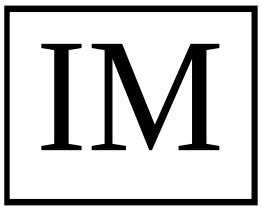

Information Management and Knowledge Management (IMKM)

Lecture 1

Information & Knowledge Management: Introduction

TUM

Chair for Information Systems

Lecture Schedule

Information Systems Strategy

Business Value of IT

- Business IT Alignment
- Guest Lecture: Digital Leadership and the CIO Role
- IT-enabled Strategies
  - Digital Platforms

Information Management

- IT Controlling and IT Governance
- IT Sourcing and IT Off-Shoring
- IT Security, Privacy and Risk Management
- Guest Lecture: Natural language processing for IM

Knowledge Management

- Basics
- Tools
- Guest Lecture: Applications

IMKM Lecture 1: Fundamentals

Outline

1. **Recap**
   1. Data
   2. Information
   3. Knowledge
2. Three parts of IMKM
   1. Information systems strategy
   2. Information management
   3. Knowledge management
3. Why revisit these concepts from a strategy and management perspective?

Learning Objectives

- *You understand data, information & knowledge and how they are related*
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What is the difference between

“information”
&
“knowledge”?

Please use the Zoom-Chat or open your microphone.

Data

- **Raw facts** or **figures**
  - with *syntax* (point as point as decimal separator)
  - without *meaning* on their own
    - no *context*
    - not *processed* into a usable form
- Any alphanumeric characters with a syntax, e.g. text, numbers
- **Directly observable** or verifiable (Dalkir, 2011)

Yes | Yes | No | Yes| No | Yes | No | Yes
42 | 63 | 96 | 74 | 56 | 86
111192 | 111234
1.17 | 1.18

Information

- Data that has been **processed** within a **context** to give it **meaning**

OR

- Data that has been **processed** into a **form** that gives it **meaning**

Data vs. Information

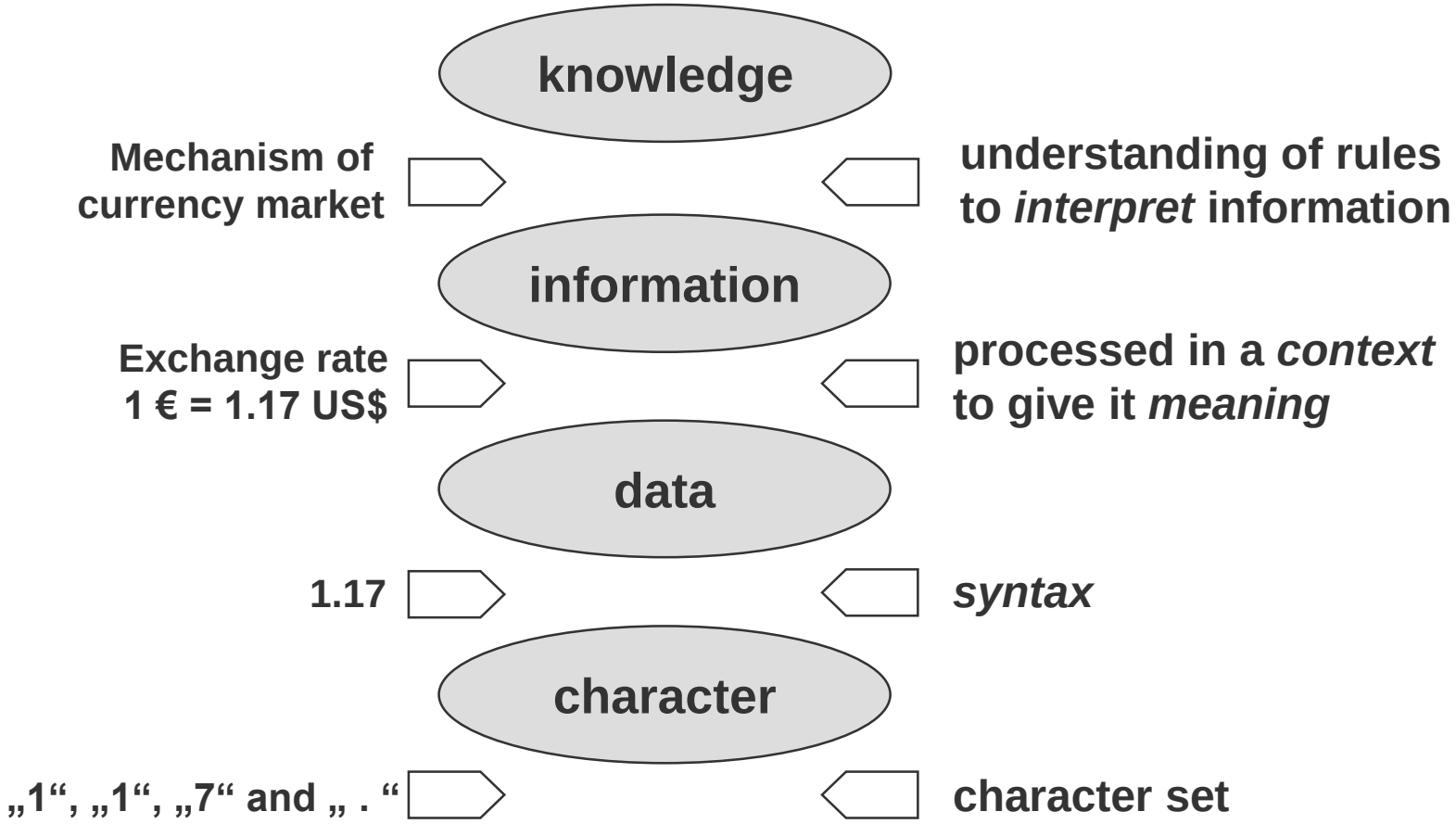
- Data: 10.11.20
- Information:
  - 10.11.20 - Date of the next IMKM lecture.
  - 101.120,00 € - Price of a new Tesla Model S.

