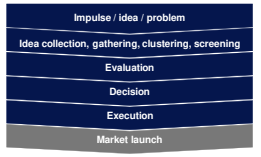
From innovation fund to a reliable product budget and profits

- PLAN-IS / forecast
- Budgeting
- Commercial infrastructure
- Profit
- Efficiencies
- Growth expectations
- Controlling and KPIs
- …

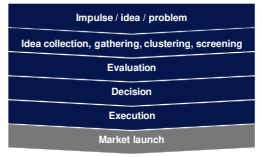
The **product launch** / **market entry** should be prepared strategically – however leaving some room to maneuver

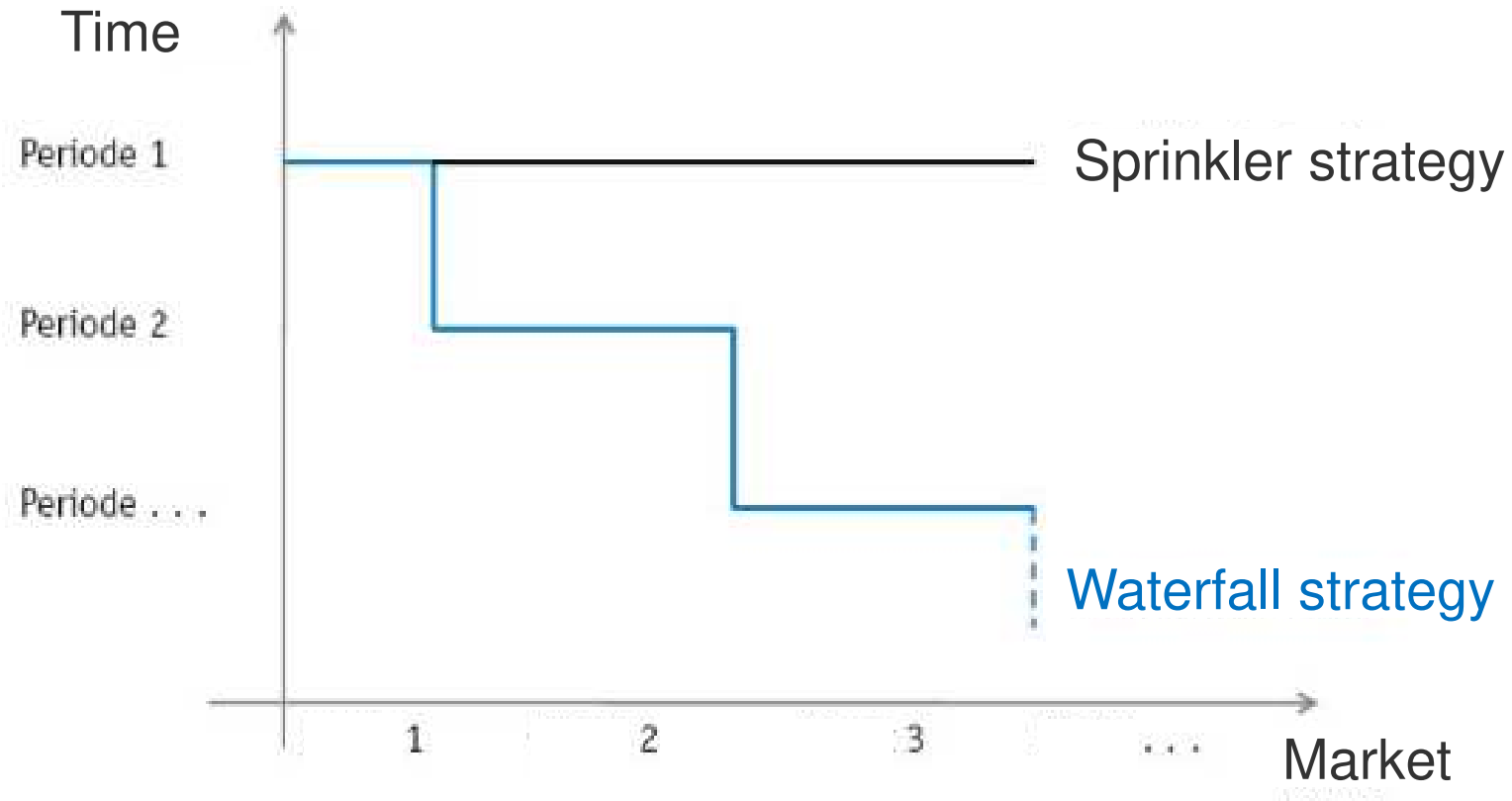


Strategic aspects for a market entry

- Which market?
- How to enter?
- When to enter?
- What sequence of rollout?
- Via which legal entity?

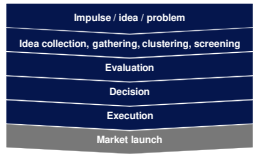
Multiple strategies can be applied to **launch a product** / **enter a market –** depending on the innovation itself





D. Vars & A. Brehm: Innovationmanagement, 2015

To protect the innovation, intellectual property rights need to be registered before any **product launch a product / market entry**

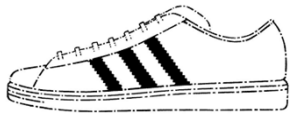


Intellectual property right

- **technological**
  - Patent
  - Utility model
- **non-technological**
  - Design patent
  - Trademark

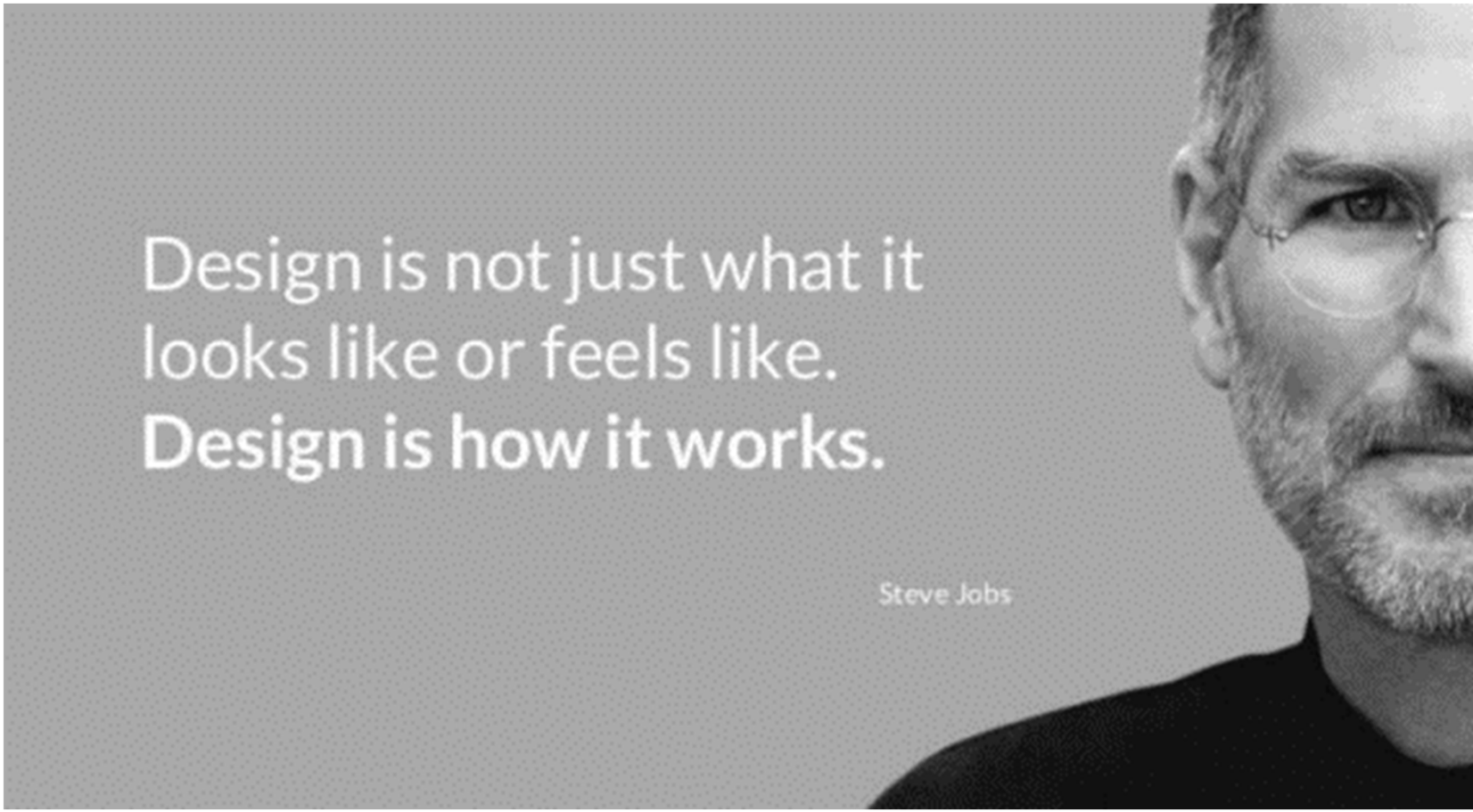
Variable device graphical user interface

"Patent-light"

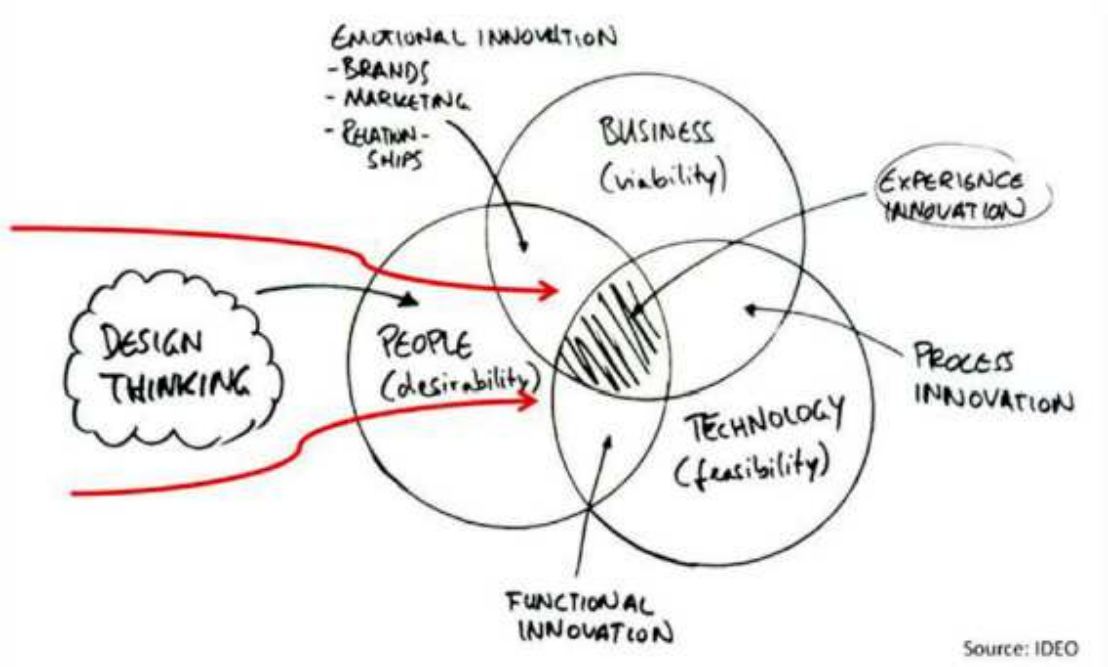


D. Vars & A. Brehm: Innovationmanagement, 2015

Excursus: Design Thinking



Design Thinking Definition (1/2)

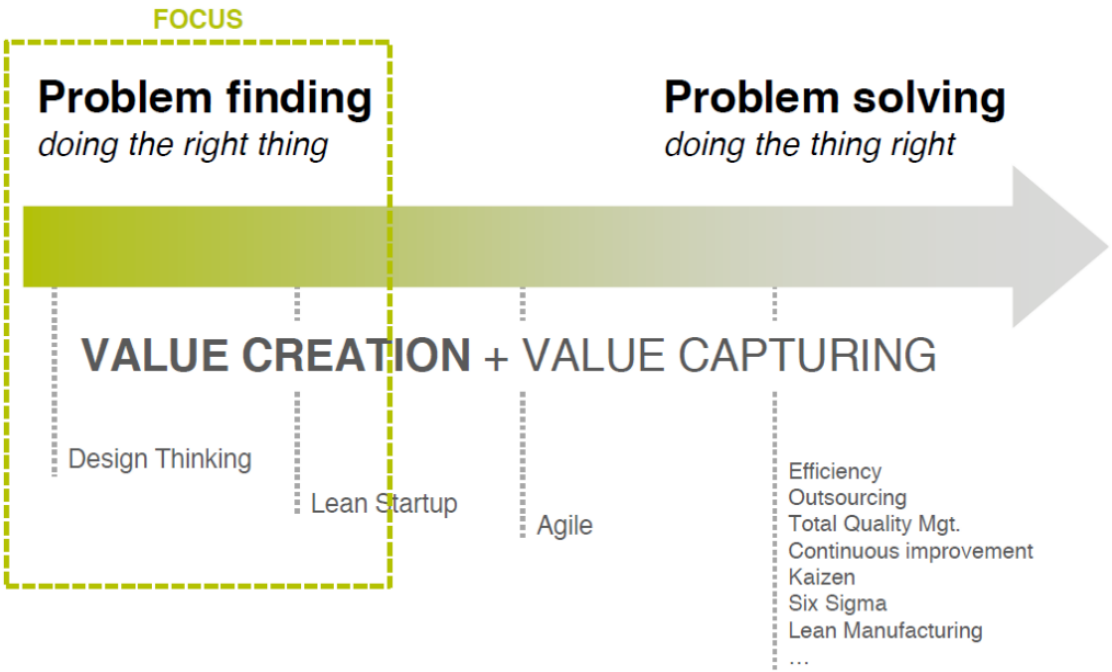


DESIGN THINKING is

a **human-centered** approach to innovation that draws from the designer's toolkit to integrate the **needs of the people**, the **possibilities of technologies**, and the **requirements for business success**.

Tim Brown, IDEO

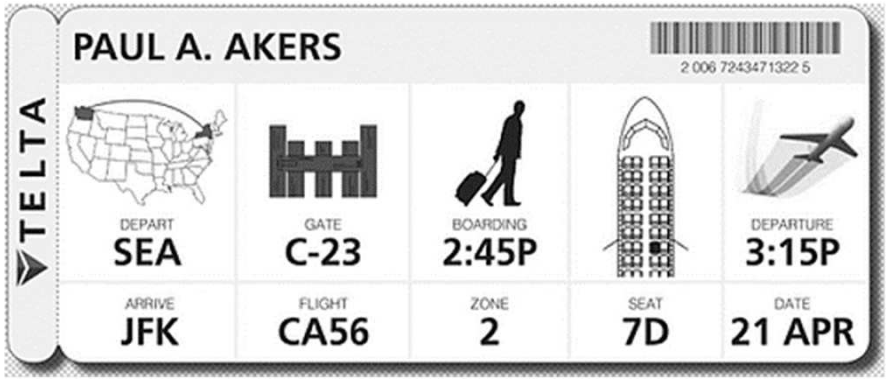
Design Thinking Definition (2/2)



DESIGN THINKING is

a **user-centered** approach to **problem finding**.

Design Thinking is a mind-shift



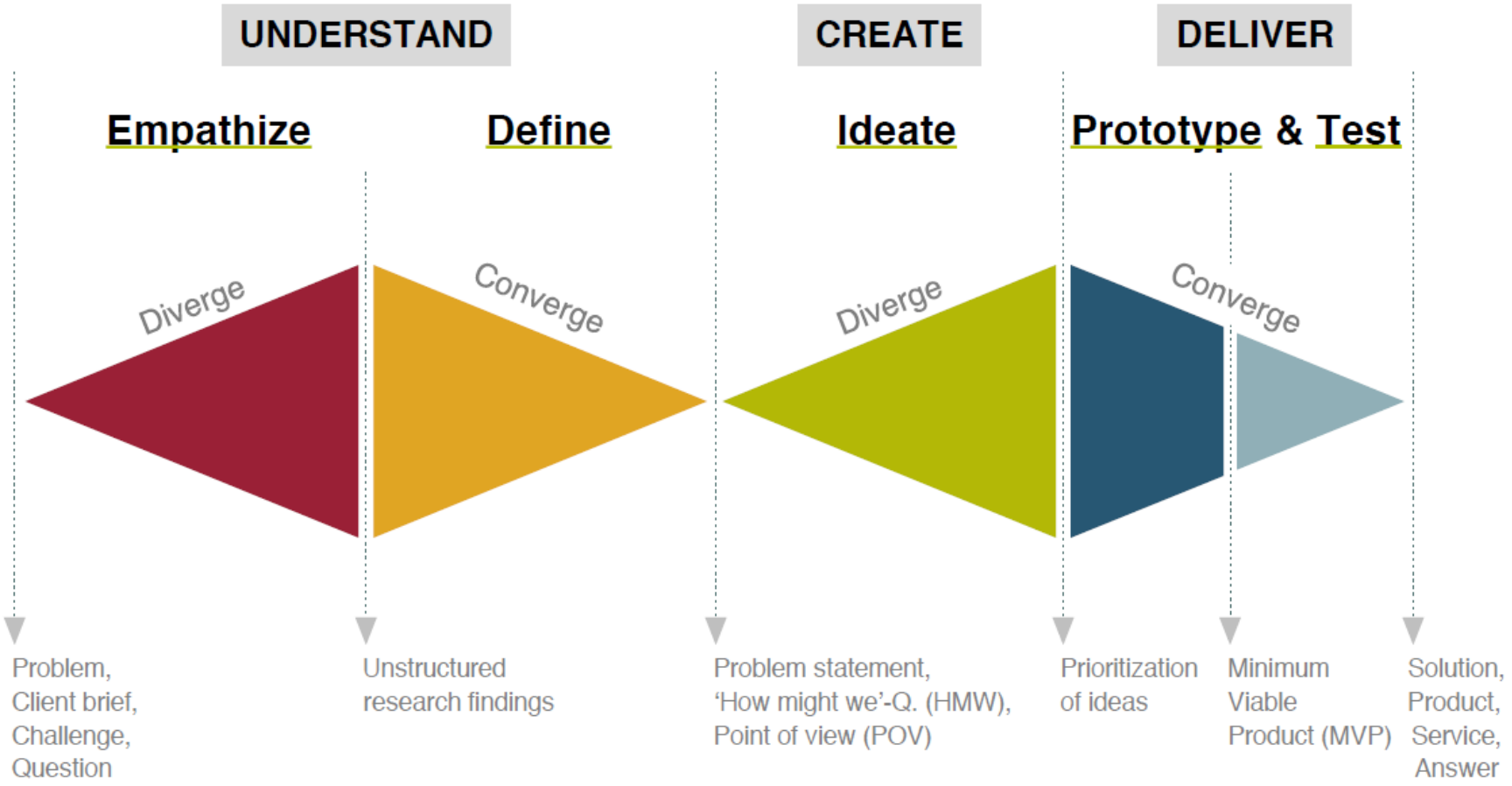
From

MAKING PEOPLE WANT THINGS

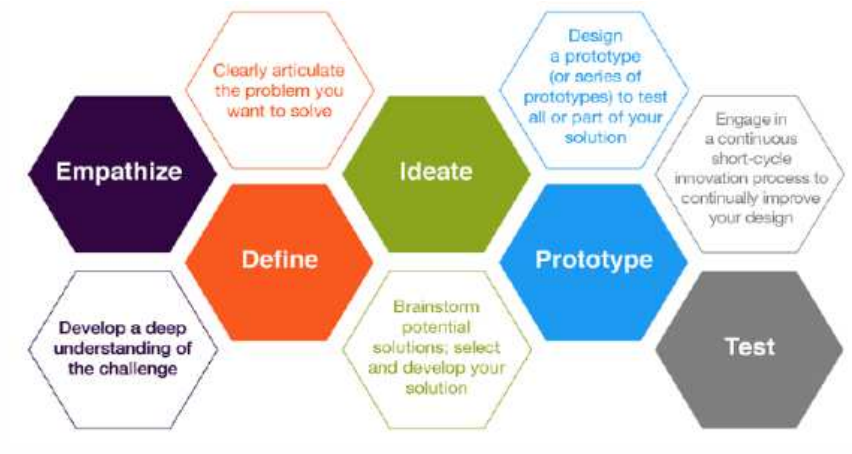
To

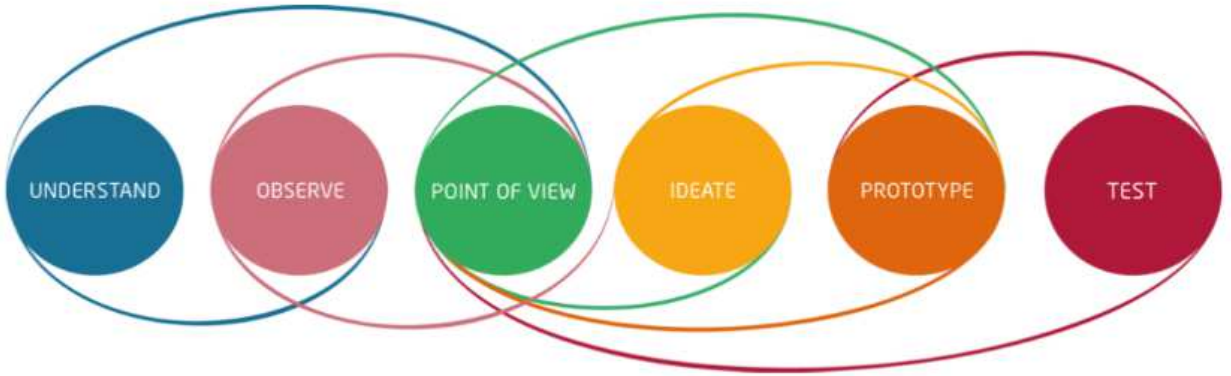
MAKING THINGS PEOPLE WANT

The Design Thinking Process



The Design Thinking Process (alternative illustrations)





Typical Design Challenges in Design Thinking trainings

Design the ideal (grocery) shopping experience

Design the ideal gift-giving experience

Design the ideal wake-up experience

Design the ideal wallet

Design the ideal handbag

Example: Design the ideal transportation vehicle

Why empathize?

- Gain a deep understanding of the people for whom you are designing a solution, their problems/needs, who they are what is important for them (values)
- Uncover hidden needs
- “Put yourself in the shoes of your user”
- Identify the right users
- Discover emotions that guide behavior
- Understand the stakeholders around the user and how they influence the user

Empathy Methods

Why is the empathy phase so crucial?

People do not always do what **you think** they do.

People do not always do what **you tell them** to do.

People do not always do what **they think** they do.

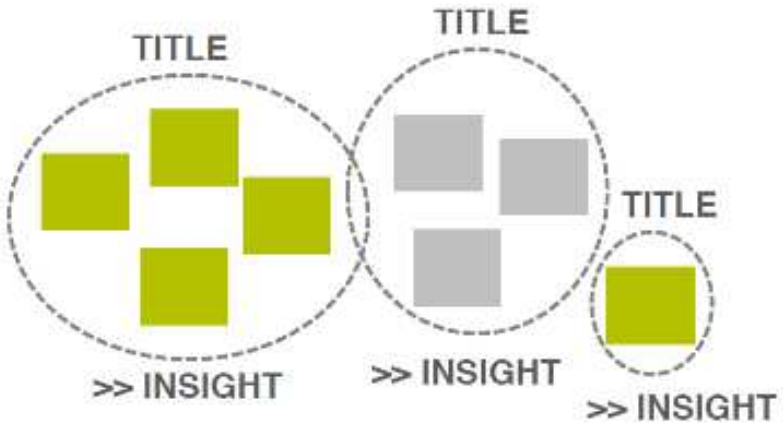
People do not always do what **they say** they do.

>> Observation and asking why makes you find out what people really do and need.

Why define?