Knowledge

- Knowledge is the **understanding of rules needed to interpret** information
- Knowledge is the appropriate **collection** of information, such that its intent is to be useful

- Characteristics of knowledge:
  - Using knowledge does not consume it
  - Transferring knowledge does not result in losing it
  - Knowledge is abundant, but the ability to use it is scarce
  - Much of an organization‘s valuable knowledge walks out of the door at the end of the day.

Character – Data – Information – Knowledge



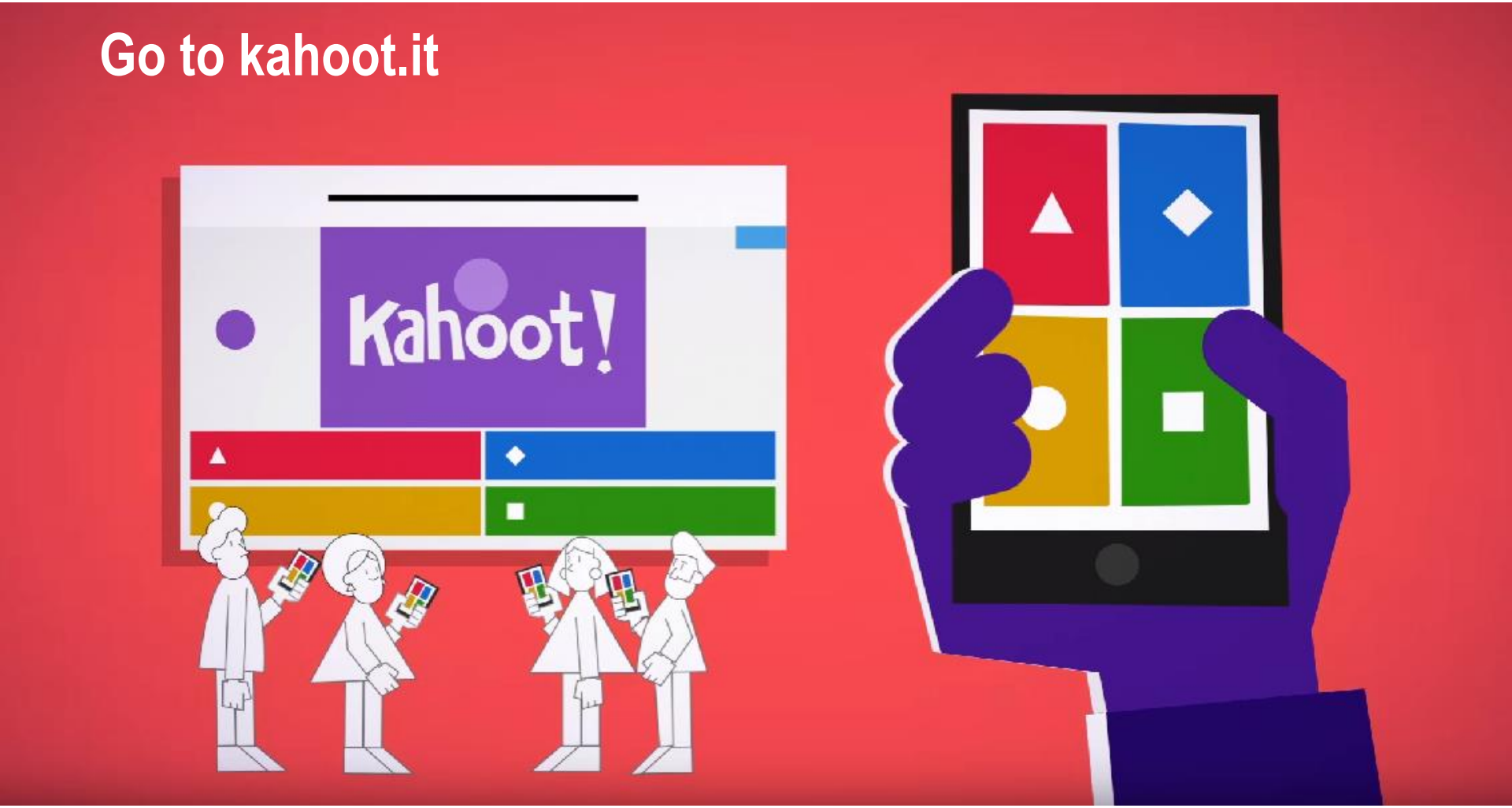
Krcmar, Informationsmanagement (2015), p. 12

Two Types of Knowledge

- Explicit knowledge
  - Objective, rational, technical
  - Policies, goals, strategies, papers, reports
  - Codified
  - Leaky knowledge
- Tacit knowledge
  - Subjective, cognitive, experiential learning
  - Highly personalized
  - Difficult to formalize
  - Sticky knowledge

Quiz Time!

Go to kahoot.it



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Strategy and Strategic Management

Strategy

- **Plan** of action to achieve a particular **goal**
- Long-term strategy: typically 3 – 5 years
- Short-term strategy: typically next 6 months