- Synthesize results of empathy phase into needs and insights
- Frame and scope the problem
- Guides the innovation process
- Develop an actionable problem statement aka. a point of view (POV)
- Provides the input for the next ideation phase

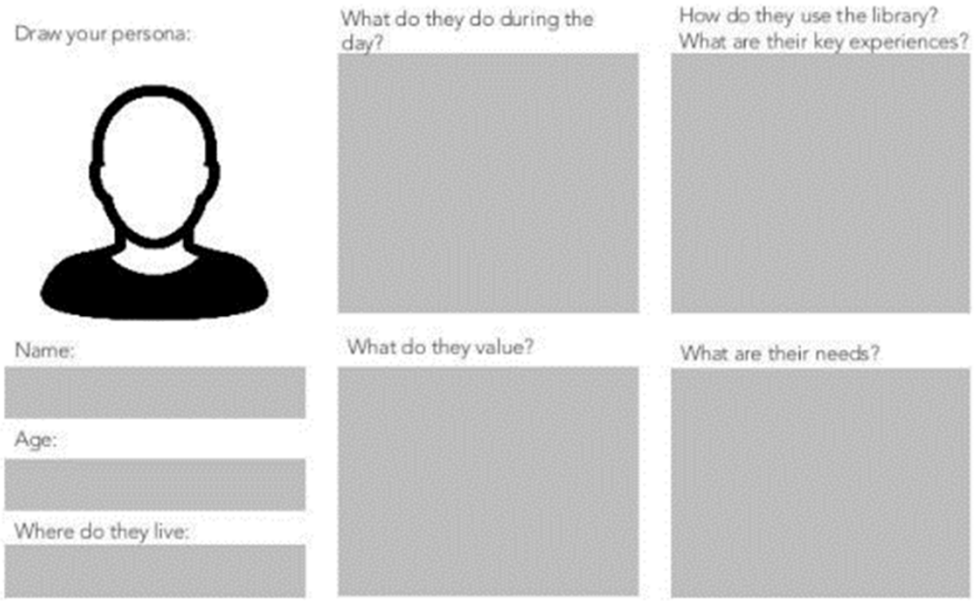
Pattern the storyline themes created during the empathy phase



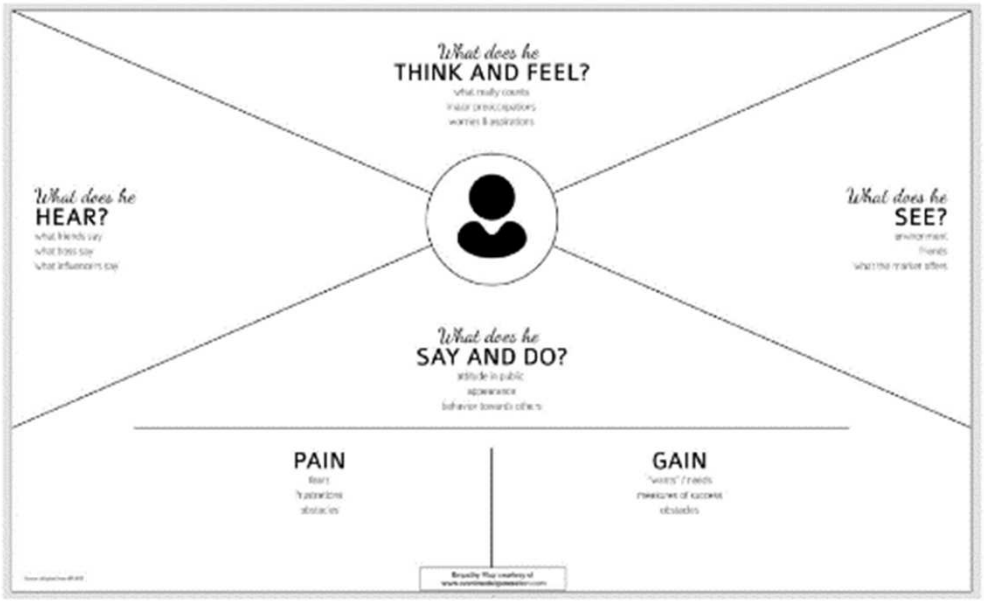
- Share your findings with your team! Share them while they are fresh + everyone is listening actively.
- Which stories/behaviors are most intriguing?
- Look for patterns, repetitions, exceptions
- Cluster notes according to themes and find titles for each cluster
- Draw insights from each cluster and use them as a basis to formulate a problem statement (or Point-of-View)

Define Methods (1/2)

Personas

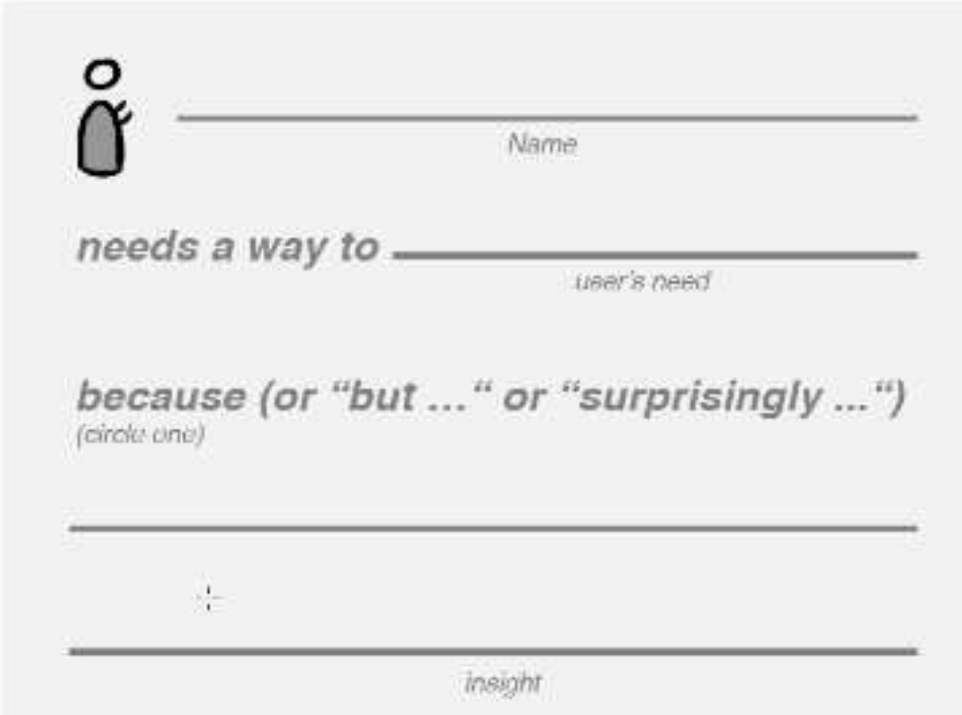


Empathy Map



Define Methods (2/2)

Problem Statement / Point of View



Example: transportation vehicle

User	Need	Insight
An adult person who lives in a city	To use a car for 10-60 minute trips 1-4 times per week	The user would not want to own his own car as it would be too expensive compared to his needs. He would like to share a car with others who have similar needs, however, there are no easy and affordable solutions for him. It's important for the user to think and live green and to not own more than he truly needs.

Susi **needs a way to** access to a shared car 1-4 times for 10-60 minutes per **week because** she would rather share a car with other people as this is cheaper and more environmentally friendly.

Why ideate?

- Transition from identifying problems to creating solutions
- Generate radical alternatives – go for large quantity and diversity
- Go beyond the obvious
- Harness collective perspectives (team exercise)
- Separation of generating ideas from evaluating ideas

Formulate a „How might we question“ based on the problem statement – a solution mind-set

Formulating action-oriented questions help in generating solution ideas that are targeted. The **“How might we…?”**-formulation is a common method used in Design Thinking to kick-off a brainstorming session (or other method).

Template

How might we ACTION WHAT for WHOM in order to CHANGE SOMETHING?

Example

How might we provide medical services for rural Nigerians in order to improve local healthcare?

Example: transportation vehicle

How might we provide easy-accessible transportation **for** eco-minded metropolitans **in order to** regularly manage short-distance round-trips.

Ideation Methods (1/2)

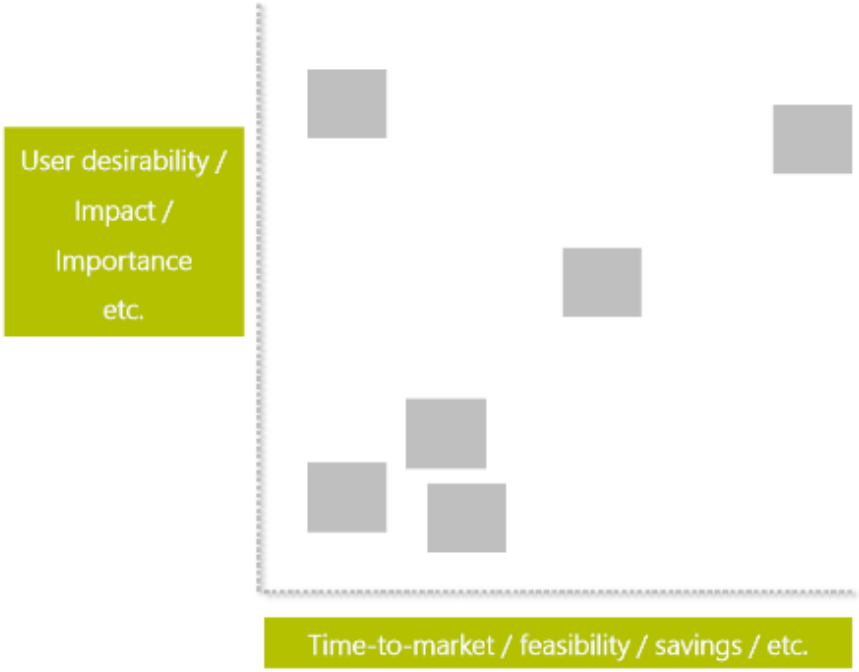
- Brainstorming
- Brainwriting
- 6-3-5 Brainwriting

Brainstorming rules:

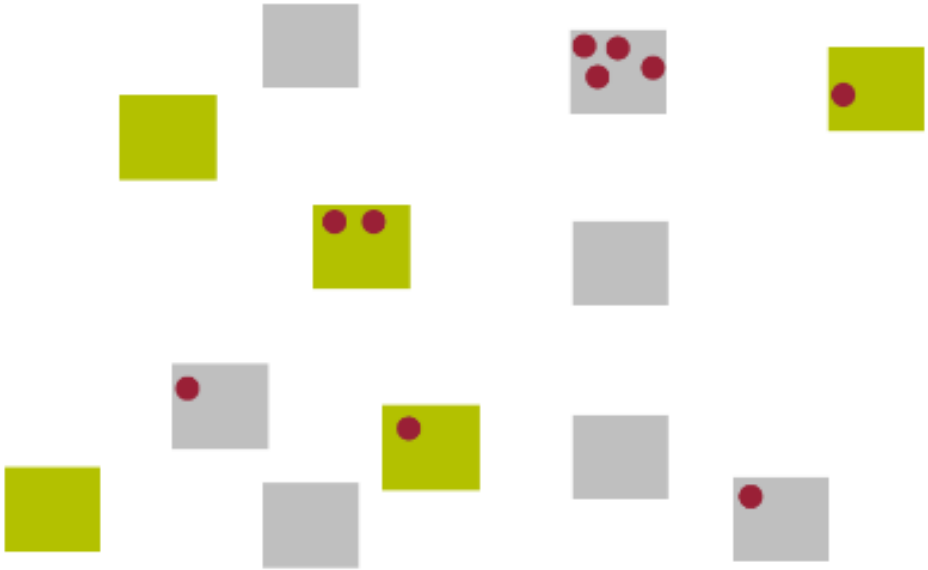
- Go for quantity (later check for quality)
- Defer judgement
- Build on the ideas of other (Yes, AND..)
- Encourage wild ideas
- Be visual
- Stay focused on the topic
- Think human-centered
- Leave titles at the door
- One conversation at the time
- Fail early & often

Ideation Methods (2/2)

Matrix
Prioritize the ideas



Heat map
Select the ideas



Why prototyping?

- Prototyping is used to manifest your solution idea into a rough product or service design so that users can experience and test the proposed solution.
- Nothing has to be perfect at this stage, only the key assumptions that you propose with your solution have to be in included.
- Create different variations of prototypes
- Fail quickly and cheaply

Prototyping Methods

- Paper prototype
- Video prototype
- Graphic and interface mockups
- Role play
- Storyboard
- Wireframe

Tip

- One question, one prototype
- Build fast, before overthinking your idea
- Stop before it's perfect
- Cannibalize as much ideas as possible
- Don't fall in love with your prototype – let go physically & emotionally when testing it with users
- Create to provoke and persuade
- Break riles, laws and facts

Why testing?

Tip

- Don't fall in love with your prototype – let go physically & emotionally when testing it with users

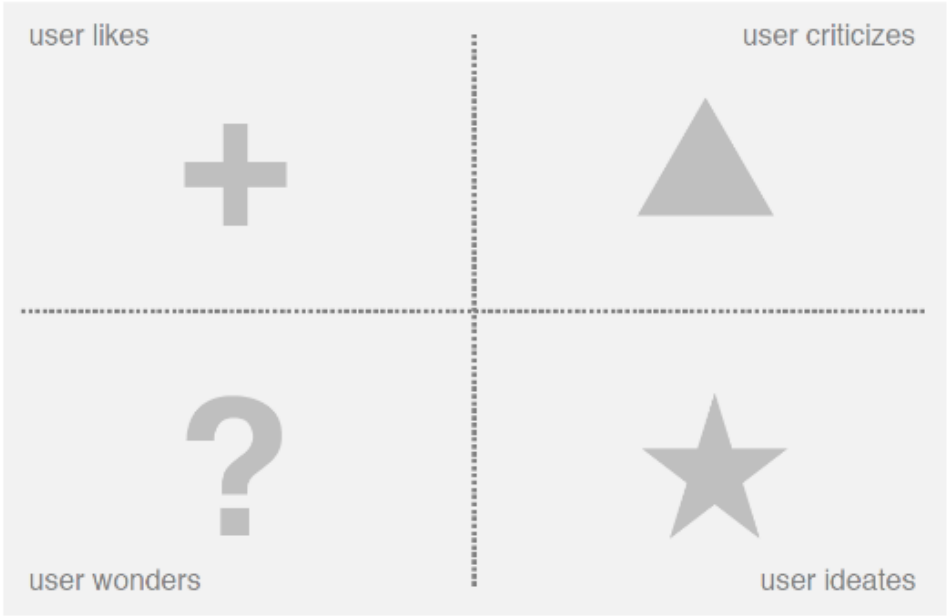
- Gain feedback on solutions
- Refine solution
- Learn more about users
- Refine your problem statement/point of view

Testing Methods

Testing questions

- Could you please rephrase the core of this concept in your own words?
- What should we be aware of, if we pursue this concept?
- Who do we have to convince with this?
- What obstacle do you see?
- Do you know about a similar idea that you can tell us about?
- Could you name 1-2 people who would love this idea?

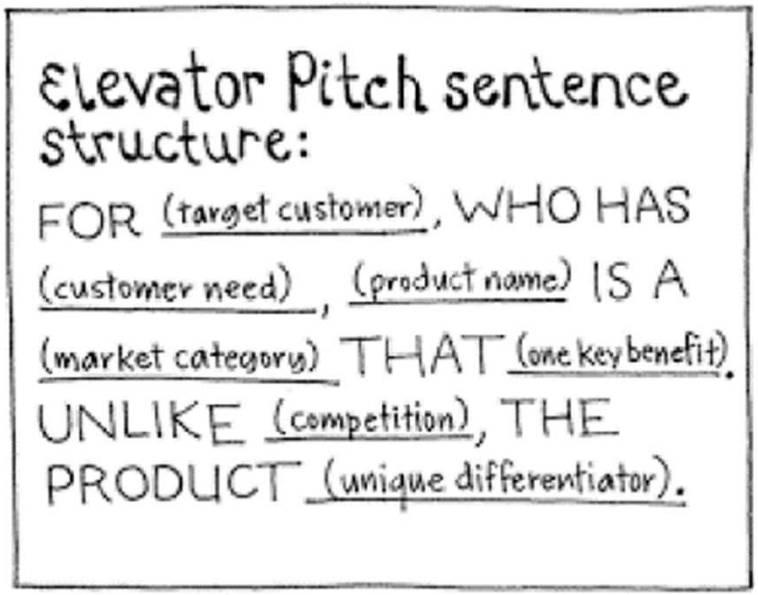
Testing analysis



Last but not least – pitch your idea

Business Model: Lean Canvas

Problem	Solution	Unique Value Proposition	Competitive Advantage	Customer Segments
Top 3 problems	Top 3 features	Single, clear, compelling message that states why you are different and worth buying	Can't be easily copied or bought	Target customers
	Key Matrices Key activities you measure		**Channels** Path to customers	
Cost Structure Customer acquisition costs Distribution costs Hosting People, etc.			**Revenue Streams** Revenue model Revenue Gross margin	



Design thinking works for …

Design Thinking principles:
Be comfortable with the uncomfortable – and trust the process

HUMAN-CENTERED

HANDS-ON

CREATIVE

ITERATIVE

When is Design Thinking helpful?

Complex (≠ complicated) problems

- Problems that are ill-defined: both problem and solution are unknown at the beginning
- And/or tricky: it involves quite a bit of risk, as you are leaving the comfort zone of the organization

Not for every problem

- Design Thinking (creative, intuitive, emotional) is not the answer to every single problem
- For some questions you will need rational thinking, e.g. budget allocations, etc.

How should a Design Thinking environment be setup?

- Flexible furniture – high tables, low tables, different forms of seating, shelves for materials and tools
- Group areas as well as spots for quiet work
- LOTS of WALL SPACE!
- Make your space the world of your challenge

How should a Design Thinking team be setup?

- The best teams are interdisciplinary
- Roles should be oriented on strengths, not on tasks or seniority – have a creator, thinker, maker, artist, communicator, critic, coordinator, enthusiast, evangelist, anker, coach, etc.
- Roles should be given from the team in the team
- Every team needs an alpha dog – someone that drives the team to achieve things, that moves them forward. But be aware – this someone is NOT the boss!

The most important Design Thinking tool: Post-its

How to work with Post-its:

Not to be missed: Timeboxing

In workshops it helps a lot to give each activity a certain time that the teams have to stick to.
Limiting time helps to

- avoid time-consuming arguments
- keeps teams aligned
- pressures the team to get to results
- supports the notion of „good enough“

Recap

My key-take-aways of the last session are the following:

Go to www.menti.com

Roadmap

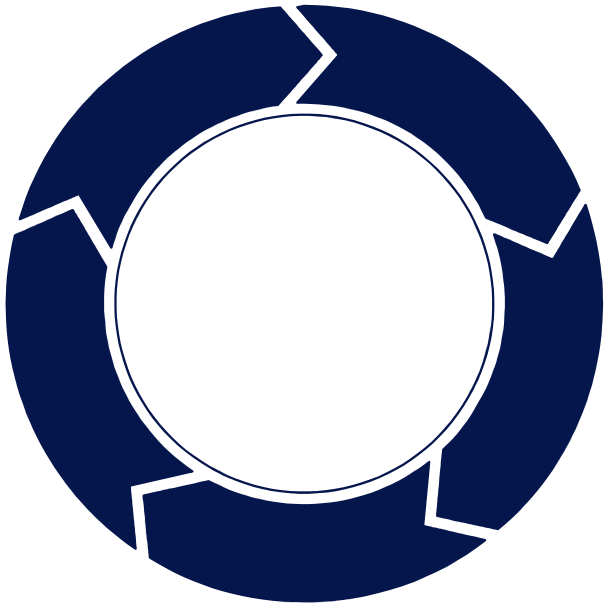
1	- Our roadmap - World-Café: unbiased exchange on innovations - Definition of innovation - Role of innovation management in economics	09:00 – 10:30
2	- The innovation process: journey from problem to solution - Excursus: Design Thinking	11:00 – 12:30
3	- Structural and organizational set-up of innovation management in a company - Excursus: Agile and SCRUM - Leading innovations	13:15 – 14:15
4	Innovation networks	14:15 – 14:45
5	Global Trends	15:00 – 15:30
6	Case Study	15:45 – 16:30
7	Wrap up	16:30 – 16:45

Structural and organizational set-up of innovation management in a company

Innovation management is differently set up in every company

Functional structure
How is the innovation process from idea to product designed?

Organizational structure
How is innovation management embedded in org structure?



Capabilities
How are employees empowered / trained to handle innovations?

Culture & leadership
How is innovation mindset fostered?

Strategy
Is innovation an essential part of the strategy?

Functional structure – the innovation process as basis

Impulse / idea / problem

Idea collection, gathering, clustering, screening

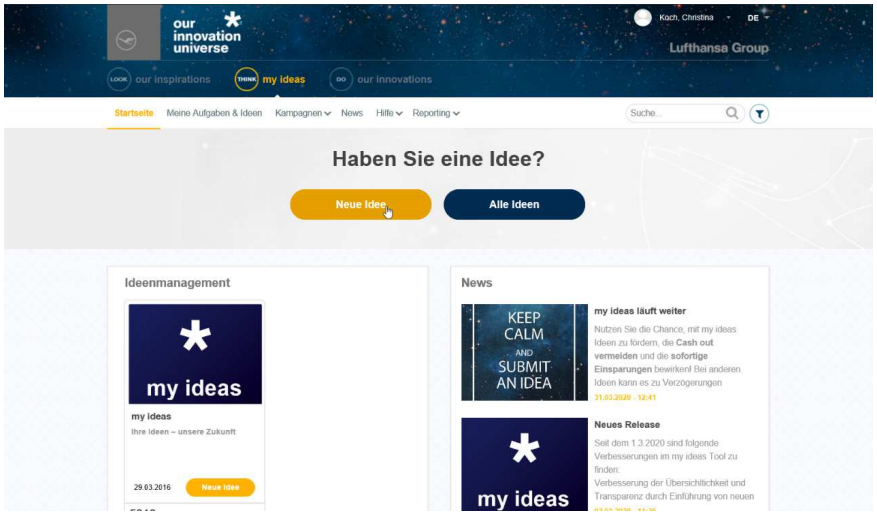
Evaluation

Decision

Execution

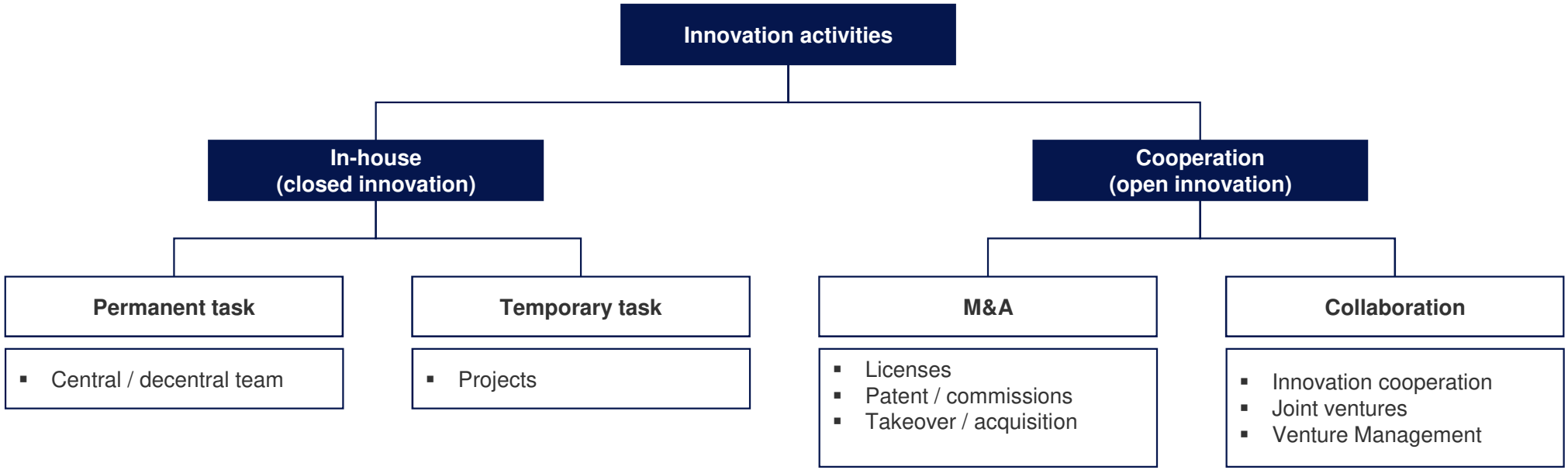
Launch

Example: idea management and steering the innovation process at Lufthansa



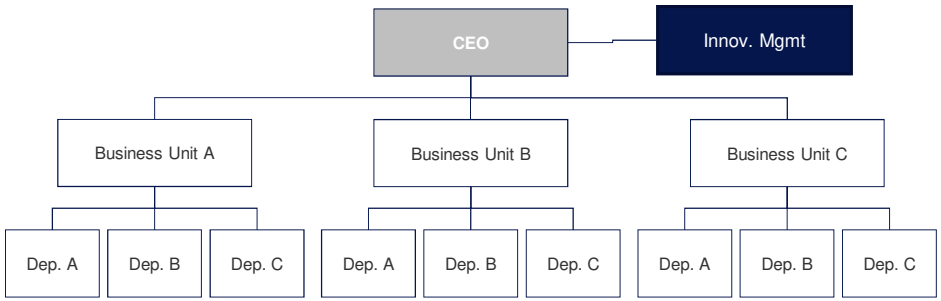
Organizational structure

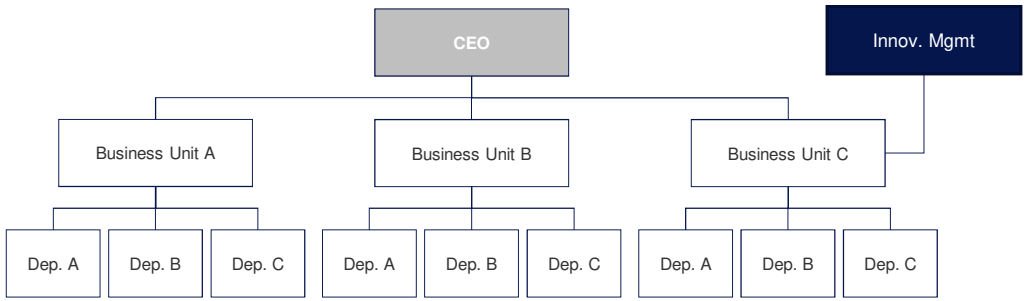
How much does a company rely on internal innovations or opens for any cooperation to boost innovations?