Strategic Management

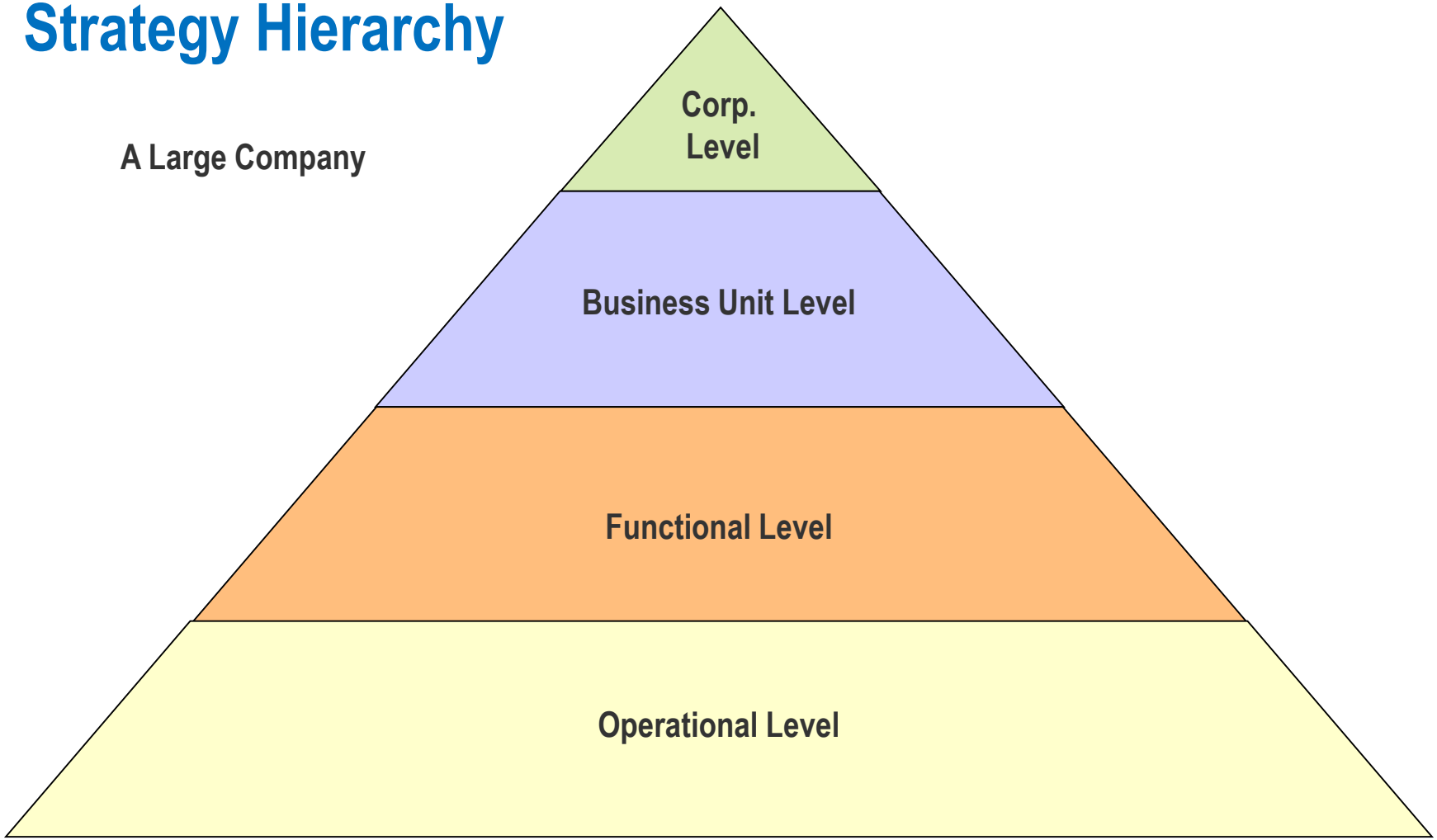
"The process of

- ***examining** both present and future environments,*
- ***formulating** the organization's **objectives**, and*
- ***making, implementing, and controlling** decisions focused on achieving these objectives in the present and future environments."*

Smith/ Arnold/ Bizzell (1986, p.4)

Strategy Hierarchy

A Large Company



Strategy Hierarchy

1. Corporate strategy

- Determine type of business (e.g. services, merchandising, manufacturing)
- Form and management of ***overall*** activities
- 1) growth strategy, 2) stability strategy, 3) retrenchment strategy
  - E. g. depending on SWOT analysis

2. Generic or business unit strategy

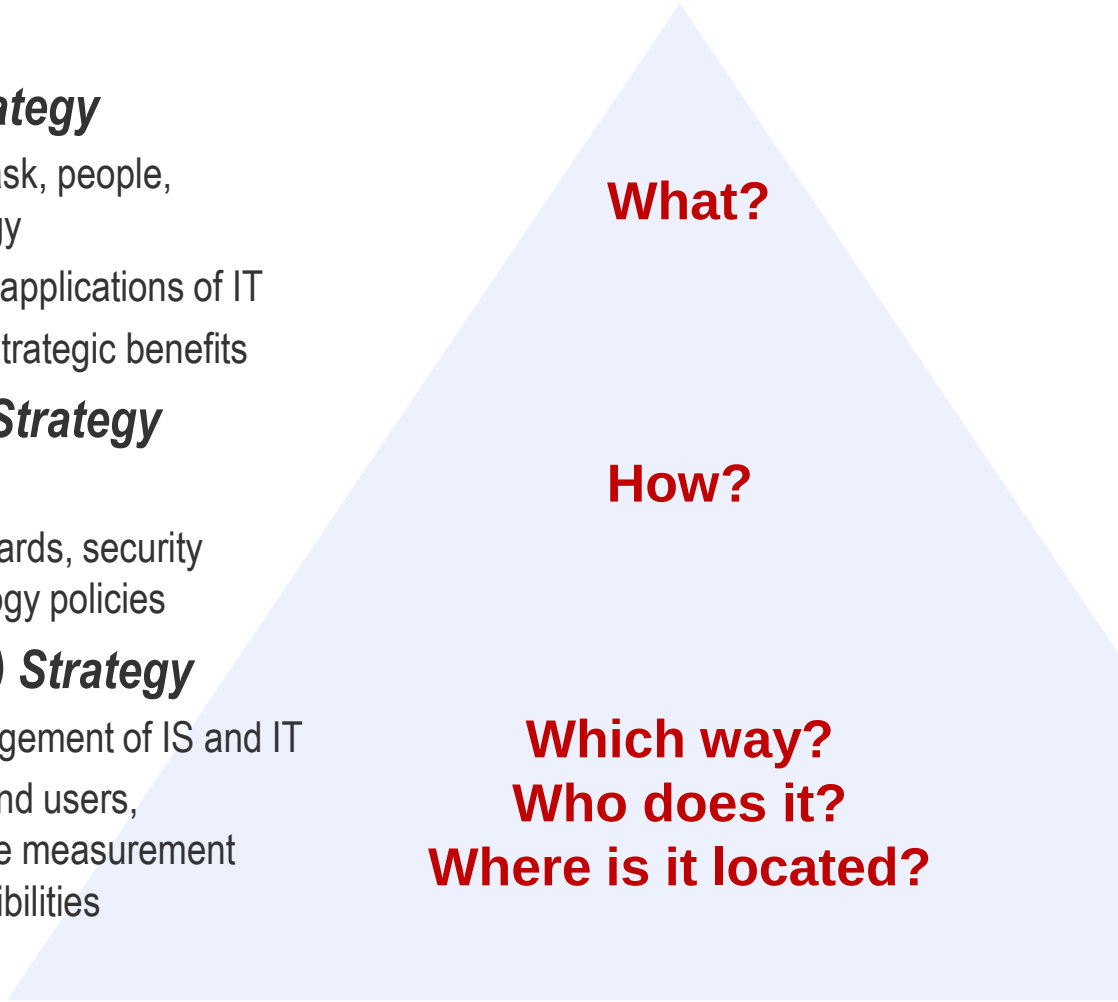
- Actions and approaches crafted by management to create successful performance in ***one particular line of business***
- 1) cost leadership, 2) differentiation, 3) focus, 4) mixed

3. Functional strategy

- Game plan for running a major ***functional activity or process*** within a business (e. g. research and development unit, marketing unit, financial unit, production unit, HR development unit, etc.)

IS, IT and IM Strategy

- ***Information Systems (IS) Strategy***
  - IS = sociotechnical system with task, people, structure (or roles), and technology
  - Focus on the system or business applications of IT
  - Business-IT-Alignment to derive strategic benefits
- ***Information Technology (IT) Strategy***
  - Aspects of the technology
  - E. g. architecture, technical standards, security levels, risk attitudes, and technology policies
- ***Information Management (IM) Strategy***
  - Structures and roles for the management of IS and IT
  - Relationship between specialist and users, management control, performance measurement processes, management responsibilities



Earl (1989, p. 65)

What is Information (Resource) Management (IM)?

- Information = Resource
- Manage this resource effectively and efficiently to achieve the business‘ objectives
- IT and IS: Tools for generating, storing, managing, analyzing the resource “Information”

Definition and Tasks of Information Management

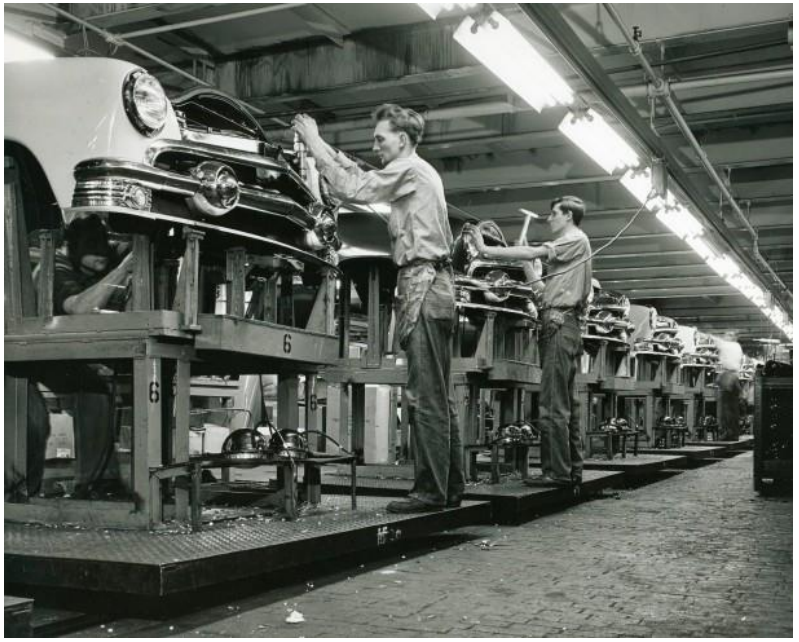
*"IM is part of business management. The function of IM is to ensure **optimal use of the resource information** with regard to business objectives." (Krcmar, 2015, 1)*

- *"IM helps managers **assess and exploit their information assets for business development**.*
- *It draws on the techniques of Information Science (libraries) and Information Systems (IT-related).*
- *It is an important foundation for knowledge management, in that it deals systematically with **explicit knowledge**." (Dalkir, 2011, 467)*

Krcmar, Informationsmanagement (2015), p. 1

“Classic” Factors of Production

- **Land or natural resource** — naturally-occurring goods (water, air, soil, etc.)
- **Labor** — human effort used in production
- **Capital stock** — human-made goods which are used in the production of other goods (machinery, tools, buildings, etc.)