Organizational structure / Central

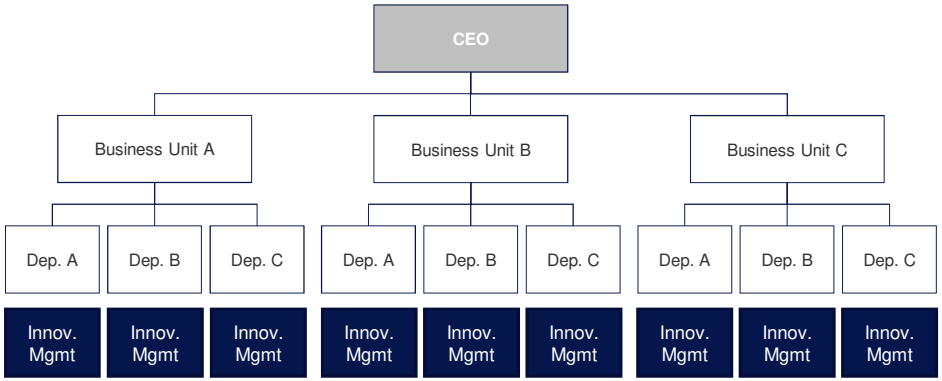
How are innovation-teams embedded in a companies organizational structure?

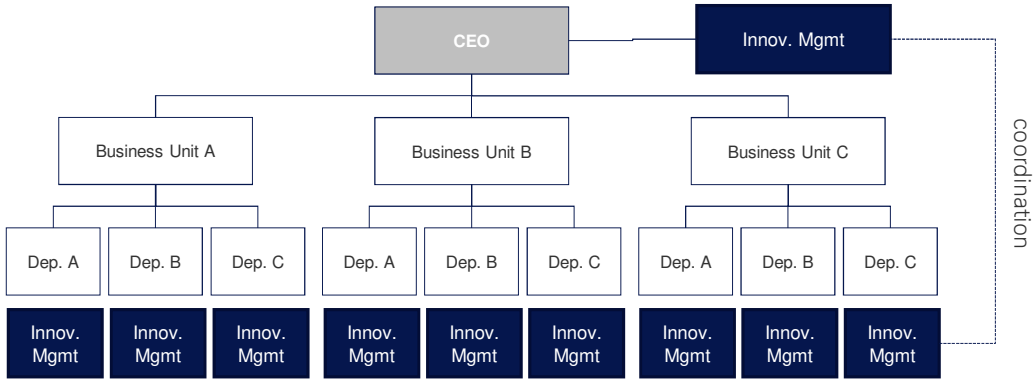




Organizational structure / Decentral

How are innovation-teams embedded in a companies organizational structure?





Organizational structure

Central	▪ xxx	▪ xxx
Decentral	▪ xxx	▪ xxx

Group discussion:

What are the advantages / disadvantages of a central / decentral innovation team?

Culture & leadership

Characteristics of a culture and leadership style fostering innovations:

- Easy access to trainings for every employee
- Employee driven continuous improvement tools including awards for the best ideas
- Open access to information
- Open communication
- Open learning culture / culture of error handling
- Divers teams
- Appraise any innovation – even if it might fail
- Innovation-boosting environment (building, rooms)
- Providing time and resources (funds) for creativity
- Arrange and foster participation in fairs or any cross-company exchange

Example: Amazon & Facebook

Mandate by Jeff Bezos
(CEO, Amazon) in 2002

1. **All teams will henceforth expose their data and functionality through service interfaces.**
2. **Teams** must **communicate** with each other **through these interfaces.**
3. There will be **no other form of inter-process communication** allowed: no direct linking, no direct reads of another team's data store, no shared-memory model, no back-doors whatsoever. The only communication allowed is via service interface calls over the network.
4. It doesn't matter what **technology** they use. HTTP, Corba, Pubsub, custom protocols — **doesn't matter.**
5. **All service interfaces**, without exception, must be designed from the ground up to be **externalizable.** That is to say, the team must plan and design to be able to expose the interface to developers in the outside world. No exceptions.
6. Anyone who doesn't do this will be fired.
7. Thank you; have a nice day!

5 Core-values of Facebook

1. Focus on impact: "If we want to have the biggest impact, the best way to do this is to make sure we always focus on solving the most important problems."
2. Move fast: "We have a saying: 'Move fast and break things.' The idea is that if you never break anything, you're probably not moving fast enough."
3. Be bold: "We encourage everyone to make bold decisions, even if that means being wrong some of the time."
4. Be open: "We believe that a more open world is a better world because people with more information can make better decisions and have a greater impact."
5. Build social value: "We expect everyone at Facebook to focus every day on how to build real value for the world in everything they do."

Strategy

How intense is the drive for innovation embedded in a company's strategy / vision / claim or business model?

SIEMENS

Ingenuity for life

OUR POSITIONING

Global megatrends are changing our world. Digital transformation, globalization, urbanization, demographic change and climate change are the great challenges of our time. As a leading global technology company that stands for engineering excellence, innovation, quality, reliability and internationality, we provide answers in the areas of electrification, automation and digitalization.

RYANAIR

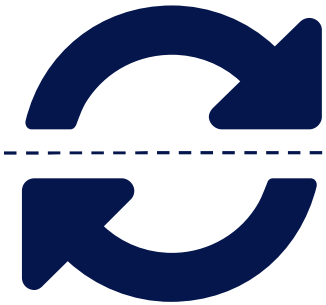
Ryanair's mission is "to offer low fares that generate increased passenger traffic while maintaining a continuous focus on cost containment and efficiency operation."

Capabilities

Expert

- Holds expertise
- Identifies trends and chances
- Develops solutions
- Implements concepts

Responsible for the know-how



Responsible for the execution

- Holds hierarchical empowerment
- Distributes funds
- Assigns resources
- Sets targets and prioritizes

Door-opener

Annuntio vobis gaudium magnum, habemus Papam

2005

2013

We live in a VUCA-world,…

Volatility

Uncertainty

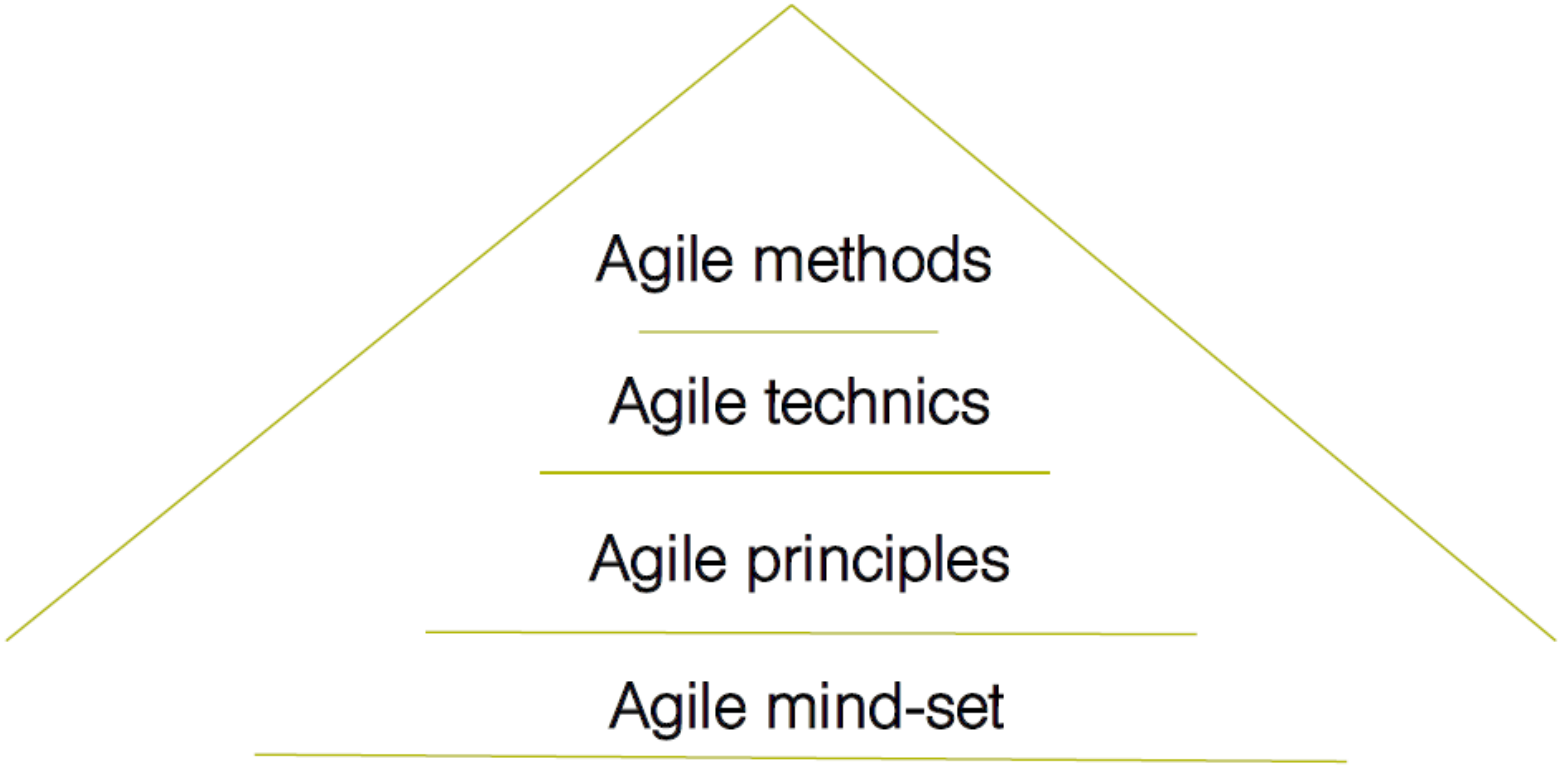
Complexity

Ambiguity

We live in a VUCA-world and thus, apply VUCA leadership principles

Volatility		**Vision**
Uncertainty		**Understanding**
Complexity		**Clarity**
Ambiguity		**Agility**

Agile is more than a toolbox: it’s about agile ways of working and the overall corporate culture



THE AGILE MANIFESTO
2001

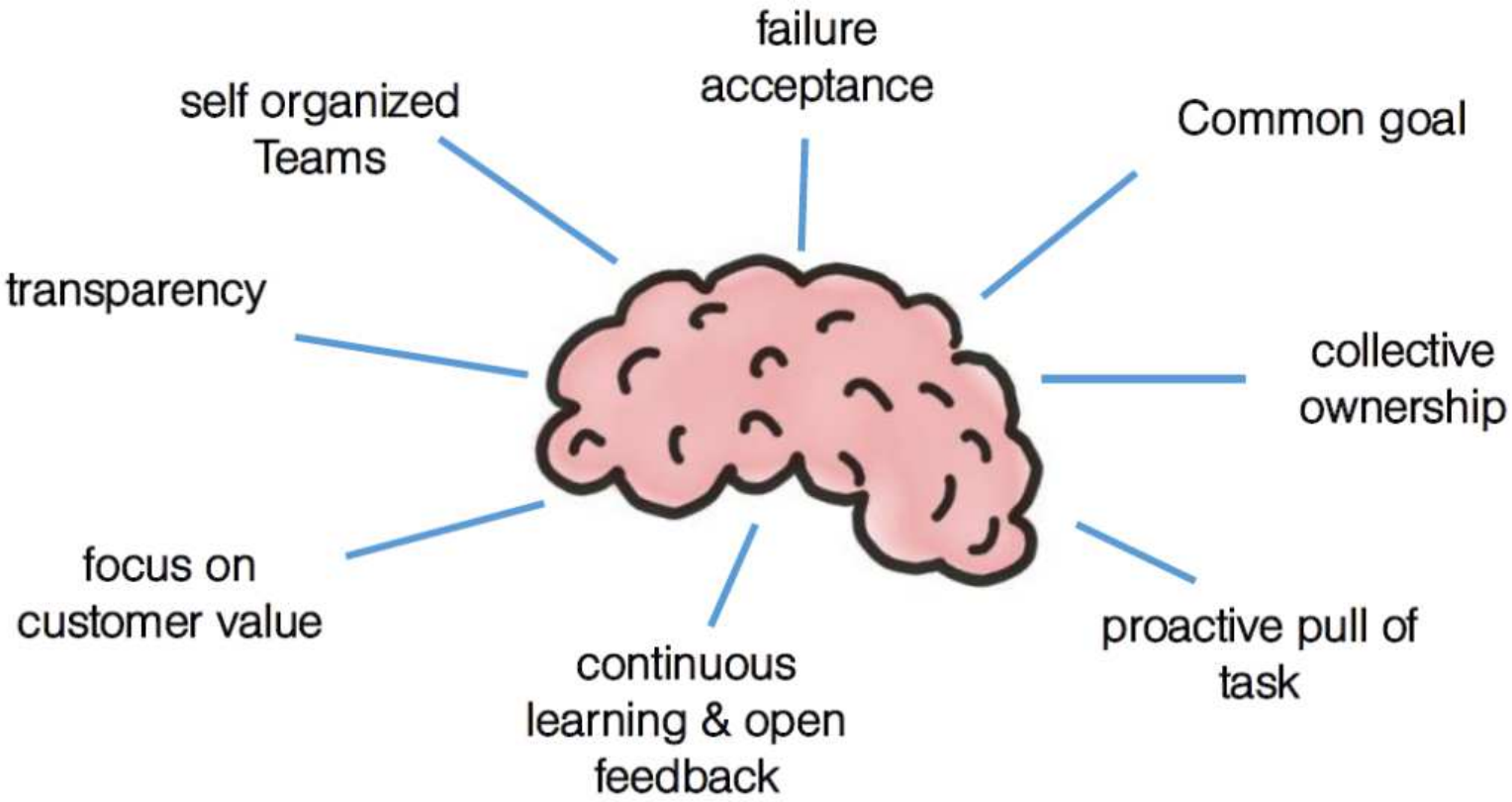
Individuals and interactions
over processes and tools

Working software/products
over comprehensive documentation

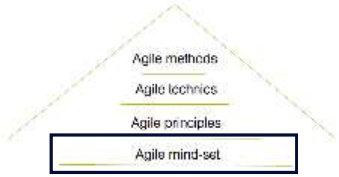
Customer collaboration
over contract negotiation

Responding to change
over following a plan

The agile mind-set



Agile values



Courage
Agile Teams have the courage to do try things out, do the right thing & work on though problems.

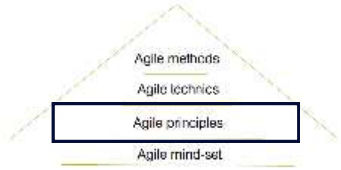
Focus
Everybody focuses on the most important tasks and keeps the (overall) goal in mind.

Commitment
Team members personally commit to achieving the goals and feel responsible.

Respect
Team members respect each other personally and professionally.

Openness
Stakeholders and the team are open about their work and challenges they are facing

The agile-lean principles



1) Work in a short period of time
2) with a small team of different experts
3) on the most important task
4) to create results
5) in incremental cycles.

The student syndrome

1) Work in a short period of time
2) with a small team of different experts
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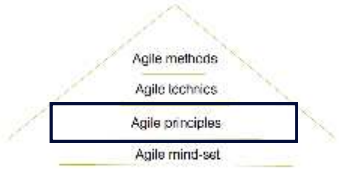
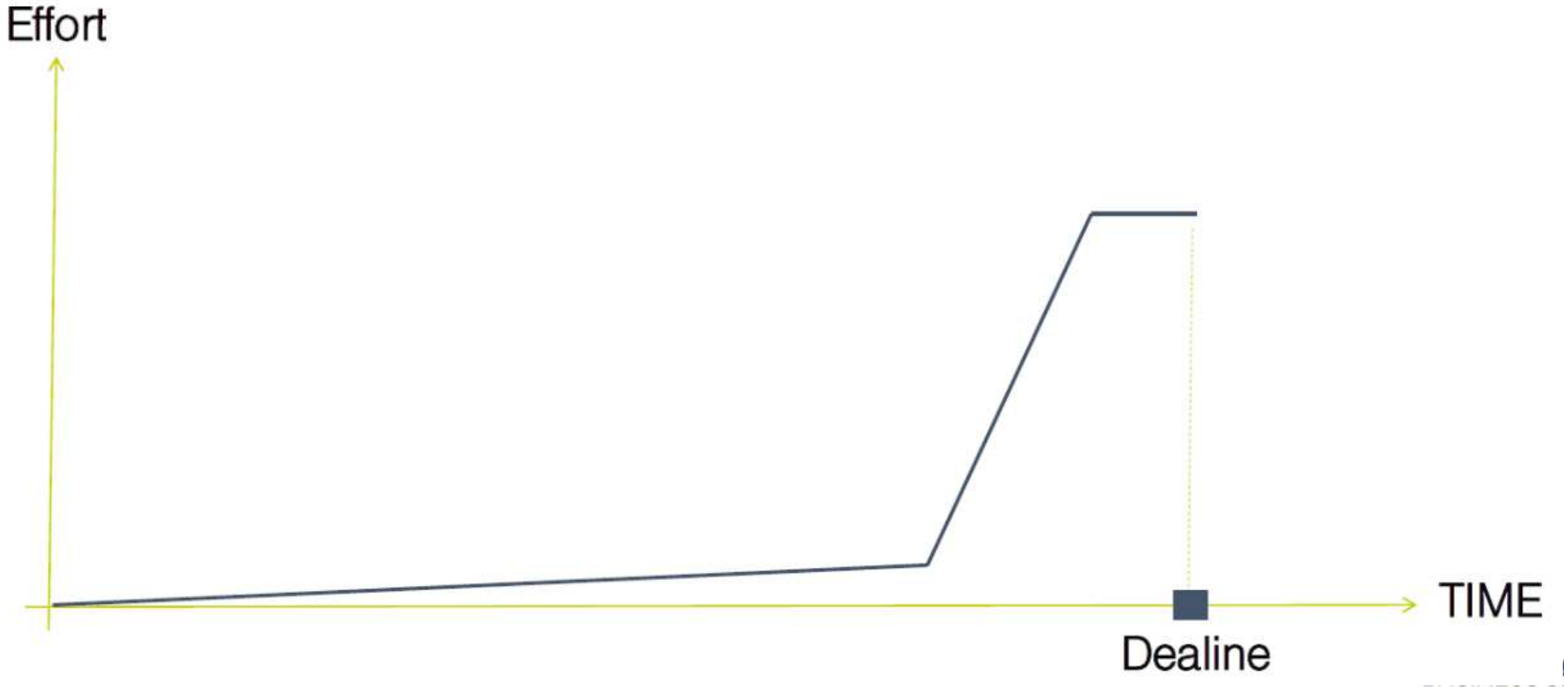
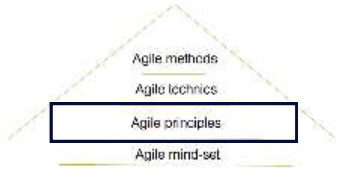




Team Size: the magic number

1) Work in a short period of time
2) with a small team of different experts
3) on the most important task
4) to create results
5) in incremental cycles.



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It a team can't be fed with two pizzas, it's to big.

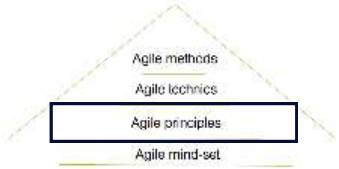
Jeff Bezos

7 ± 2

Illustration: Larry Maccherone, Impact of Agile Quantified

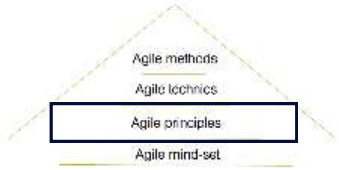
The focus

1) Work in a short period of time
2) with a small team of different experts
3) on the most important task
4) to create results
5) in incremental cycles.



From multitasking to focus and sequencing

1) Work in a short period of time
2) with a small team of different experts
3) on the most important task
4) to create results
5) in incremental cycles.



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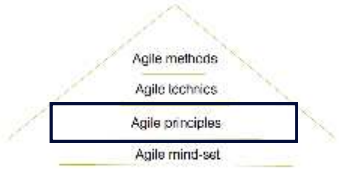
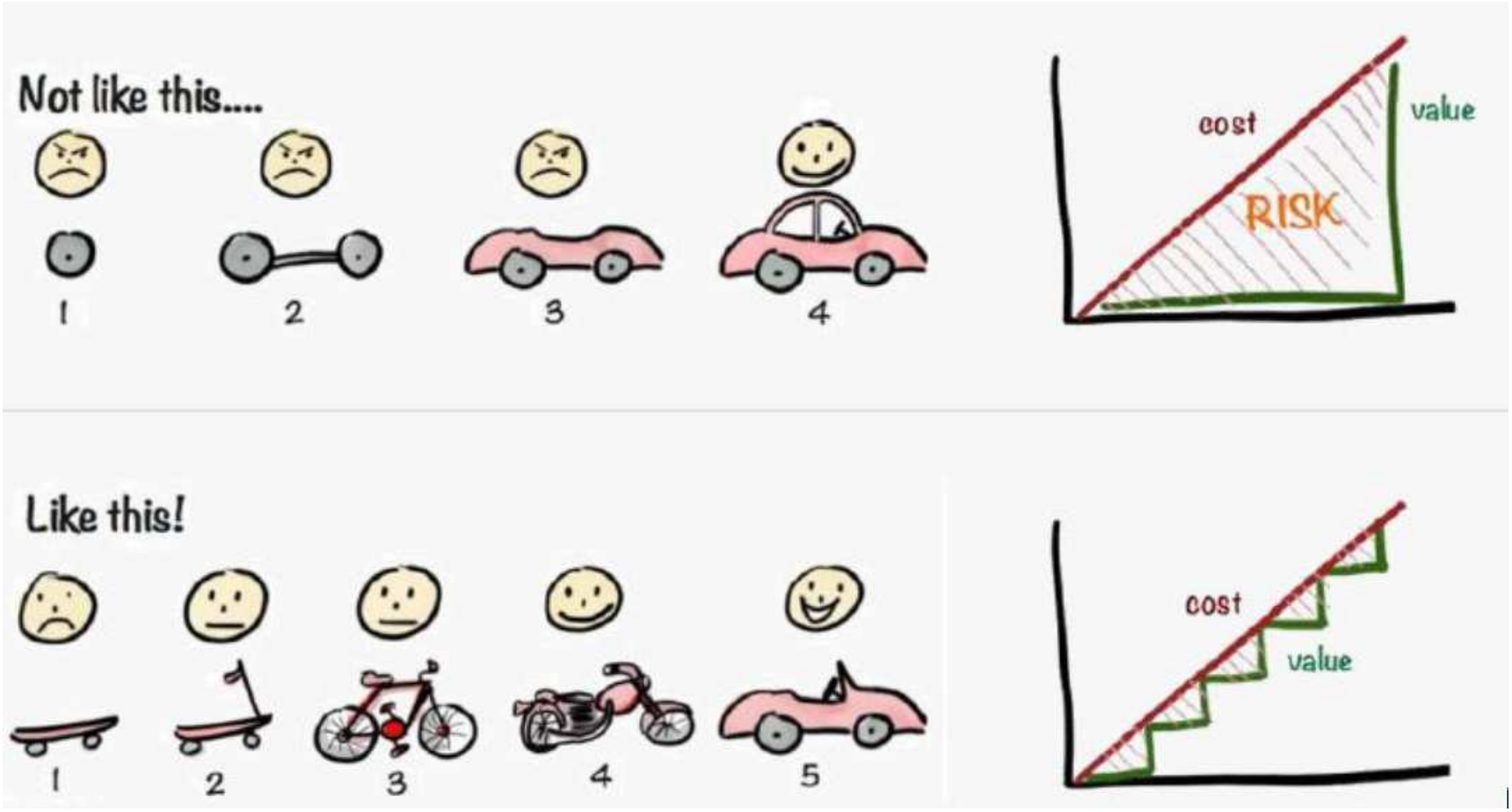
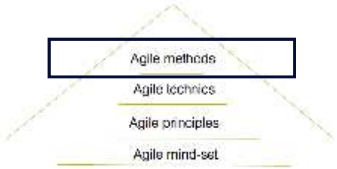
Work in iterations

1) Work in a short period of time
2) with a small team of different experts
3) on the most important task
4) to create results
5) in incremental cycles.