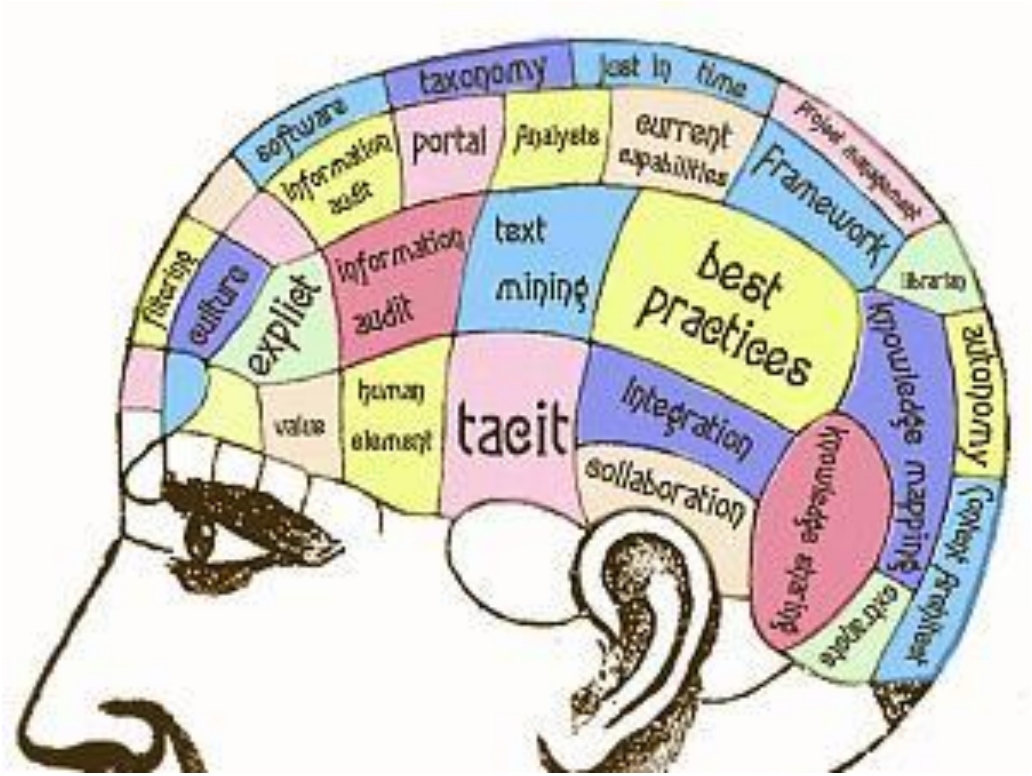
https://www.faz.net/aktuell/wirtschaft/vor-100-jahren-wie-das-fliessband-die-autoproduktion-revolutioniert-hat-12426514.html

Information as Factor of Production

- Result is affected by **combination of resources**
  - e.g. a certain combination of resources → improved firm performance
- Information as differentiating **resource**
  - e.g., processed data from sensors in an assembly line
- Competition as a discovery **process** for new knowledge and adaptive/ copying learning
  - e.g., learning/ including external information by testing new business models
- Business ideas result from **linking information**
  - e.g., information on resources and information about customer wishes
- **Differentiation** based on what companies know!

→ **Information is a Production Factor**

Is there a need to differentiate between KM & IM?



Understanding **Knowledge Management** requires an understanding of **knowledge** and the knowing process and how that differs from **information** and **Information Management.**

What is Knowledge Management?

*"KM is understanding the organization's information flows and implementing **learning practices** which make explicit the key aspects of its knowledge base" (Broadbent, 1997, 8-9)*

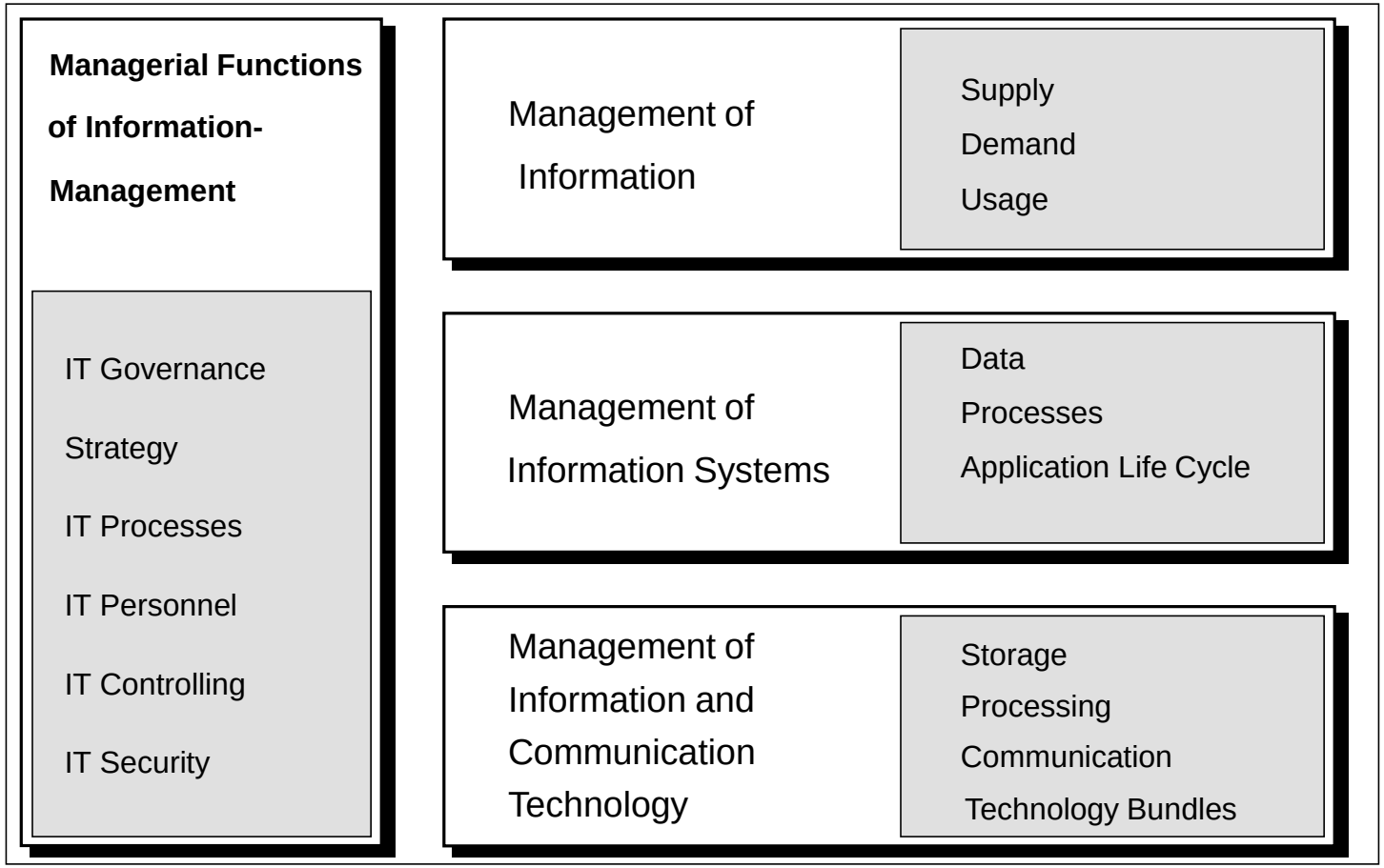
*"KM is a collaborative and integrated approach to the creation, capture, organization, access, and use of an **enterprise's intellectual assets**" (Brooking, 1999, 154)*

*"KM is the capability to create, enhance, and share **intellectual capital** across the organization" (Lank, 1997)*

*"KM comprises the development, discussion, and testing of theories, methods, and tools that enable a more systematic approach with **knowledge as a resource**"*
(Bellmann, et al. 2002, cited in Krcmar, 2015, 660)

- ***Knowledge** Management deals with all kinds of knowledge, **information** management with some forms of explicit knowledge.*

Recap: IM – An Integrated Framework



Krcmar: Informationsmanagement (2015), p.107

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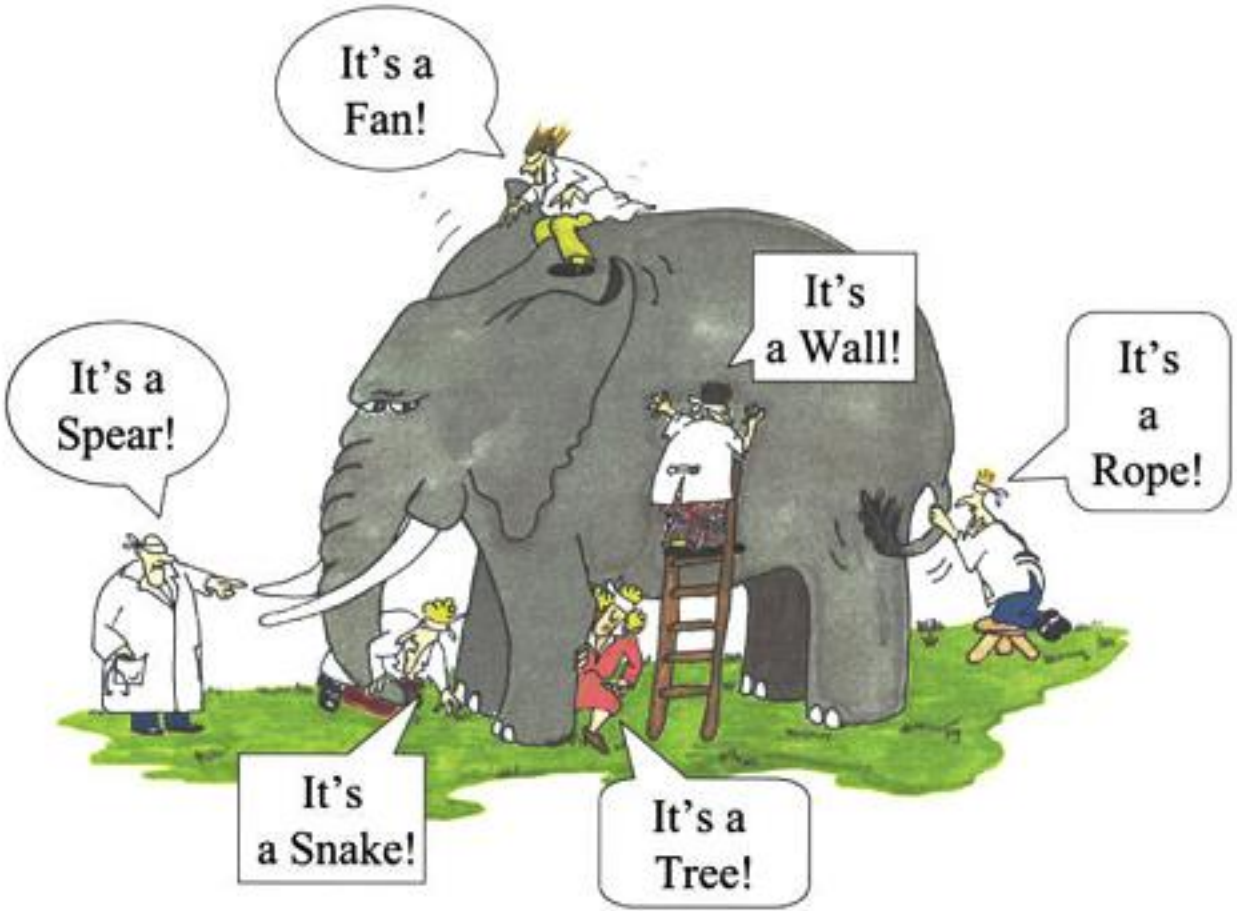
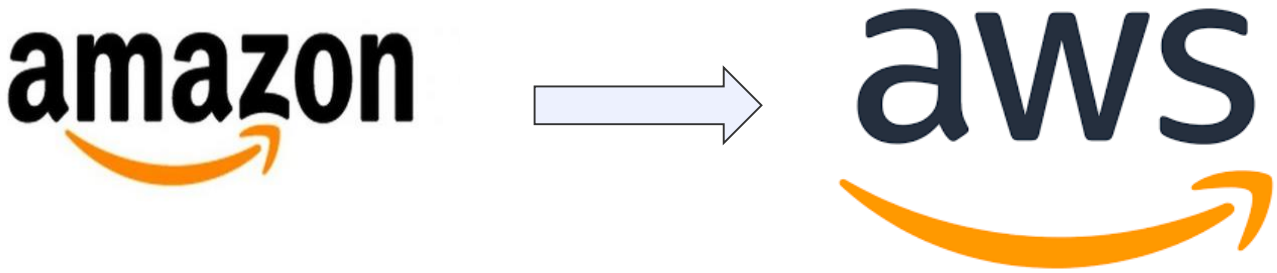
So what‘s the Big Picture?