Agile Methods:
Choose the right methods for the right situation



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Problem finding
doing the right thing

Problem solving
doing the thing right

VALUE CREATION + VALUE CAPTURING

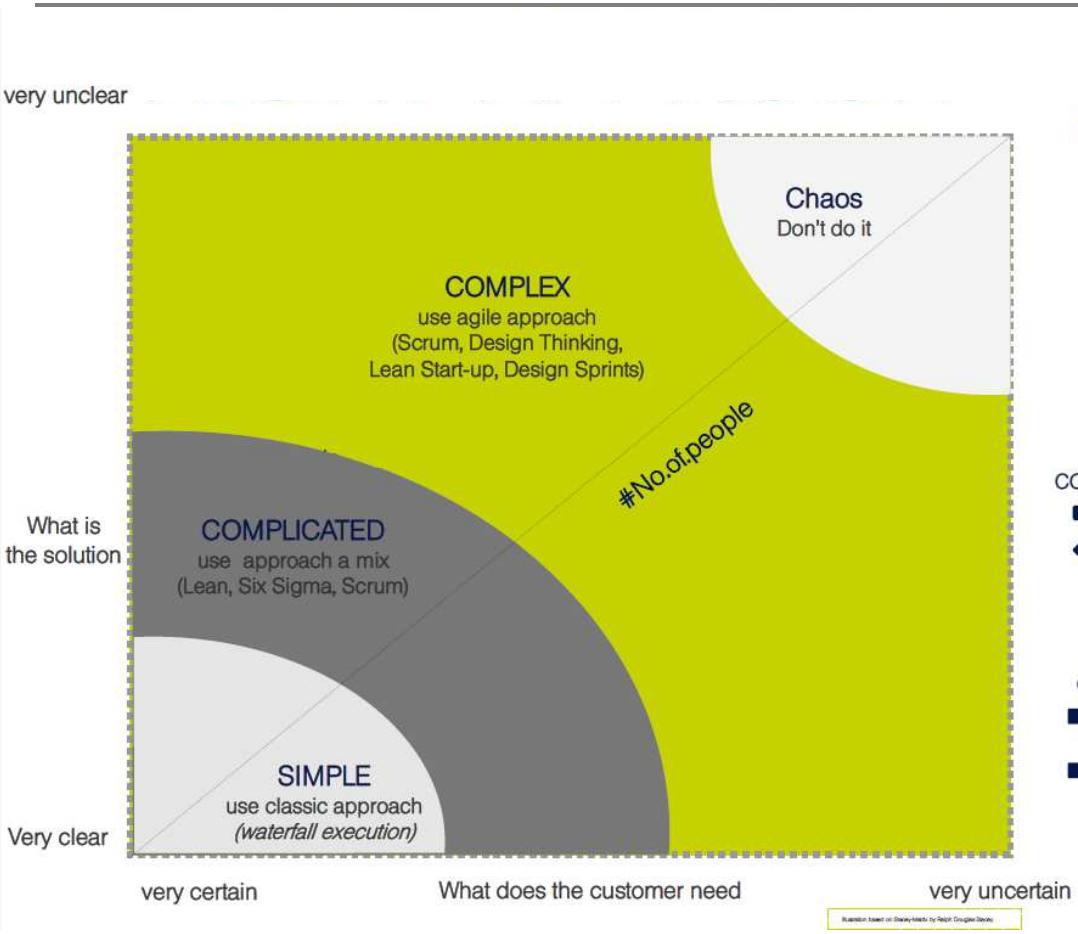
Design Thinking
Systematic Innovative Thinking
....

Lean Startup
Design Sprint
....

Scrum
Scrum of Scrums
...

Kaizen
Six Sigma
Lean
...

Agile Methods:
Choose the right methods for the right situation



Do you know your customer's needs and pain-points?
Do you know how to solve the problem?
Do you have many players evolved?
Do you have a goal or research question?
How volatile is the environment? Can you plan without change?
How dynamic is the environment?
Do you have a best practice?

SIMPLE

Problems that are clear, where both the solution is known as well as the requirement, are simple problems. Here the wet need to execute the plan that we have. There are no uncertainties or changes. There is a best practice or only one solution that can be used.

COMPLICATED

Problems that are quite well defined and where the goal is clear, are considered to complicated problems. The requirements are defined but you need to pick the right way to execute as change is happening. There are not too many players involved and interdependencies are lower. A lot of time these problems seam complex but in reality they are complicated. There is a plan (a guide) and the expert can steer you to the right solution.

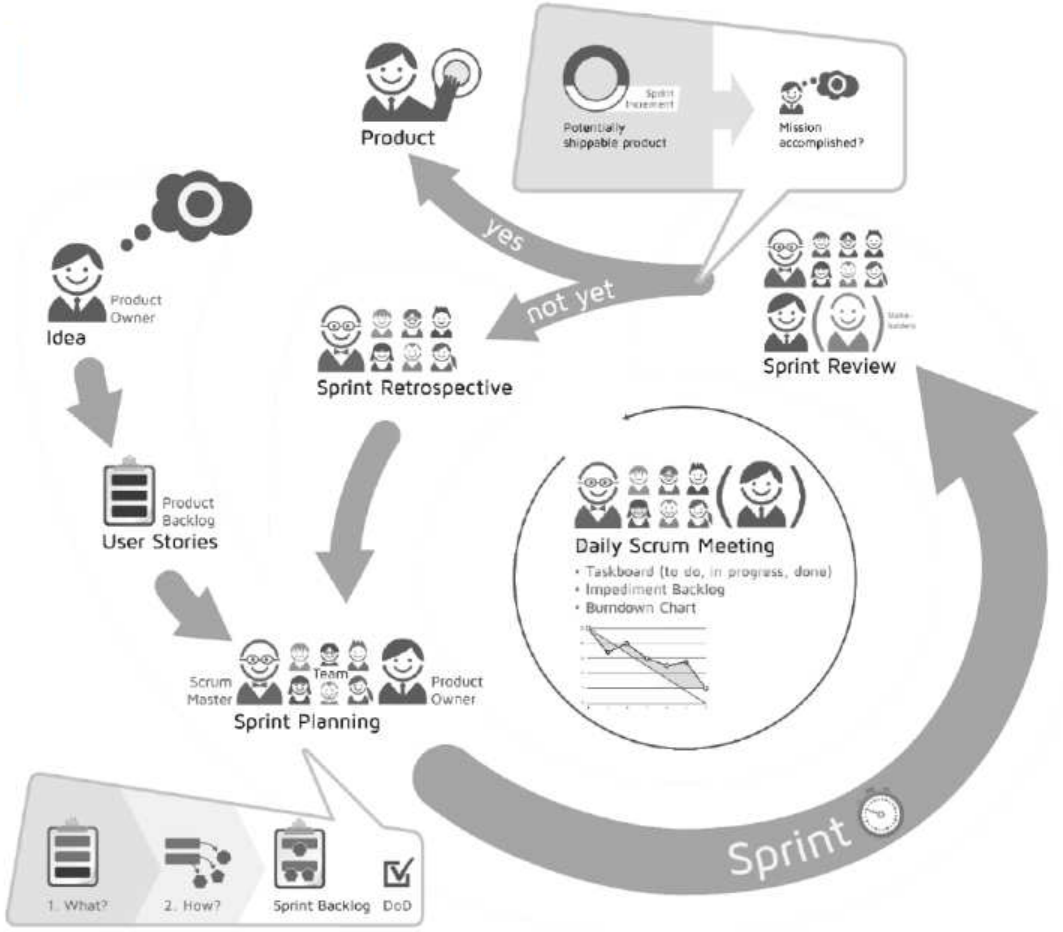
Example: Going from place A to place B

COMPLEX

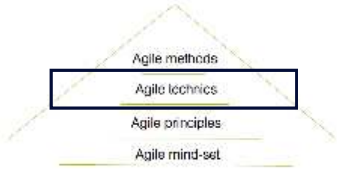
Problems that are ill-defined, where both the problem & the solution are unknown in the beginning, are considered to be complex problems. Here you engage with al lot of player and the solution finding is tricky. A lot of times even the goal is unclear for starters. There is a lot of change happening.

Example: Stock market development

SCRUM – an agile technic



The SCRUM master focuses on 1-2 projects at a time



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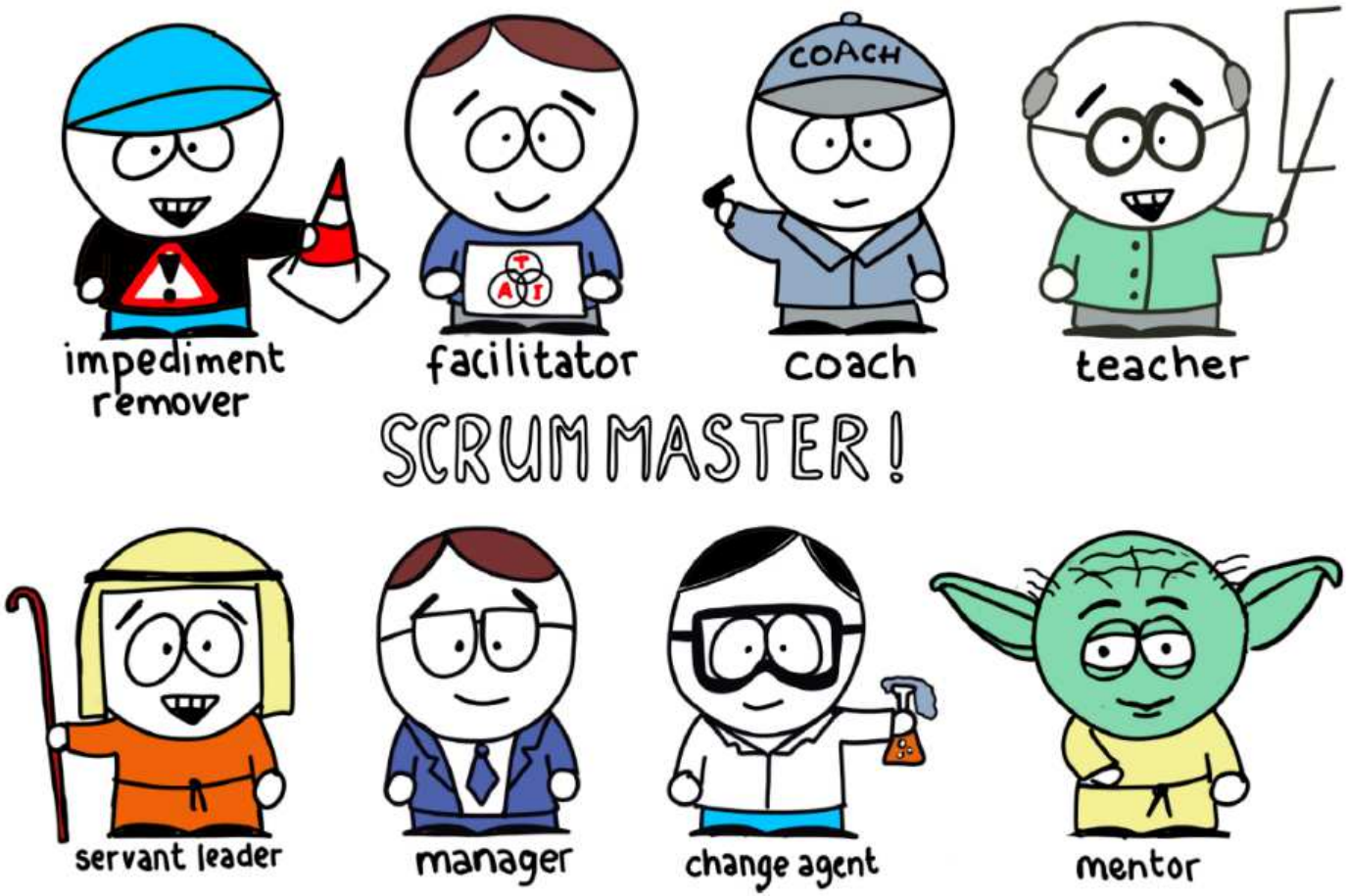
The SCRUM MASTER

- does whatever it takes to make the team successful by removing organizational impediments and acts as a gatekeeper to protects the team.
- facilities meetings such as Sprint Planning, Daily Stand-ups, Sprint Review & Retrospective.
- Makes sure the agile methodology is adhered to in the team as well as improved where necessary.
- Enables the agile “process” to run smoothly in order to increase productivity.

What is the role of a SCRUM master?

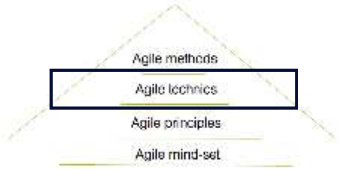


Source: Scrum.org (Barry Overeem)

What is **NOT** the role of a SCRUM master?

Source: Scrum.org (Barry Overeem)

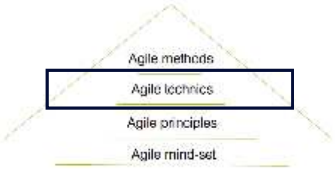
The product owner is NOT the project manager, as there is no management; he has the authority to make decisions



The PRODUCT OWNER

- owns the Product Backlog and decides what elements it contains and in what order they are prioritized.
- has expertise in the concrete business case, the market, company vision, customers and (end) users. He has good active listening & communication skills.
- has the authority to make decisions and is not a committee but a person
- hosts the following meetings: Sprint Planning; Backlog Refinement; Sprint Review
- participates in the Sprint Retrospective together with the team

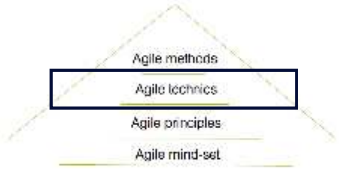
The team (5-9 employees) is build on T-shaped people, loving collaboration and learning



The TEAM

- is responsible for delivering the increments and final product – from a backlog to a done product/service
- Self organized, no hierarchies and empowered to solve the problem
- Commonly responsible for the final result
- Consists of all necessary skills and characters to deliver the final product/service

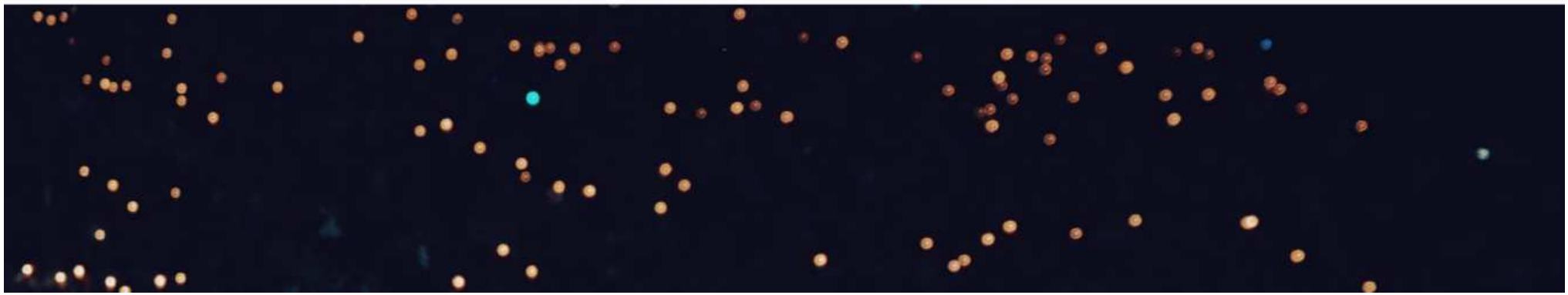
SCRUM events: Sprints commonly last 2 weeks. They have a fix start & end. Sticking to structure and process avoids chaos



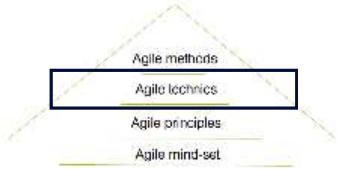
Sprint Planning: The Team & Product Owner review the Backlog and decide on what to do in the sprint.

Sprint Review: The Team, product owner and other stakeholders discuss & inspect in a collaborative way what has been done in the sprint. They also figure out what to do next.

Sprint Retrospective: Together the Team and reflects on its work.

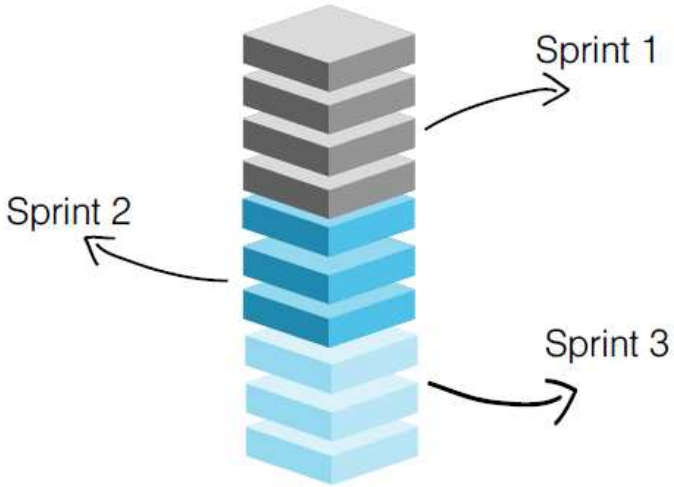


The product backlog is basis for each Sprint and will be prioritized by the product owner

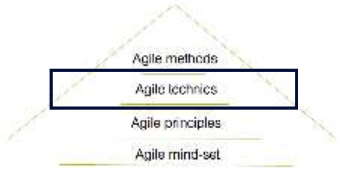


Like every artefact, the Product Backlog should be continuously challenged and re-prioritized.

1. All user stories are prioritized – starting with the next most important user stories (according to customer value). The priority changes and is your responsibility.
2. All user stories have been (roughly) estimated by the team or will be estimated in the next Backlog Refinement.
3. The closer a user story comes to the top, the more detailed & precise it should be.
4. You can use a tangible Product Backlog or an online version.



What‘s a user story?



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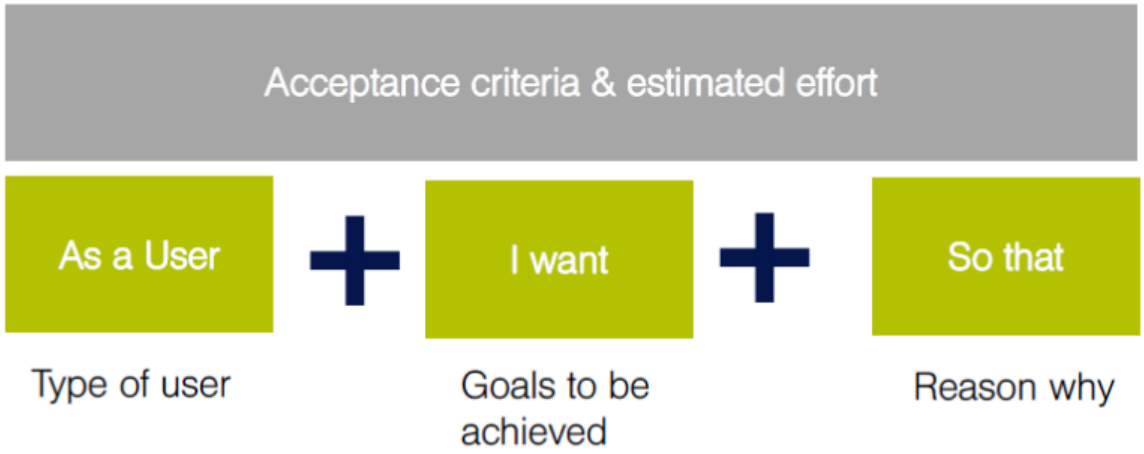
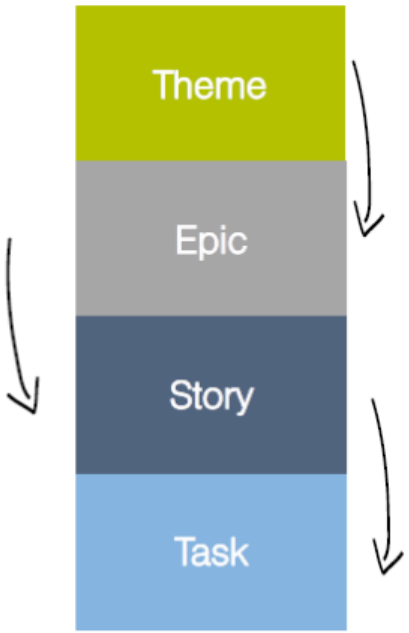
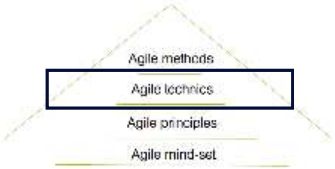
Like every artefact, the User Story should be continuously challenged, re-written and filled with more details as it moves up in the Product Backlog.





How to write an user story?



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Story ID: Story Title:

User Story:

As a: <role>
I want: <goal>

So that: <reason>

Importance:

Estimate:

Acceptance Criteria:

And I know I am done when:

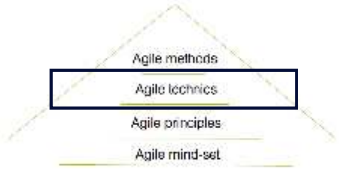
Type:

- ☐ Search
- ☐ Workflow
- ☐ Manage Data
- ☐ Payment
- ☐ Report /View

≡ USER STORY

- You are responsible for the user stories. You should create them together with the Dev Team.
- User stories are written from the perspective of a persona or real customer / end user. If the benefit is not clear from reading the user story, it is not a user story.
- User stories are perfect for talking to stakeholders as well as for interdisciplinary teams since they focus on the customer's perspective. This way, the Dev Team doesn't end up in technical discussions and the focus lies on the end product.
- Top-priority user stories have acceptance criteria, requirements, constraints, (automated) user tests, dependencies and all other information that the Dev Team may need in Sprint Planning 1.
- Big user stories are called epics. Epics should never appear in Sprint Planning 1. Instead, they should have been split into user stories many weeks prior to that meeting.

Visualization is key for any agile technic – SCRUM, Lean, Design Thinking & Kaizen,…

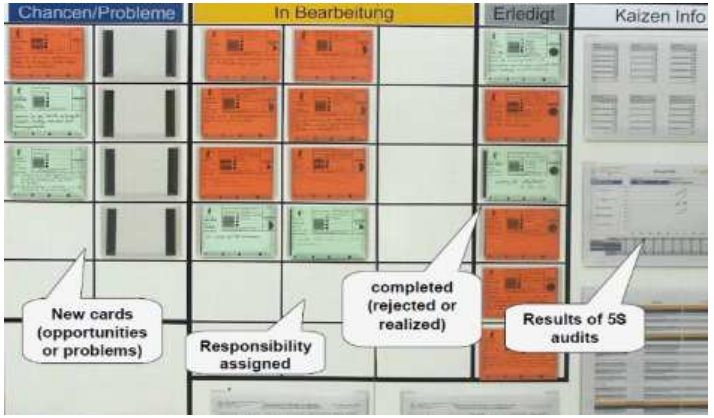


Visualisation is key in Agile working, as it increases collaboration and problem-solving.

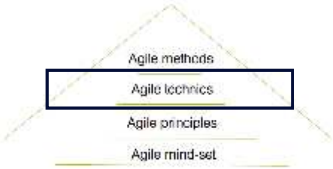
Project status meetings don‘t exist in Agile projects. Instead, various boards are used for giving an overview of the project, the process, the workload and the timeline. This transparency ensures that everyone is always up-to-date on the latest developments as well as the blockers (impediments) that are keeping team members from delivering. It often happens that team outsiders viewing the boards out of pure interest are actually able to help remove some of these impediments.

Common techniques and boards:

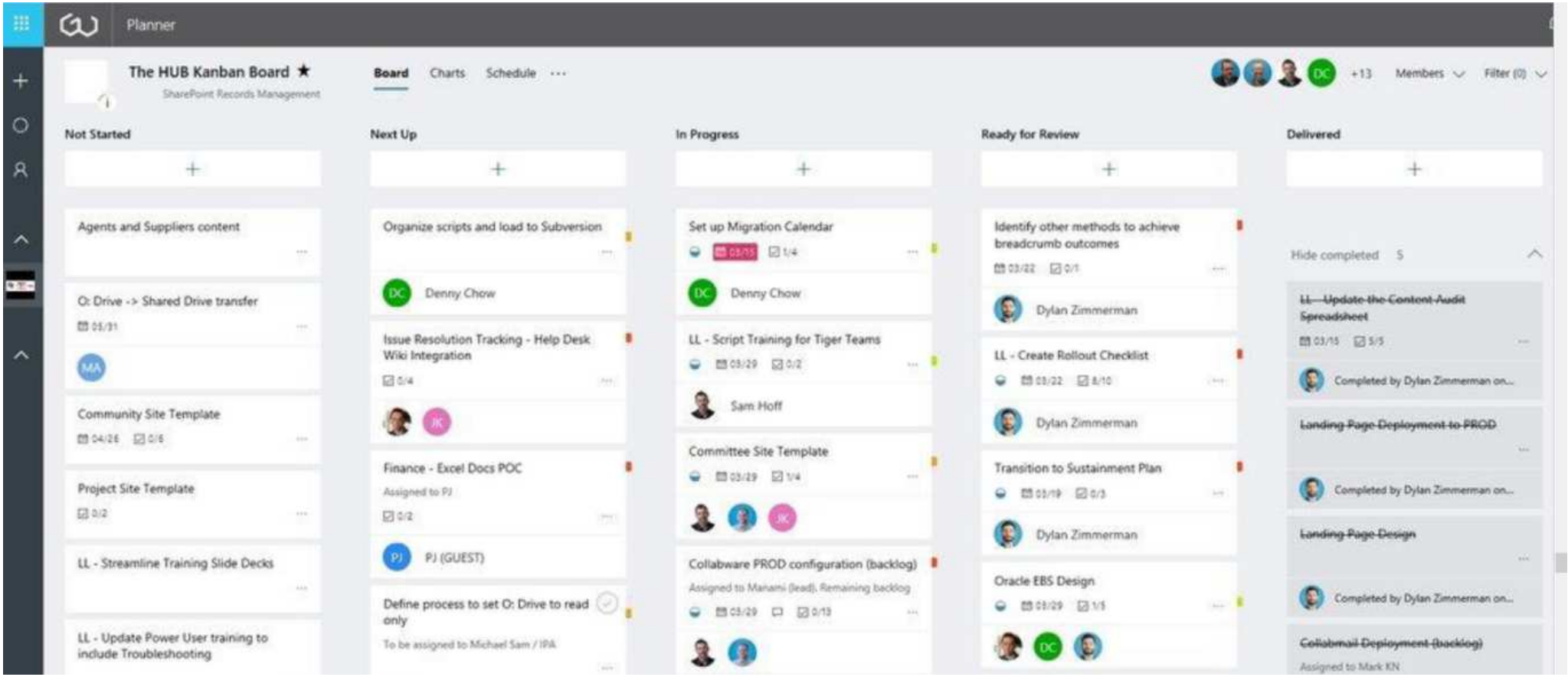
1. Release Forecast
2. Product Backlog
3. Taskboard / Kanban-Board
4. Burn Down Chart



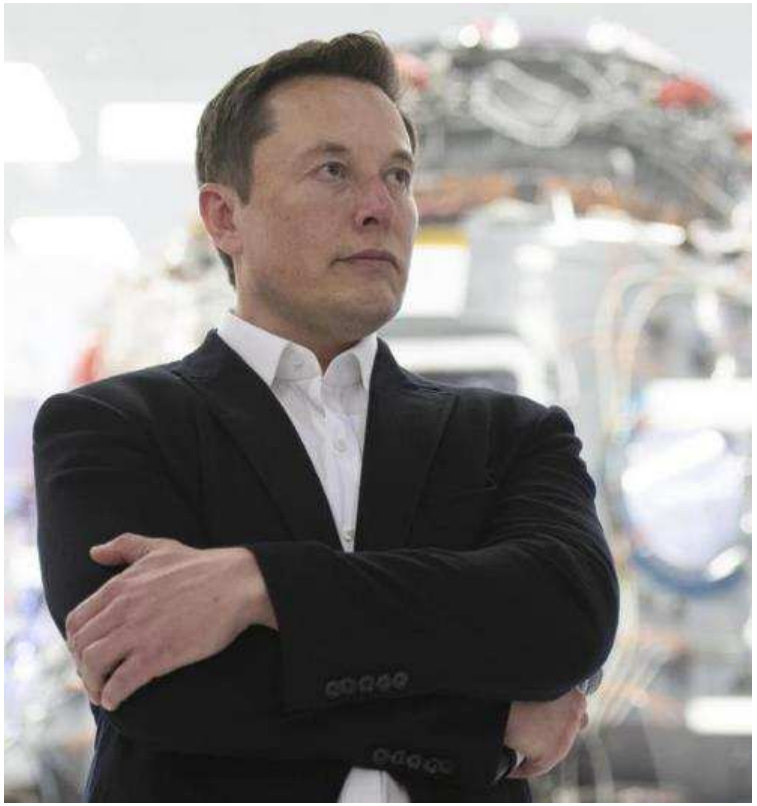
How might a SCRUM board with it's user stories look like in practice?

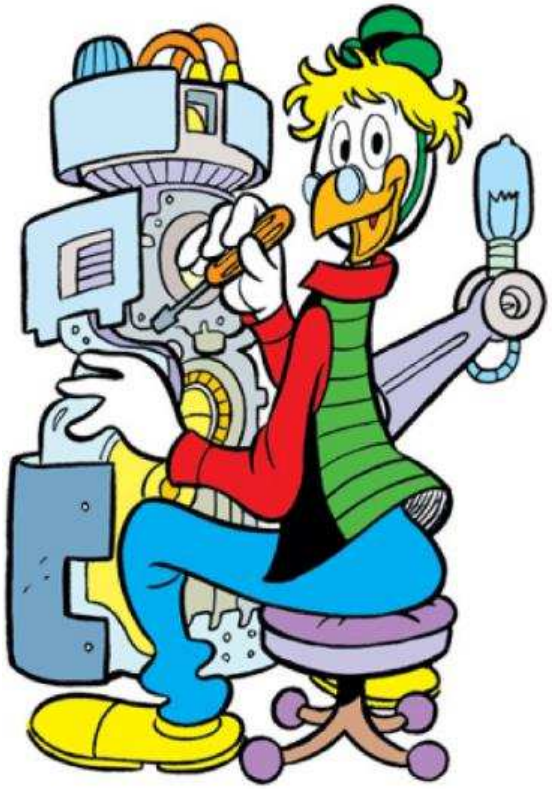


FRANKFURT UNIVERSITY OF APPLIED SCIENCES



Leading innovations: Elon Musk versus Gyro Gearloose





Group discussion:

- **Which characteristics do they have in common?**
- **What is making the difference?**

The three component model of creativity

Within every individual, creativity is a function of three components: expertise, creative-thinking skills, and motivation. Can managers influence these components? The answer is an emphatic yes – for better or for worse – through workplace practices and conditions.

Expertise is, in a word, knowledge – technical, procedural, and intellectual.

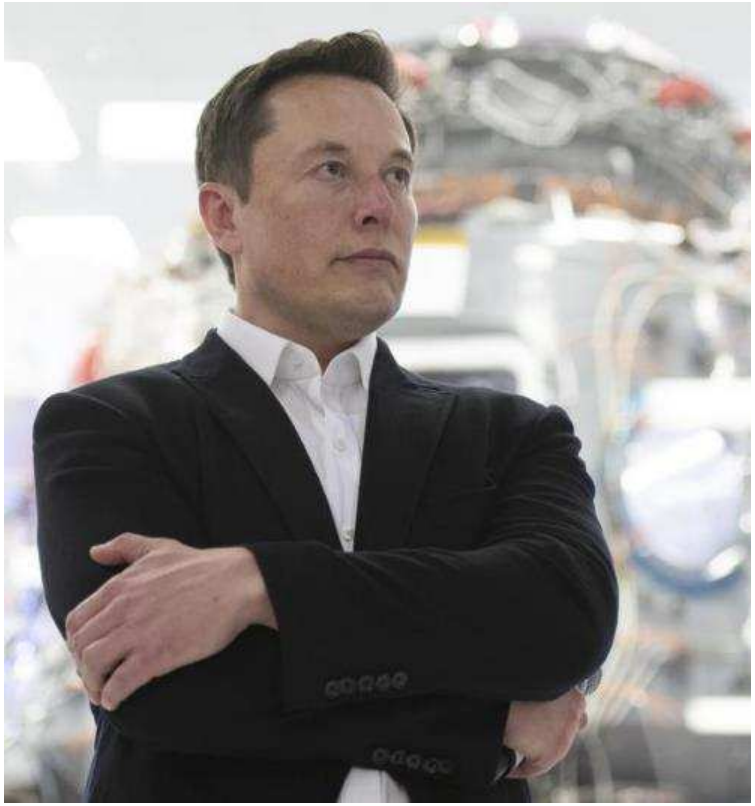
Creative-thinking skills determine how flexibly and imaginatively people approach problems. Do their solutions upend the status quo? Do they persevere through dry spells?

Not all **motivation** is created equal. An inner passion to solve the problem at hand leads to solutions far more creative than do external rewards, such as money. This component – called *intrinsic motivation* – is the one that can be most immediately influenced by the work environment.

Amabile 1997

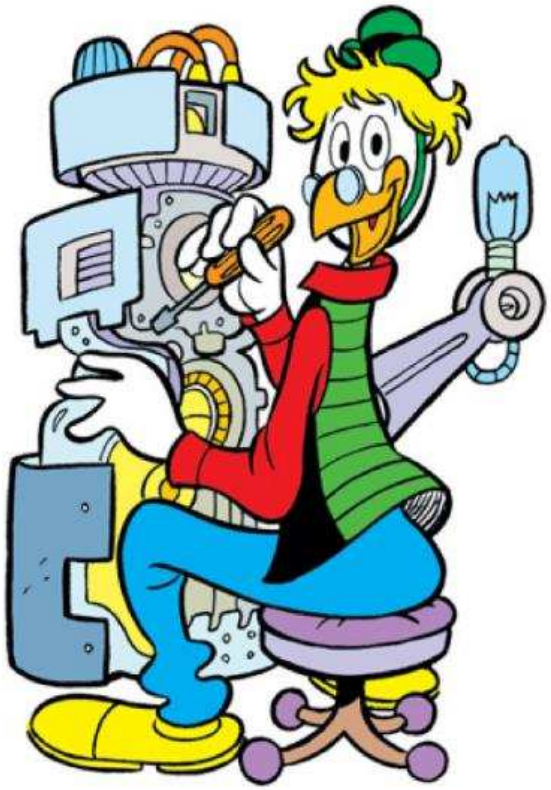
The entrepreneur

- Capability and motivation to pursue innovative commercial opportunities that are riskier and more radical than normal
- Identify opportunities and assemble the resources and capabilities needed to create value in terms of marketable products/services
- Create an ambitious vision
- Set up a structure to steer the team efficiently

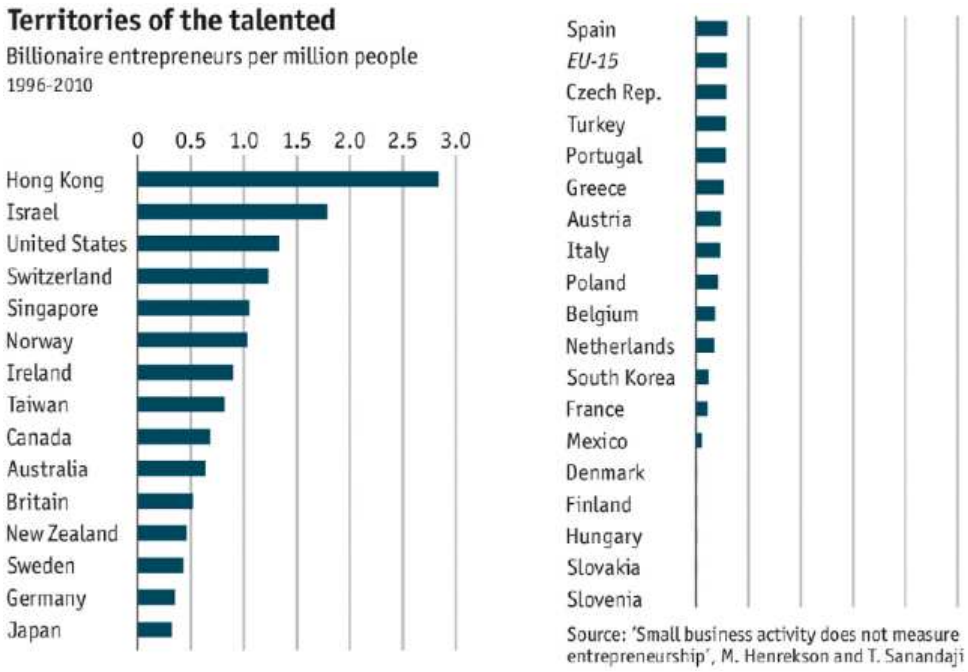


The extraordinary creative personality

- Open attitude towards the environment
- Capacity to accept criticism, flexibility, enthusiasm, initiative and originality
- Energetic and courageous, loves new things/curiosity, works persistently for solutions, autonomous, mature, emotionally stable and dominant
- Social introverts, “anti-social“
- Independent in judgement, self-confident and narcissistic
- Rebels against oppression and restrictions
- Fond of humor



External factors boost inventions and innovations



Success factors

- Social acceptance
- Failure culture
- Risk funds
- Networks
- Education
- Access to information
- Lean administration & governance

Israel – the hidden champion of innovations

Dr. Nakamatsu – Mr. Gyro Gearloose becoming alive

Yoshiro Nakamatsu
Japanese inventor claiming to hold the world record for number of inventions with **over 3,000**, including

- "PyonPyon" spring shoes
- basic technology for the floppy disk, the CD, the DVD, the digital watch,
- Cinemascope
- Armchair "Cerebrex“
- sauce pump
- taxicab meter

and author of 32 bestseller books

Recap

My key-take-aways of the last session are the following:

Go to www.menti.com

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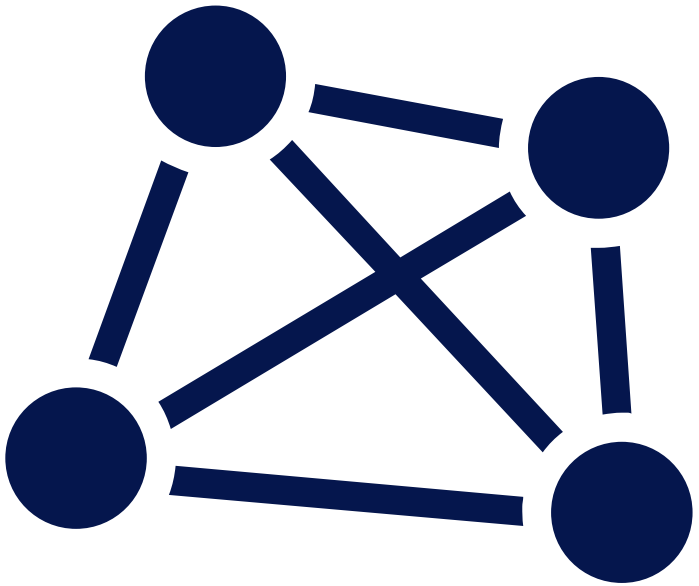
5	Global Trends	15:00 – 15:30
6	Case Study	15:45 – 16:30
7	Wrap up	16:30 – 16:45

An innovation network boosts your mind



1) What kind of INTERNAL innovation network platforms can you think of or are established in your company?
2) What kind of EXTERNAL innovation network platforms do you know or participate in?

Let’s apply the 6-3-5-brainwriting method!

6 participants, 3 ideas each, 5 swaps (minutes)

Bernd Rohrbach: *Kreativ nach Regeln – Methode 635, eine neue Technik zum Lösen von Problemen.* In: *Absatzwirtschaft.* 12, Paper 19, 1. Oktober 1969, p. 73–76.

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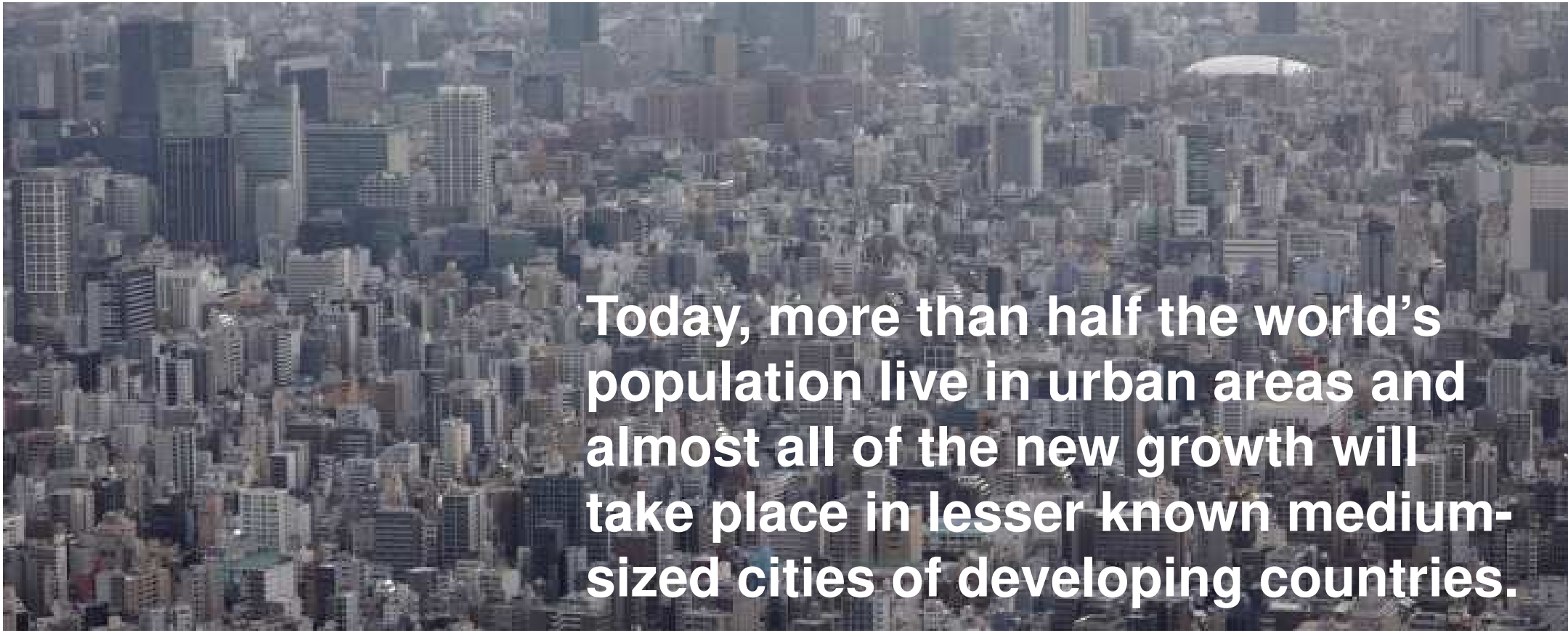
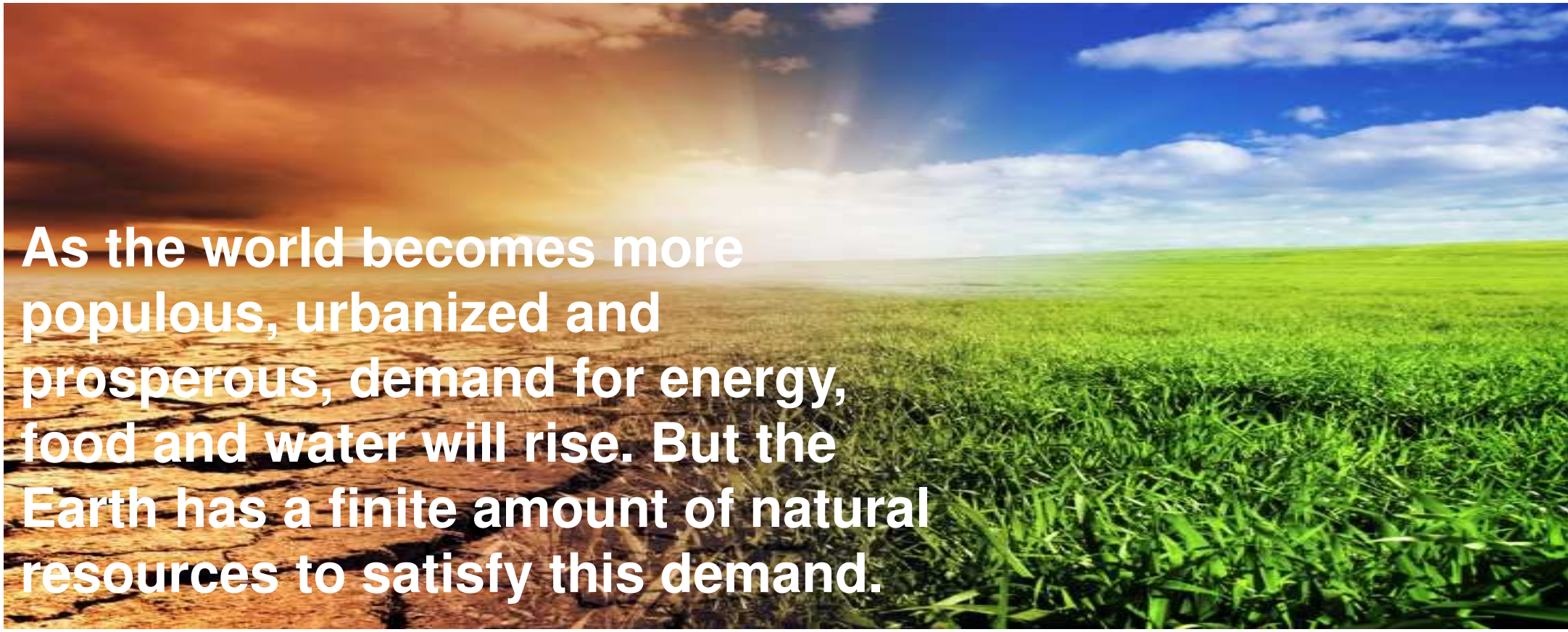
Global megatrends (1/5)
Rapid urbanization



https://www.pwc.co.uk/issues/megatrends.html

Global megatrends (2/5)
Climate change and resource scarcity



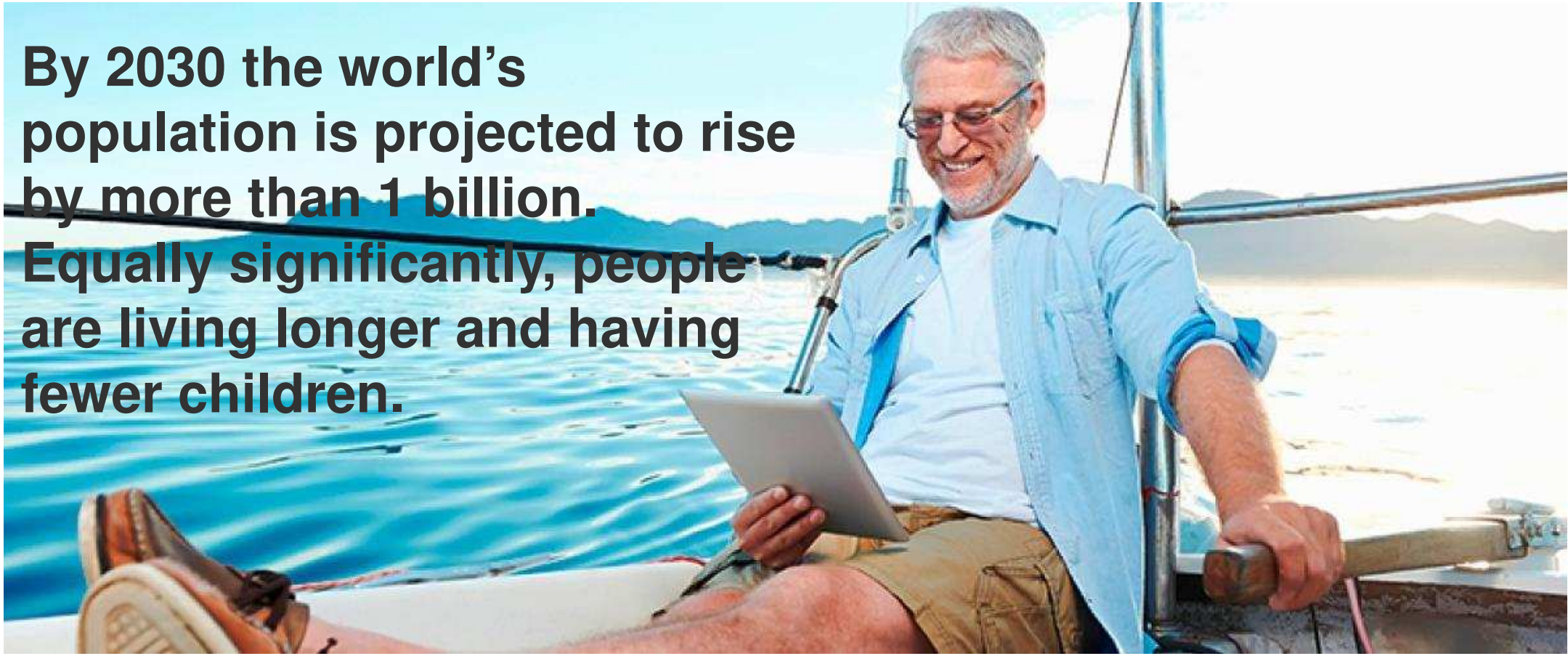
https://www.pwc.co.uk/issues/megatrends.html

Global megatrends (3/5)
Shift in global economic power

Some emerging economies that were growing rapidly are now in recession. Commodity prices have played a considerable role in sending these economies into reverse.