http://www.agilebuddha.com/agile/enterprise-agile-transformation-are-you-able-to-see-big-elephant/

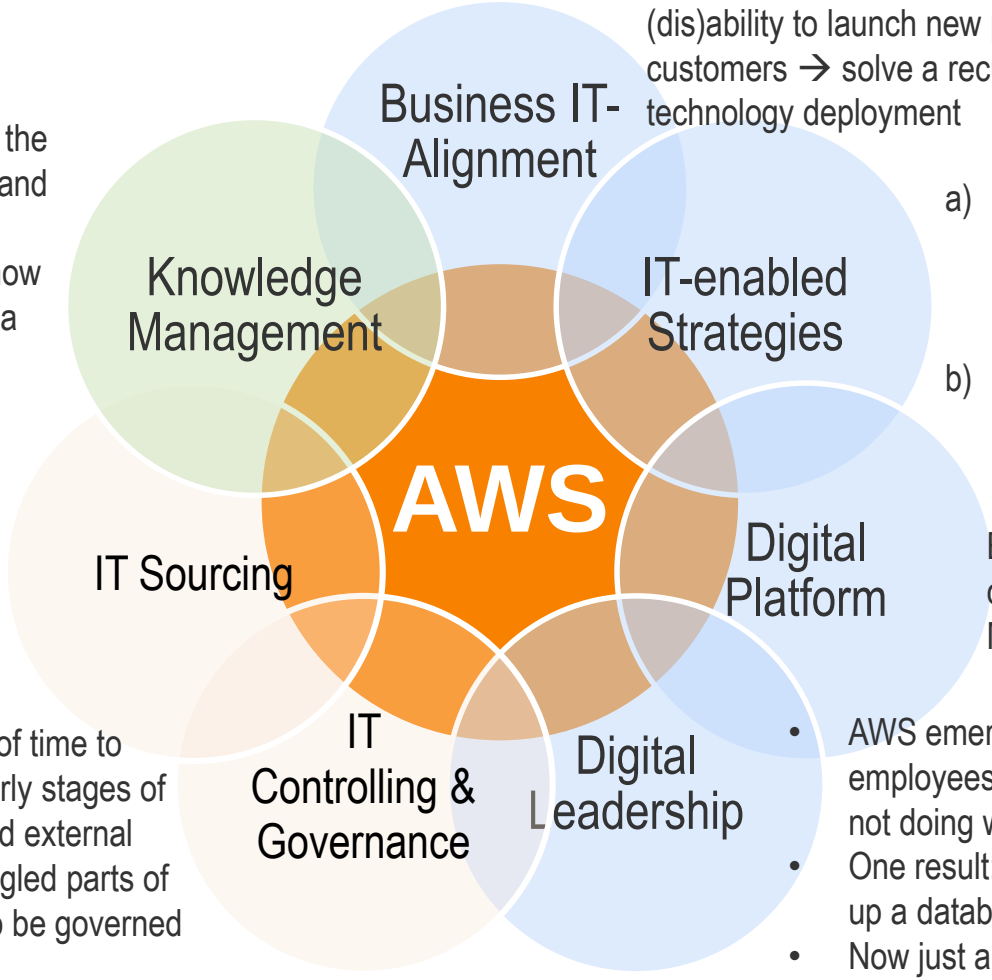
Example: Amazon Web Services



- Launched in 2006
- Provides services for computing, storage, networking, database, analytics, application services, deployment, management, mobile, developer tools, and tools for the Internet of Things.
- 31 % market share for Cloud Services
- 35 billion US$ revenue (2019) (444% growth since 2015)

Example: How Amazon Web Services (aws) Emerged

e. g:
a) Find the right people in the company to build APIs and services
b) hire new people that know more about how to run a technology providing business



(dis)ability to launch new projects and support customers → solve a recurring need: faster technology deployment

a) new and game-changing approach to technology development: decoupling services
b) infrastructure services a top priority: CIOs asked Amazon to help them with data warehousing