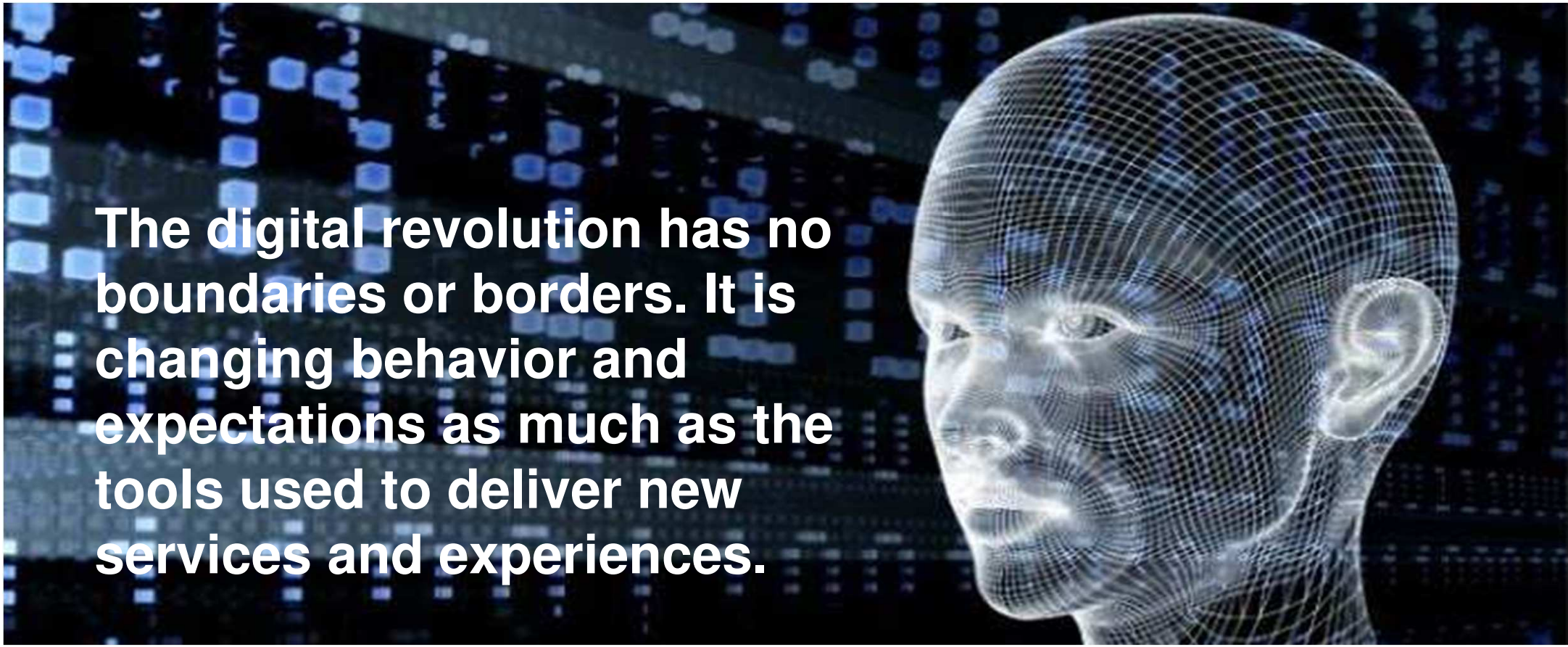
https://www.pwc.co.uk/issues/megatrends.html

Global megatrends (4/5)
Demographic and social change



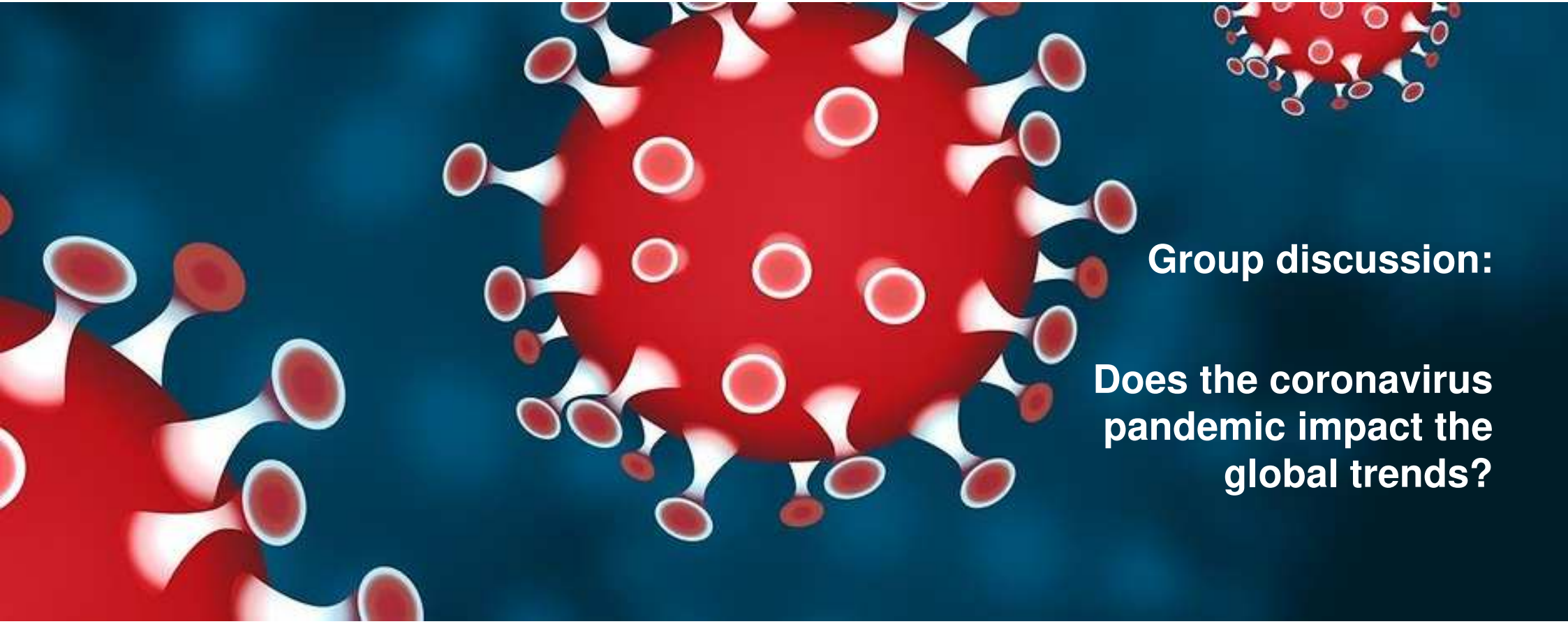
https://www.pwc.co.uk/issues/megatrends.html

Global megatrends (5/5)
Technological breakthroughs



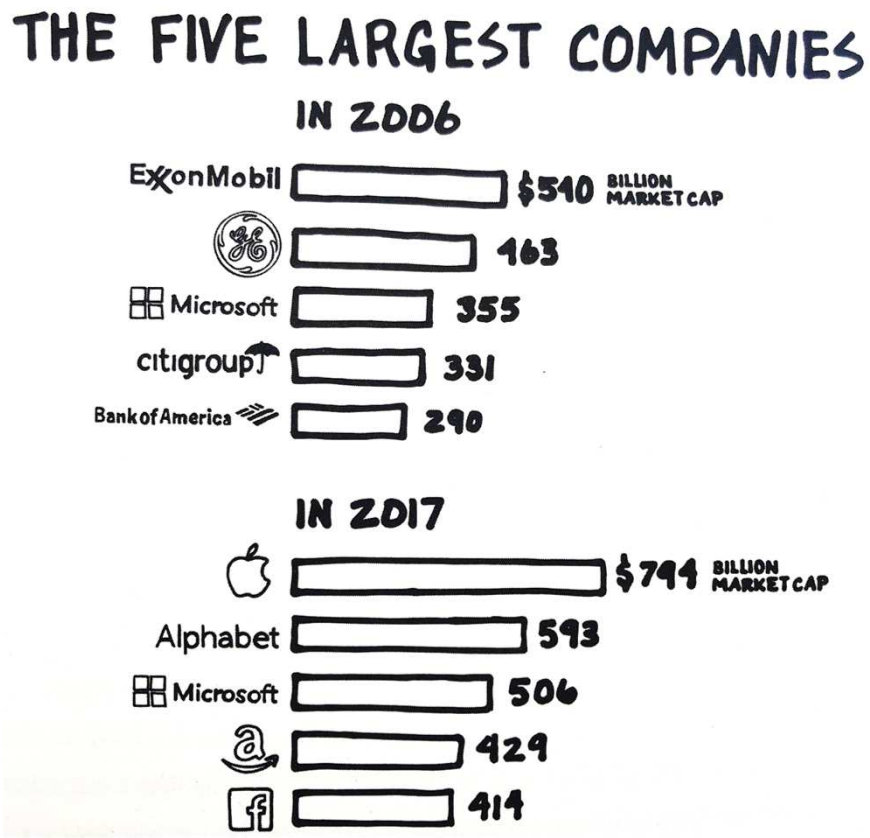
https://www.pwc.co.uk/issues/megatrends.html

Global megatrends



Impulse: https://www.youtube.com/watch?v=8C2jAuSl1Ak / The future of cities after covid 19

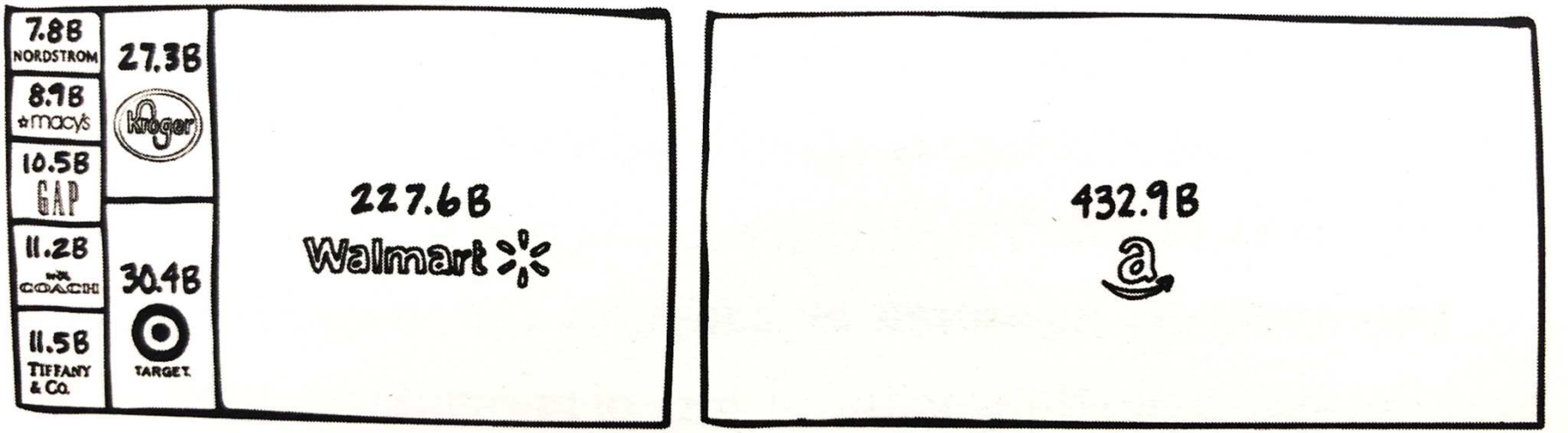
Anticipating and acting to global megatrends with innovative products, reshaped our global mega-players



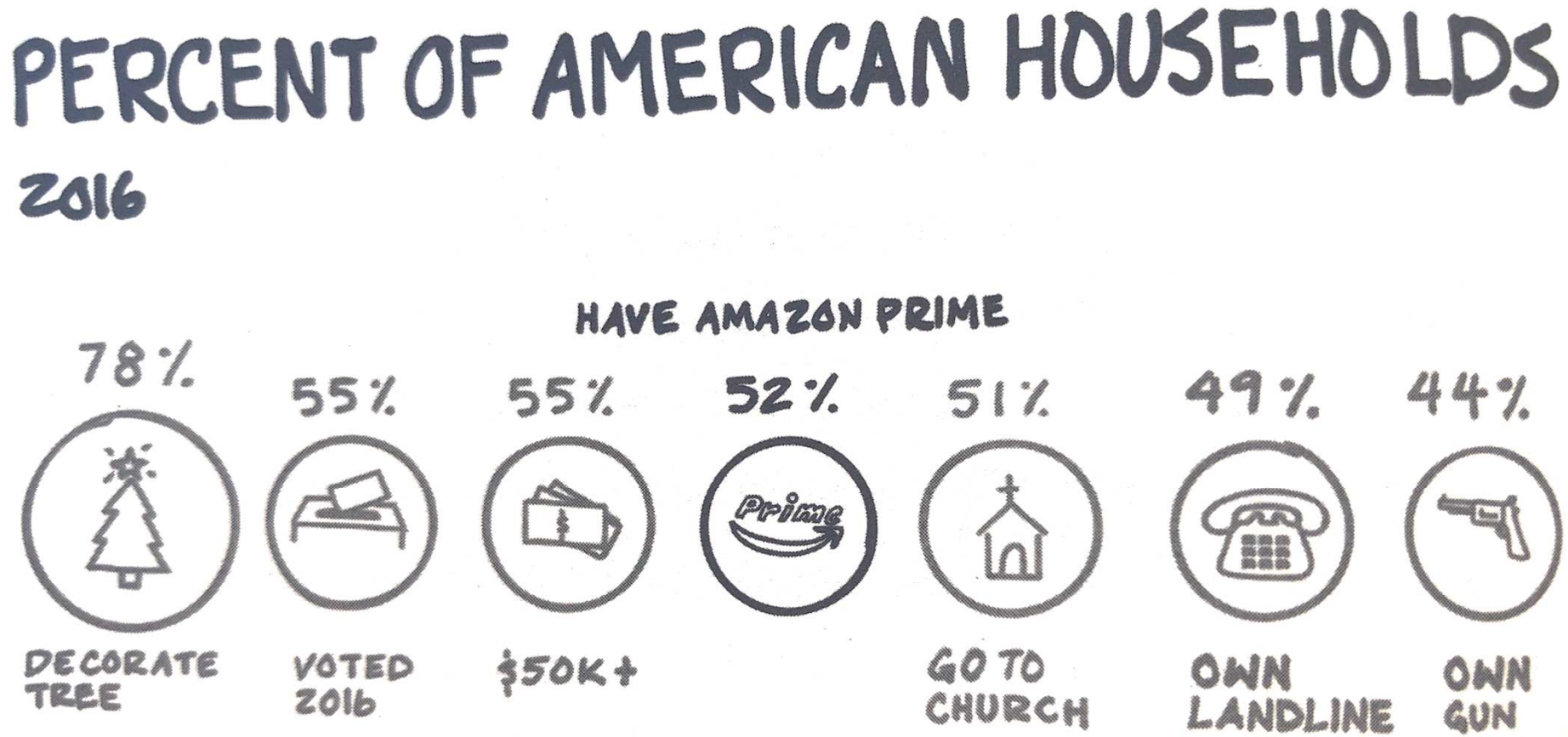
Taplin, J., “Is ti time to break up Google” in The New York Times

MARKET CAPITALIZATION

AS OF APRIL 25, 2017



Scott Galloway: The Four: The Hidden DNA of Amazon, Apple, Facebook, and Google, 2017



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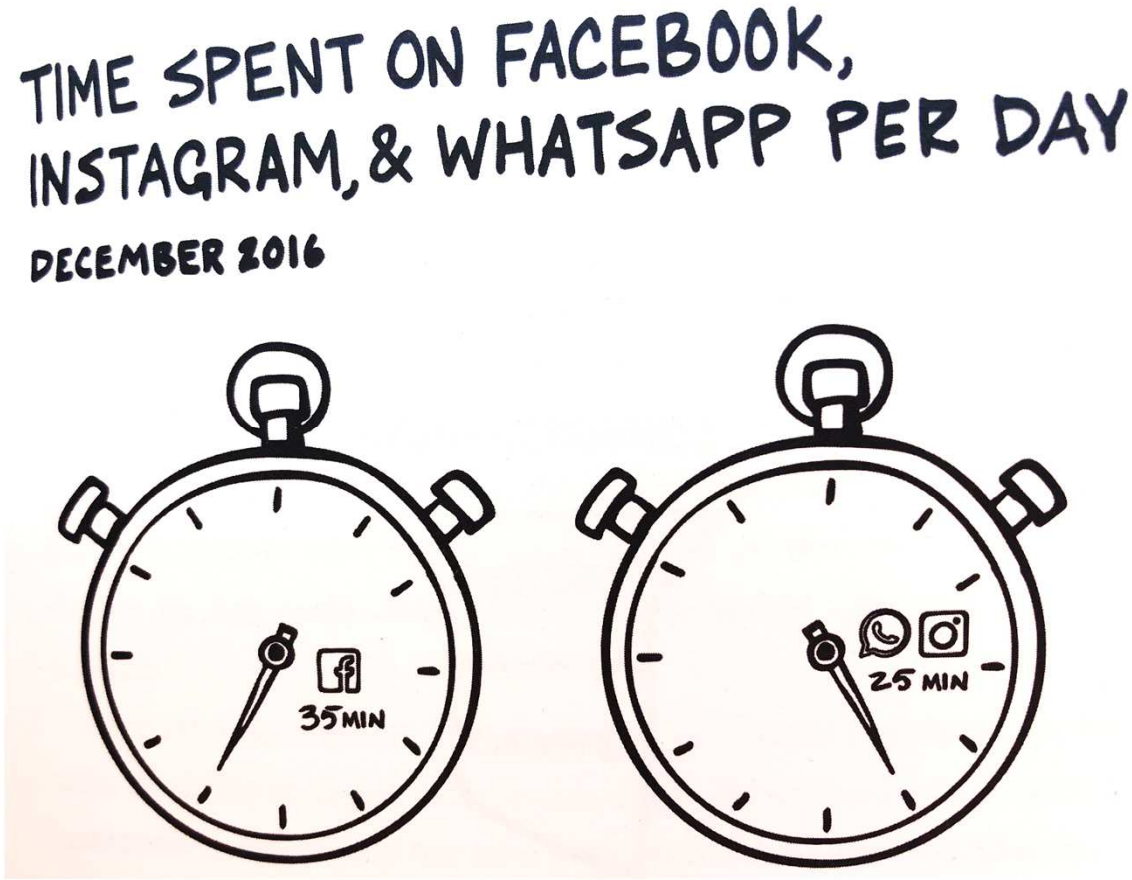
Facebook



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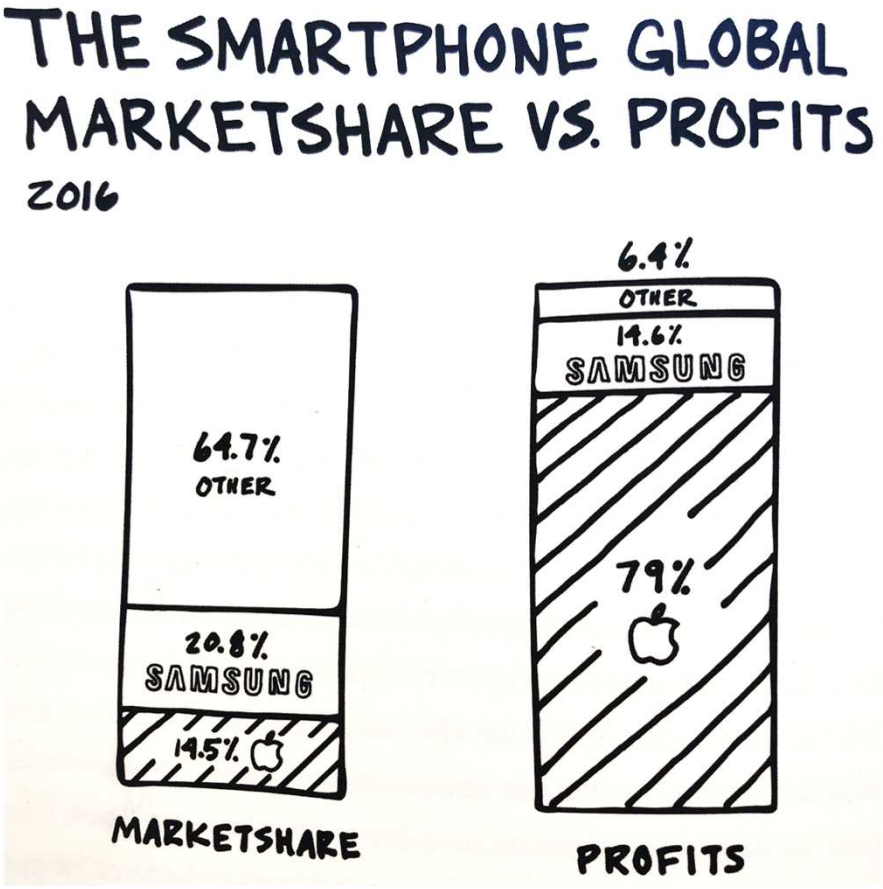
Facebook

IF SIZE MATTERS (IT DOES), Facebook may be the most successful thing in the history of humankind.

There are 1.4 billion Chinese, 1.3 billion Catholics, and 17 million people who endure Disney World each year.[1,2,3] Facebook, Inc., on the other hand, has a meaningful relationship with 2 billion people.[4] Granted, there are 3.5 billion soccer fans, but that beautiful game has taken more than 150 years to get half the planet engaged.[5] Facebook and its properties will likely pass that milestone before it turns twenty. The company owns three of the five platforms that rocketed to 100 million users the fastest: Facebook, WhatsApp, and Instagram.

Scott Galloway: The Four: The Hidden DNA of Amazon, Apple, Facebook, and Google, 2017

Apple



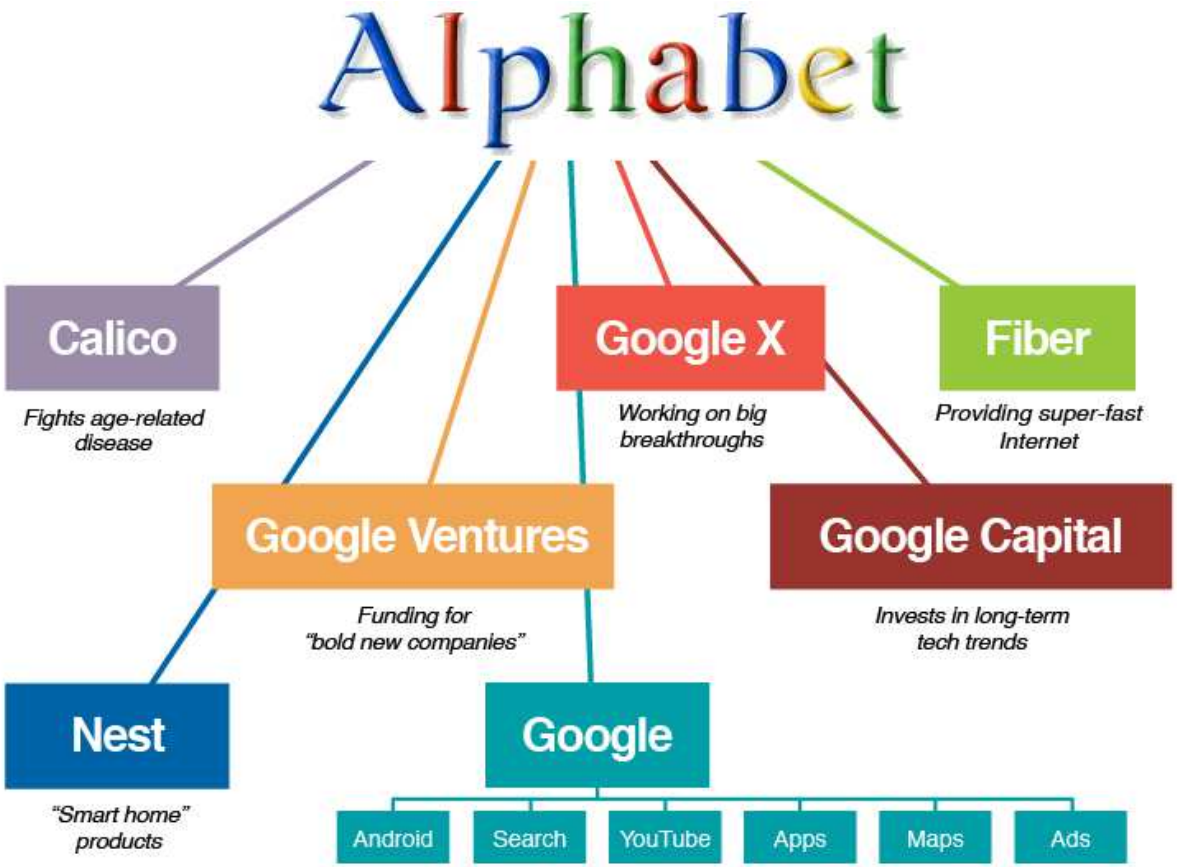
Scott Galloway: The Four: The Hidden DNA of Amazon, Apple, Facebook, and Google, 2017

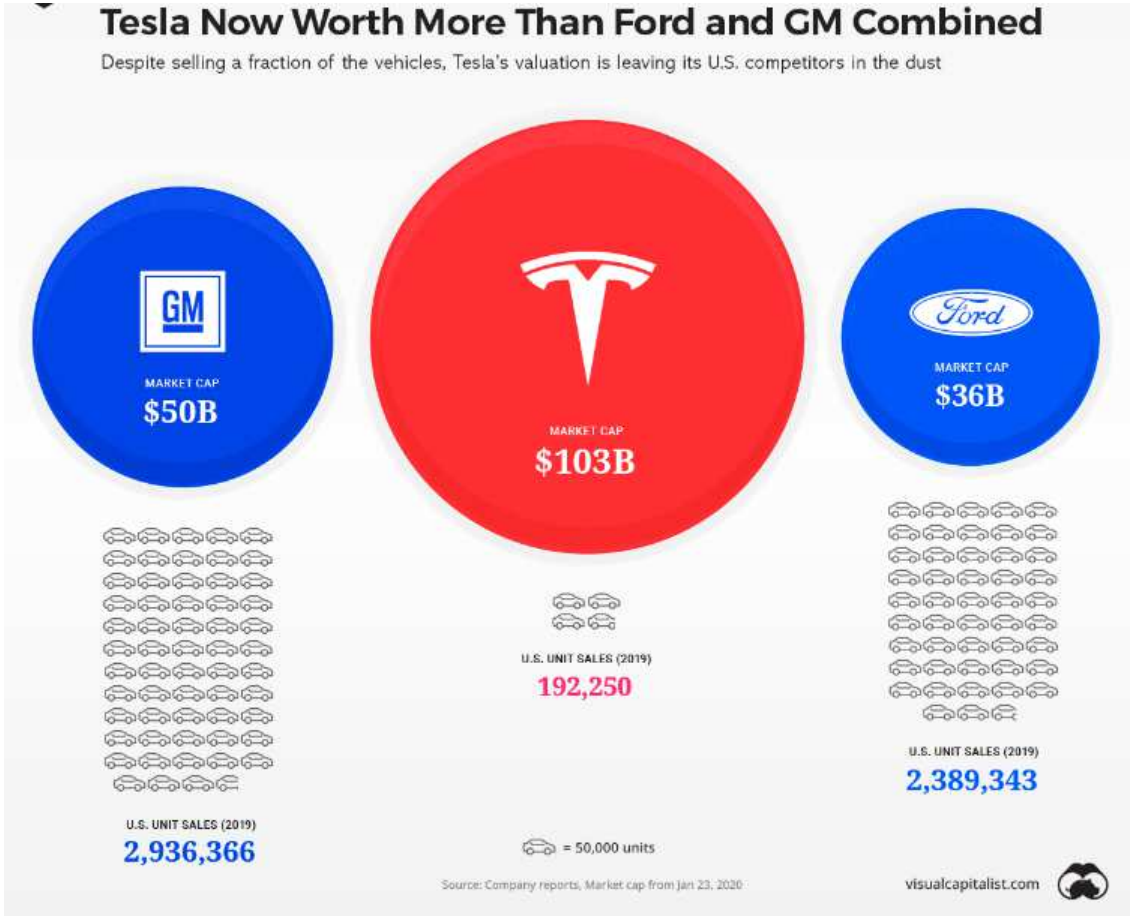
Apple

The success of single companies like Apple can hollow out entire markets, even regions. The iPhone debuted in 2007, and devastated Motorola and Nokia. Together they have shed 100,000 jobs. Nokia, at its peak, represented 30 percent of Finland's GDP and paid almost a quarter of all of that country's corporate taxes. Russia may have rolled tanks into Finland in 1939, but Apple's 2007 commercial invasion also levied substantial economic damage. Nokia's fall pummeled the entire economy of Finland.[49] The firm's share of the stock market has shrunk from 70 to 13 percent.[50]

Scott Galloway: The Four: The Hidden DNA of Amazon, Apple, Facebook, and Google, 2017

Google Alphabet




Tesla Now Worth More Than Ford and GM Combined
Despite selling a fraction of the vehicles, Tesla's valuation is leaving its U.S. competitors in the dust
GM
MARKET CAP
$50B
U.S. UNIT SALES (2019)
2,936,366
MARKET CAP
$103B
U.S. UNIT SALES (2019)
192,250
Ford
MARKET CAP
$36B
U.S. UNIT SALES (2019)
2,389,343
= 50,000 units
Source: Company reports, Market cap from Jan 23, 2020
visualcapitalist.com

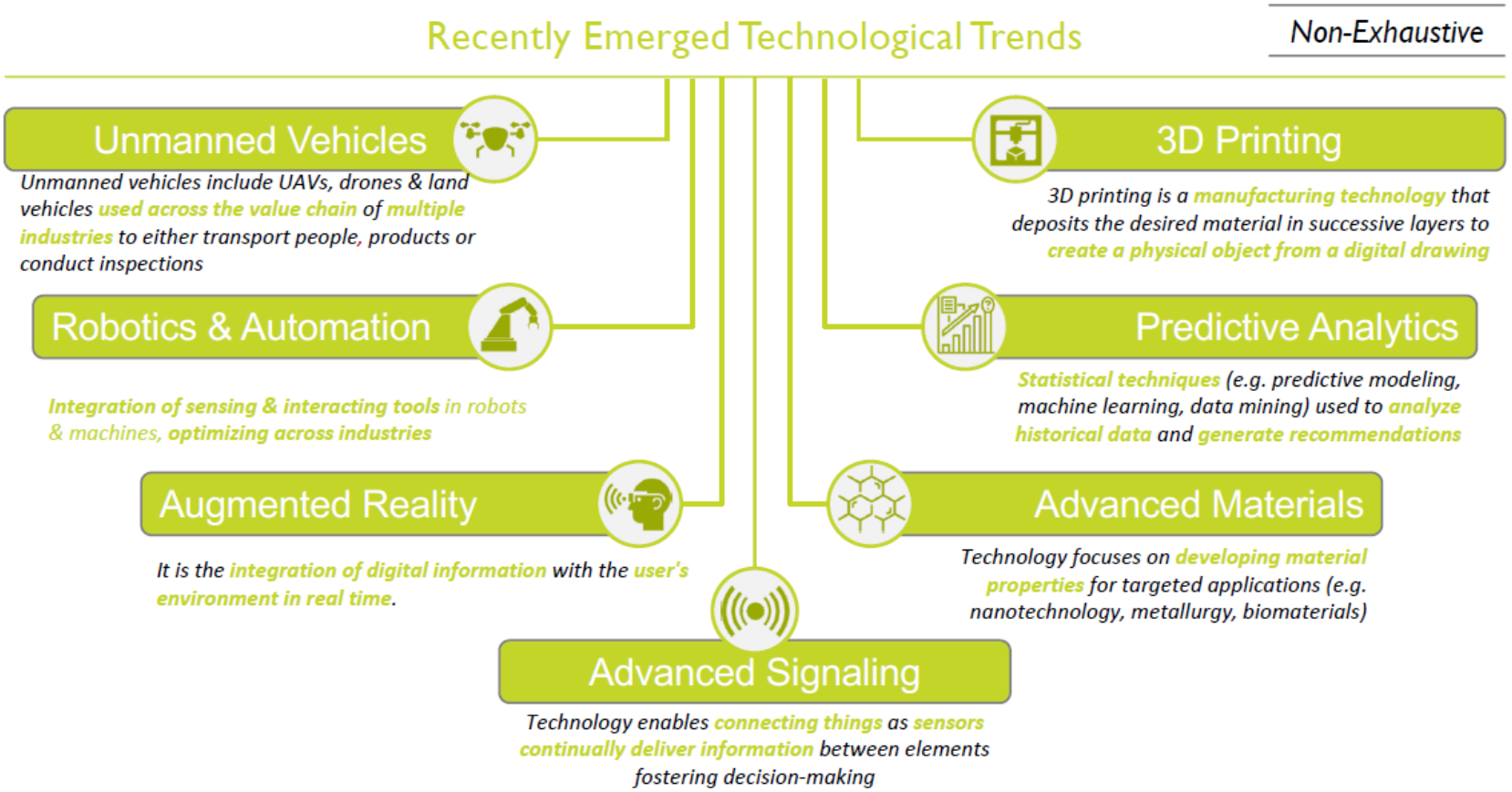
Microsoft


Microsoft
Access
BI Product
Bing
Cortana blue
Skype
Xbox
MSN
Surface
Apps & Windows Store
XBox One
Office Applications
Excel
Exchange
Lync
OneNote
Outlook
SharePoint
PowerApps
PowerPoint
Publisher
Visio
Word
Windows
Windows 2
Windows phone

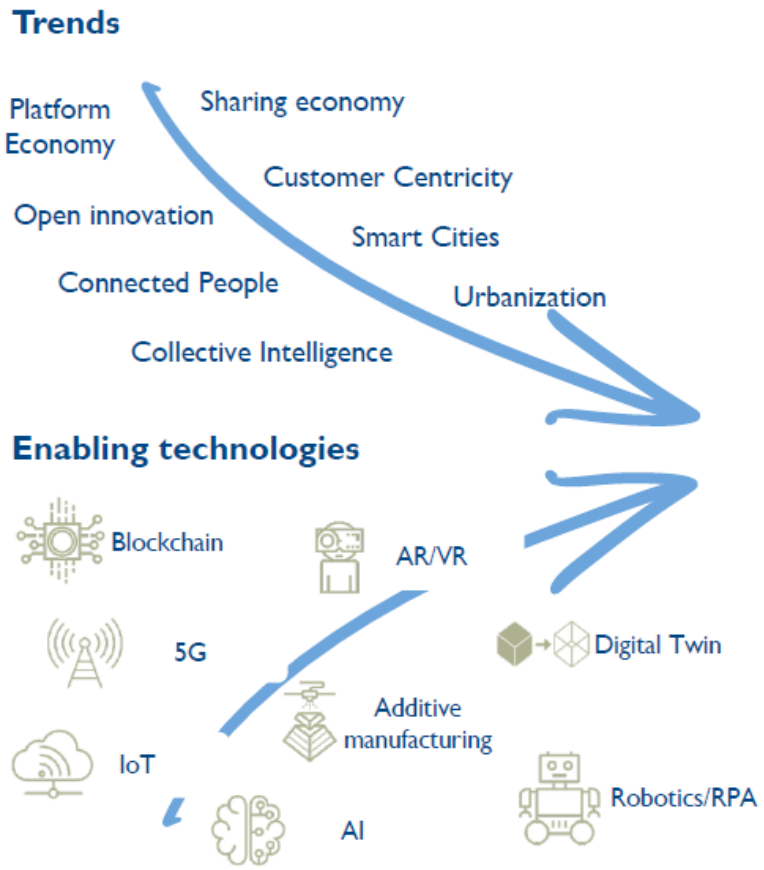
Uber

The world's largest accommodation provider owns no real estate

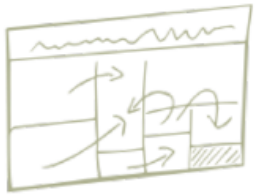
Emerging technologies, especially digital, are driving many companies to reassess their innovation and business strategies



Trends and new technologies influence the direction of a company to become more digital with impact on its business model and value creation

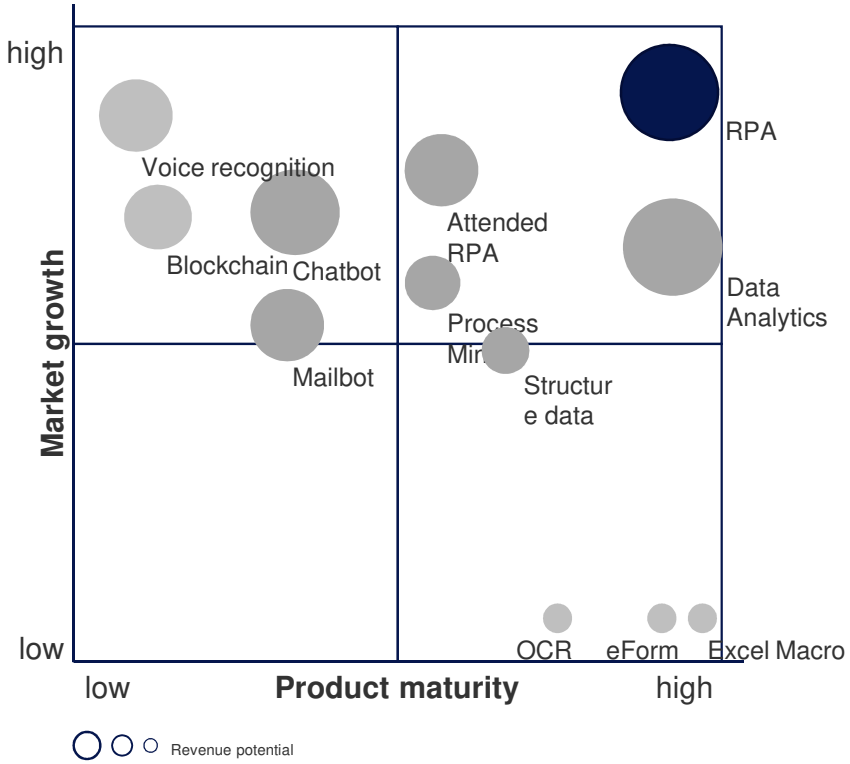


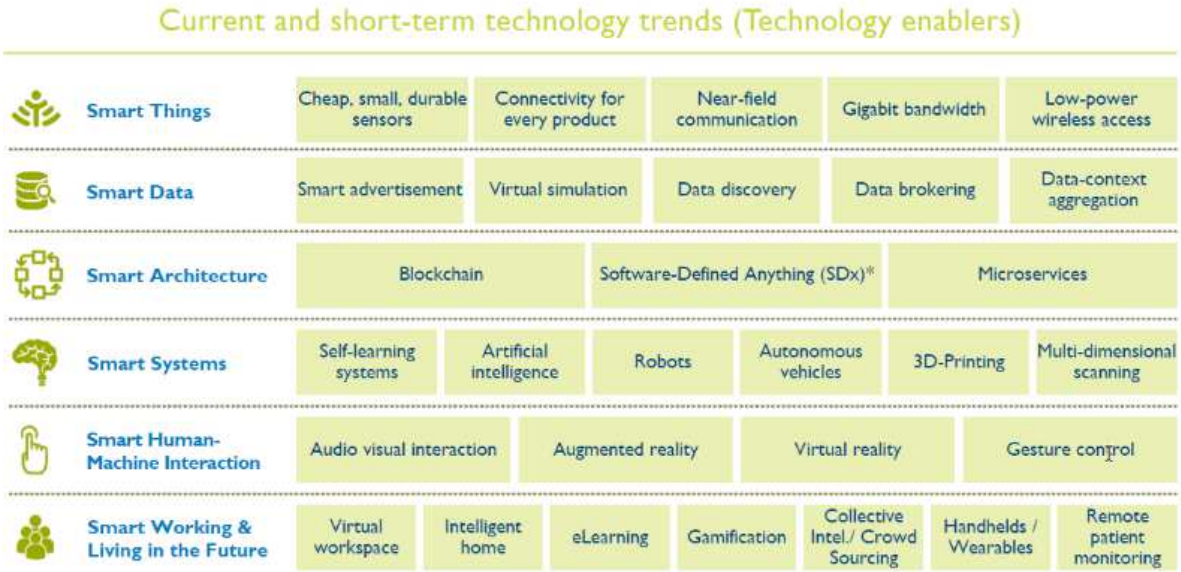
Business Model Implications



- **Data-driven** activities
- New forms of **Value Creation** through digital technologies
- Everything **personalized** and **interactive**
- Increased focus on **User Experience**
- Seamless **Omni-channel** integration
- Vertical disintegration and **ecosystem and partner approach**

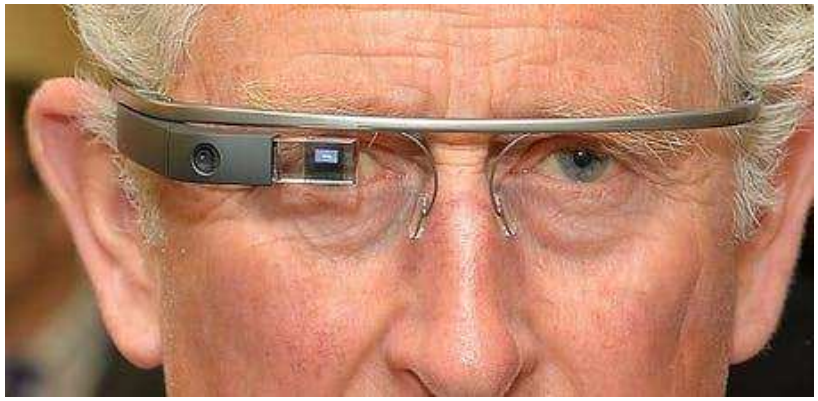
Most digital innovations are based on software technology





Chr. Koch, Robotic Process Automation, 2020

Not all reactions to mega trends become successful innovations at the time they are entered into market



Failure and invention are inseparable twins. To invent you have to experiment, and if you know in advance that it's going to work, it's not an experiment.

Jeff Bezos

https://www.independent.ie/world-news/and-finally/15-fantastically-forgettable-inventions-that-have-made-it-to-swedens-museum-of-failure-35799872.html

Global trends

Group discussion:

How might global trends impact the aviation industry?

Any examples or ideas?

Recap

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Case Study:
PHOENIX WebInnovation – a web-based, cloud-solution for ANSPs

GROUP 1: Having the **innovation process** in mind, how was it applied at creating PHOENIX WebInnovation? Which steps turned out to be the most challenging ones?

GROUP 2: In what aspects of **innovation management** do you perceive DFS as vanguard? What recommendation would you give to DFS CEO to foster innovation management and innovation leadership?

GROUP 3: How might **global trends** impact ANSPs? Design a picture of ANSPs in 2040.

Let's transfer theory to praxis!

15 minutes teamwork - 5 minutes presentation & discussion

https://www.dfs-as.aero/produkte/phoenix-webinnovation.html
https://www.youtube.com/watch?time_continue=6&v=RoRk2JDzptU&feature=emb_logo

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Intended learning outcomes / acquired competencies of the module

Let's cross-check, if the required "content of the module" can be ticked-off:

☐ 1) Integrating **Innovation, technology and strategy of a company**
- relate the concepts "innovation", "technology" and "strategy"
- develop and implement an innovation and technology strategy

☐ 2) Design and implementation of an Innovation and Technology Strategy, developing a company's innovation competency **as a core leadership task**
- understand management of innovation and technology as core leadership task
- systematically strengthen the innovation competency of a company

☐ 3) Innovation **challenges** in established companies
- recognize the innovation challenges of established firms and develop appropriate management activities in order to improve the innovation capabilities of an established firm

☐ 4) Establishing an external innovation **network**
- design and build an external innovation network

☐ 5) Advanced and contemporary aspects of the Innovation and Technology Management **of a company**

Recap

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Not tired of innovation management at all? Deep-dive on a specific topic within your paper!

Coming up with a paper idea by yourself is highly appreciated.

Impulses:

- Corona – a boost or harm for innovations in the aviation industry?
- Design Thinking – a methodology supporting innovations
- How corporate culture and leadership styles impact innovations
- Agile teams and SCRUM methodology – the ultimate answer to foster innovations?
- Innovations require investments – an overview on funding governances
- Global mega trends and their impact on the aviation industry

Peter F. Drucker: The best way to predict your future is to create it

Backup

Contact details

Christina Koch

ctinak@web.de

+49 151 589 40 563

Recommended readings

- Burgelman, R./Christensen, C./Wheelwright, S.: Strategic Management of Technology and Innovation, 2009;
- Dyer, J.; Gregersen, H. B.; Christensen, C.M.: The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators, Harvard Business Publishing 2011
- Tidd, J./Bessant, J./Pavitt, K.: Managing Innovation, 2003
- Christensen, C. M: The Innovator's Solution: Creating and Sustaining Successful Growth, Harvard Business School Press 2003
- Amit, R.; Zott, C.: Creating Value Through Business Model Innovation, Spring Vol. 53 No.3, North Hollywood: MIT Sloan Management Review 2012Christensen, C.M.; Alton, R.; Rising, C.; Waldec, A.: The Big Idea: The New M&A Playbook, Harvard Business Review 2011
- Johnson, M. W; Christensen, C.M.; Kagermann, H.: Reinventing Your Business Model, Harvard Business Review 2011
- Antony, Major League Innovation, in: Harvard Business Review, hbr.org 2009, pp. 51-54
- Casadesus-Masanell, R.; Zhu, F.: Business Model Innovation and Competitive Imitation: The Case Of Sponsor-Based Business Models, Strategic Management Journal 34, Chicago: Strategic Management Society 2013
- Cash/Earl/Morison, Teaming Up to Crack Innovation & Enterprise Integration, in: Harvard Business Review, hbr.org 2008, pp. 90-100

Recommended readings

- Scott Galloway: The Four: The Hidden DNA of Amazon, Apple, Facebook, and Google, 2017
- Yuval Noah Harari: 21 lessons for the 21st century, 2018
- Peter Drucker: Harvard Business Review, HBR's 10 Must Reads on Innovation, 2013

Organizational structure

Central

- Avoid duplication of work
- Ease in priorization of innovation activities
- Streamline innovation activities towards one common strategy
- Avoid coordination efforts
- Bundle expertise and know-how

- Isolation of the innovation team from any business units
- Difficult communication and information flow between business units and innovation team

Decentral

- Broad innovation know-how within company
- Fast reaction to any changes in the market
- Minimize complexity due cross-company alignments and regulations

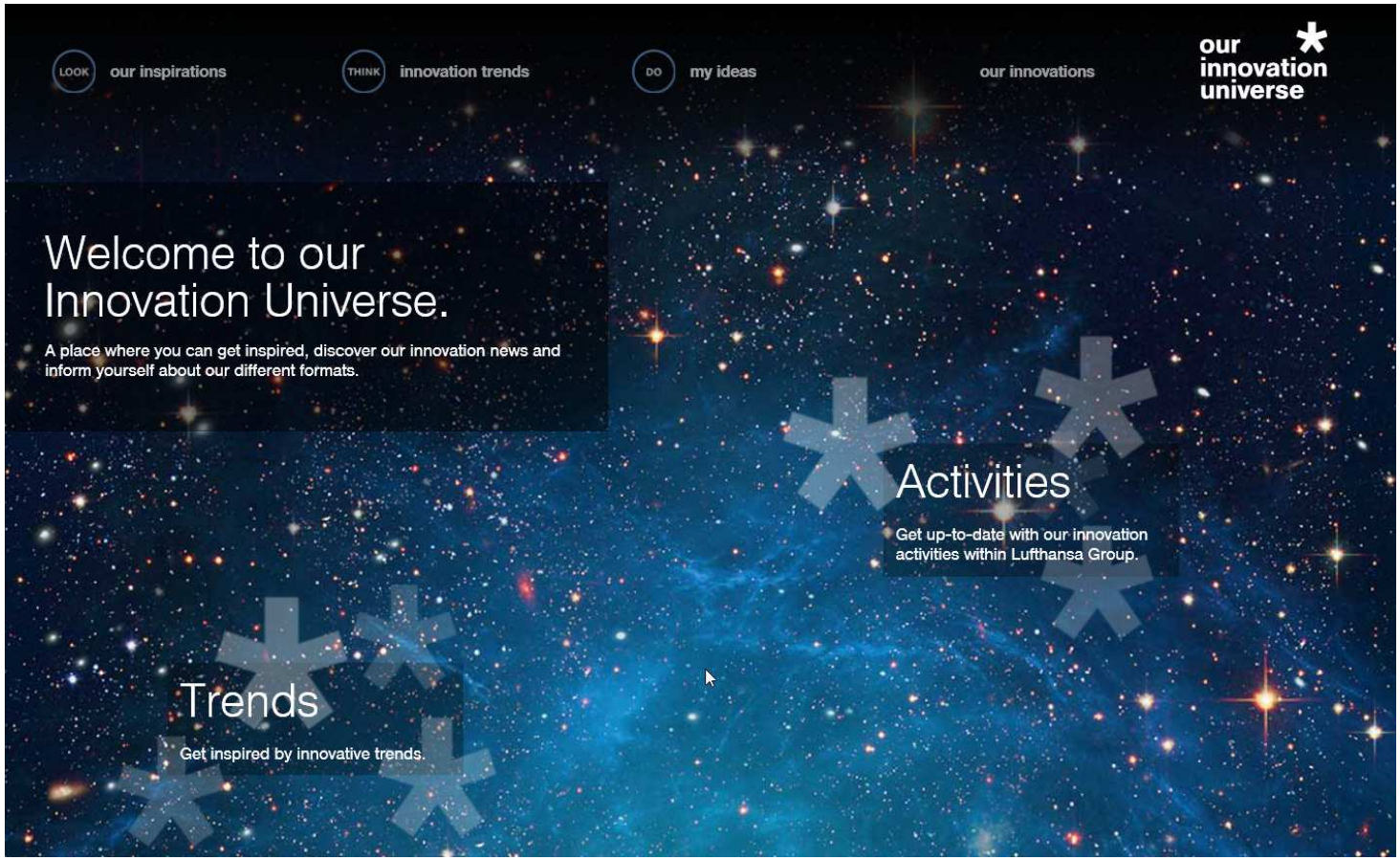
- Coordination effort
- Risk of duplication of work
- Risk of missing expertise / specialists
- Risk of inefficient use of ressources

Group discussion:

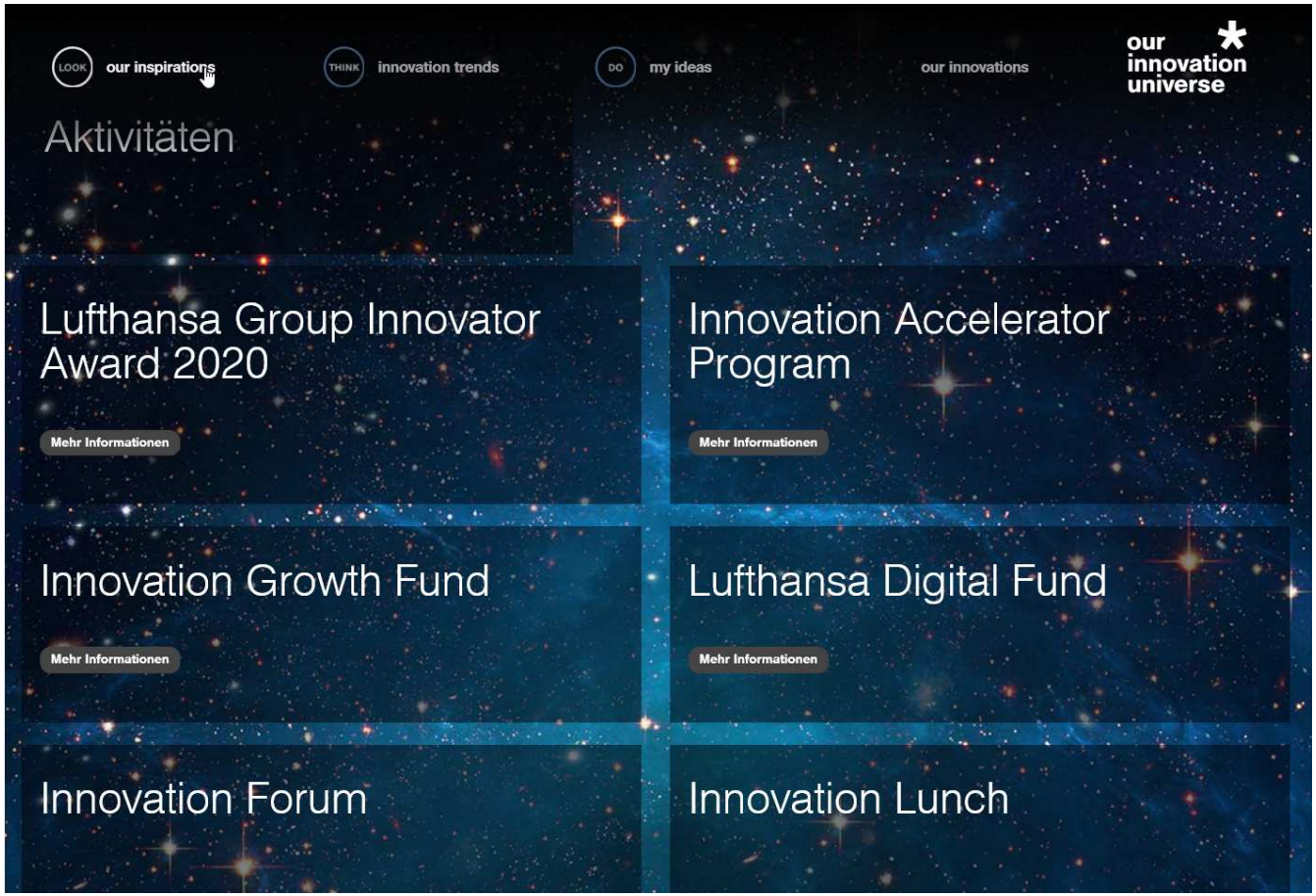
What are the advantages / disadvantages of a central / decentral innovation team?

Excursus:
Innovation Management at Lufthansa Group

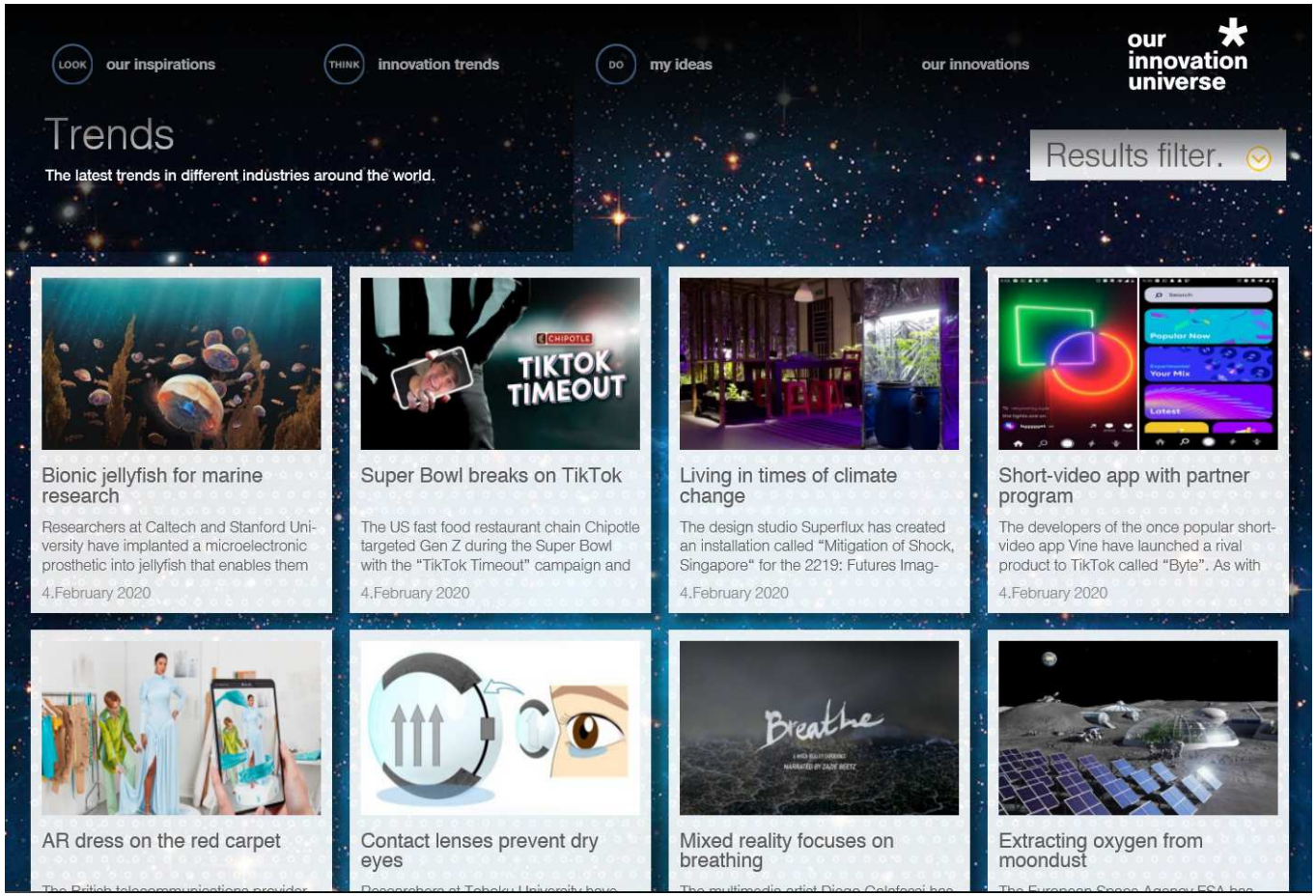
Innovation Management at Lufthansa Group:
Our driving factor for long-term success



Innovation Management at Lufthansa Group:
All employees are empowered to contribute with their ideas



Innovation Management at Lufthansa Group:
Communication of trends as inspiration for ideas



Innovation Management at Lufthansa Group:
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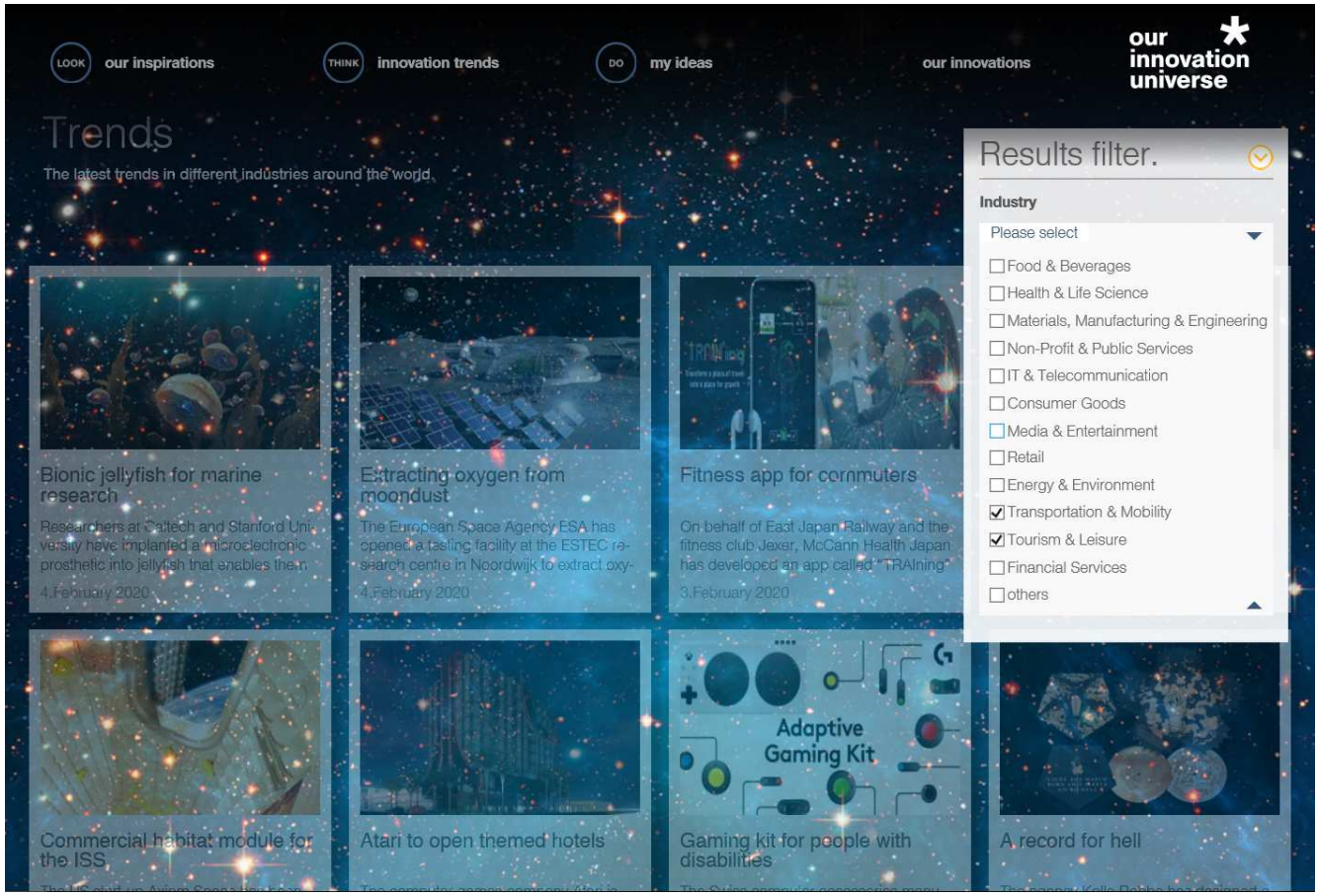
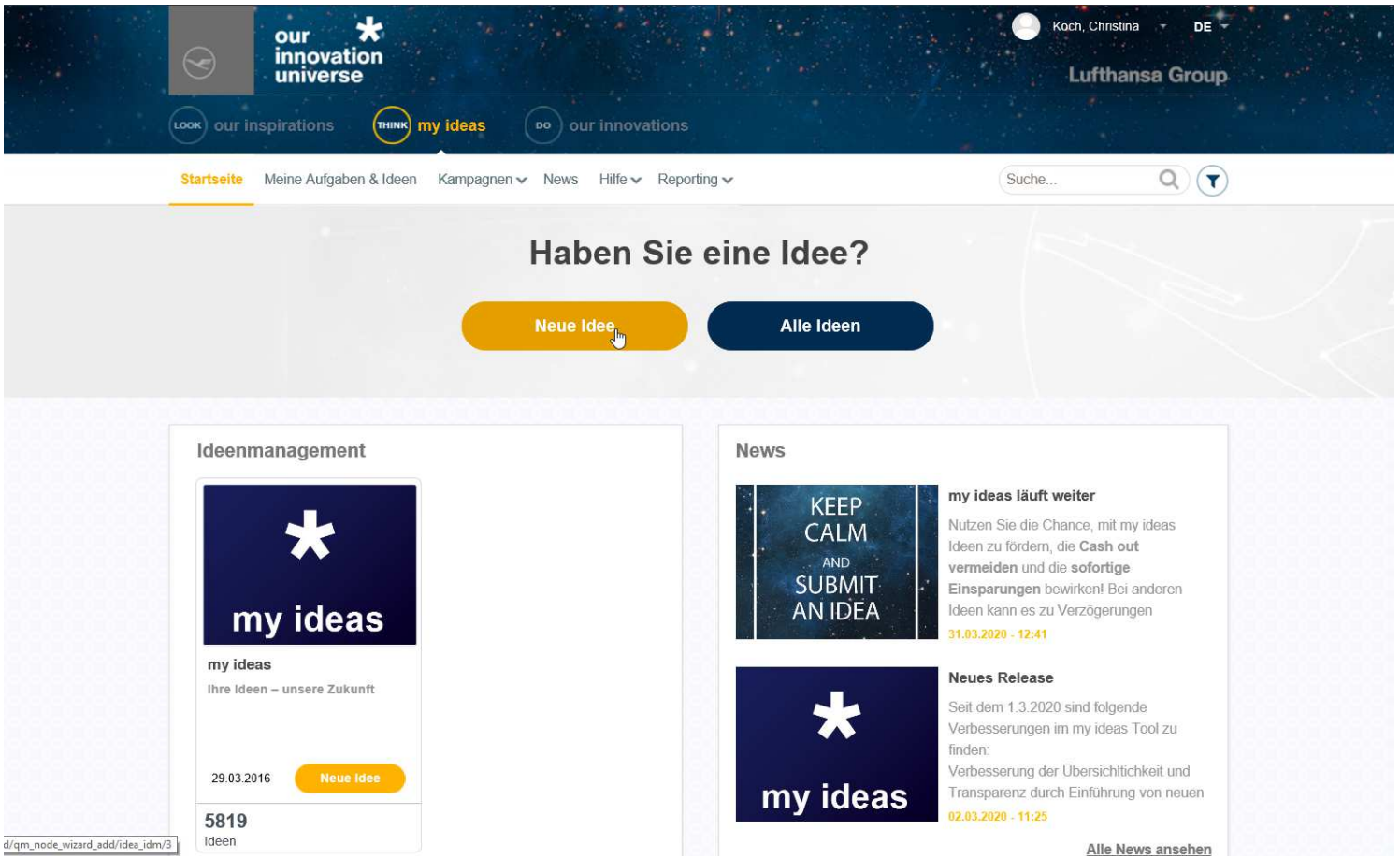


Innovation Management at Lufthansa Group:
A central platform is available to steer ideas



Innovation Management at Lufthansa Group:
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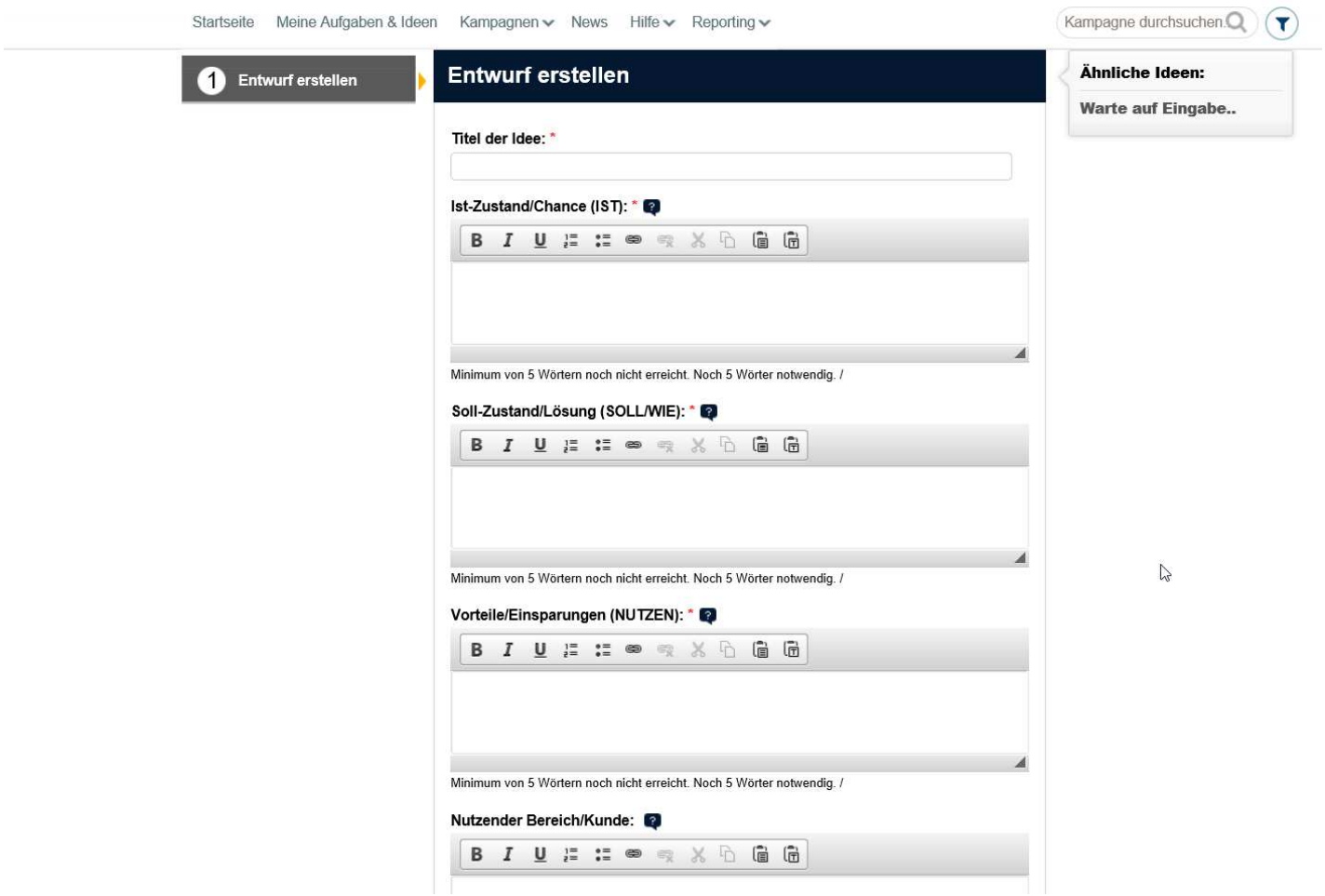

Innovation Management at Lufthansa Group:
Campaigns can be triggered per department to boost ideas