Customers source parts of their IT from AWS

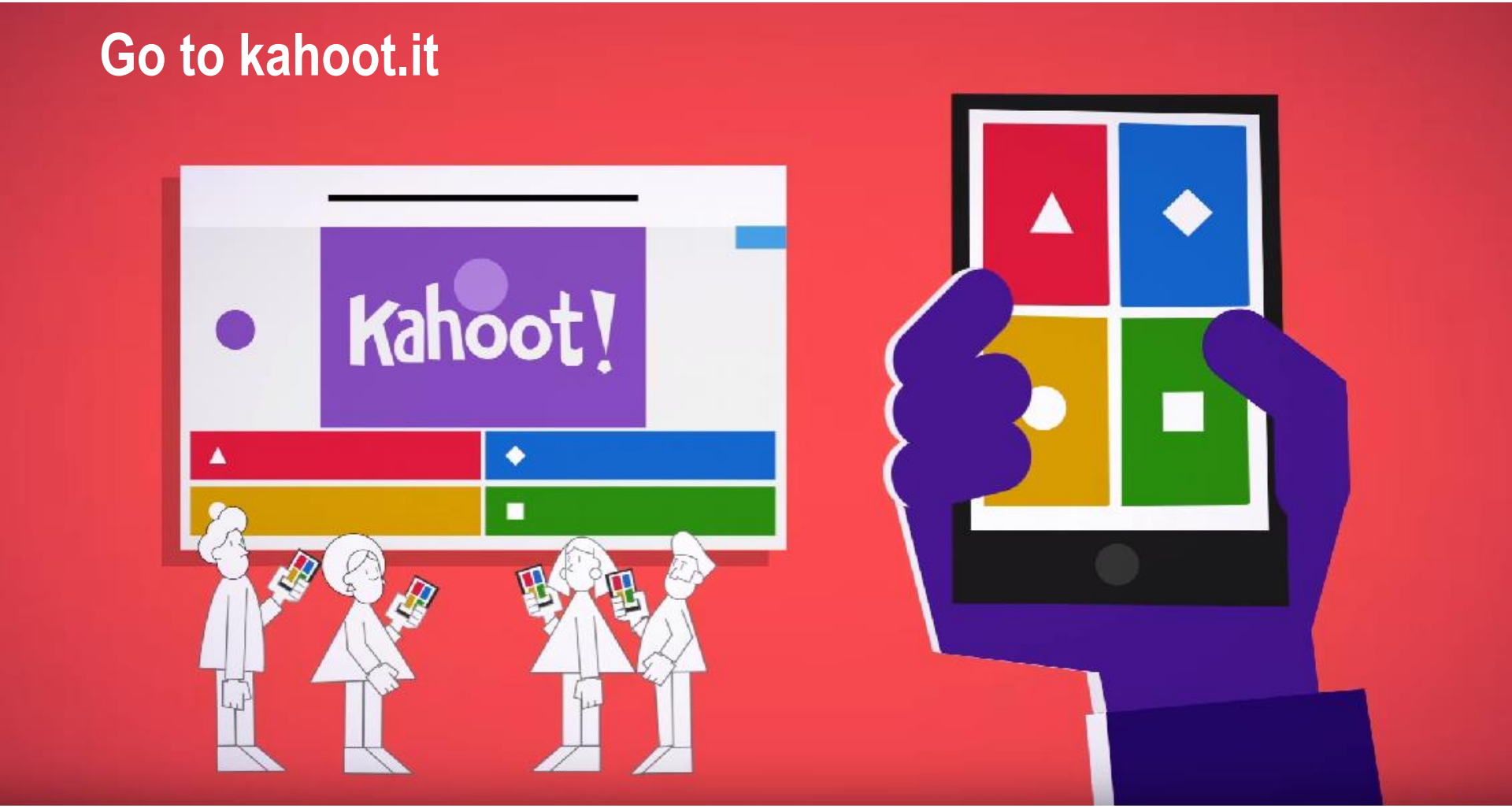
Both Amazon and AWS are digital platforms (Multi-Sided-Market Business Model)

a) Inaccurate forecasting of time to complete projects in early stages of aws — both internal and external
b) APIs: decoupling entangled parts of the platform → need to be governed

- AWS emerged from constantly asking their employees: what is Amazon doing well or not doing well?
- One result: Often similar tasks: e.g. setting up a database.
- Now just an AWS API

Quiz Time!

Go to kahoot.it



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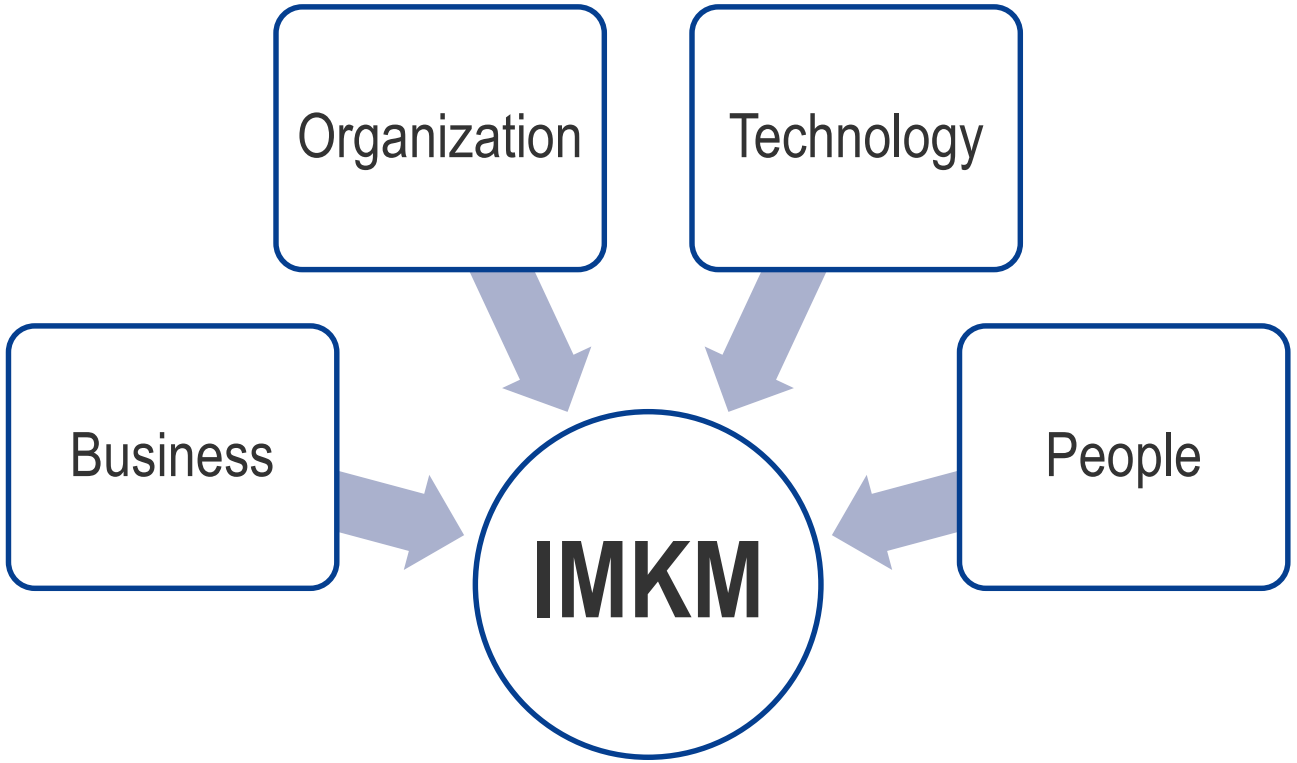
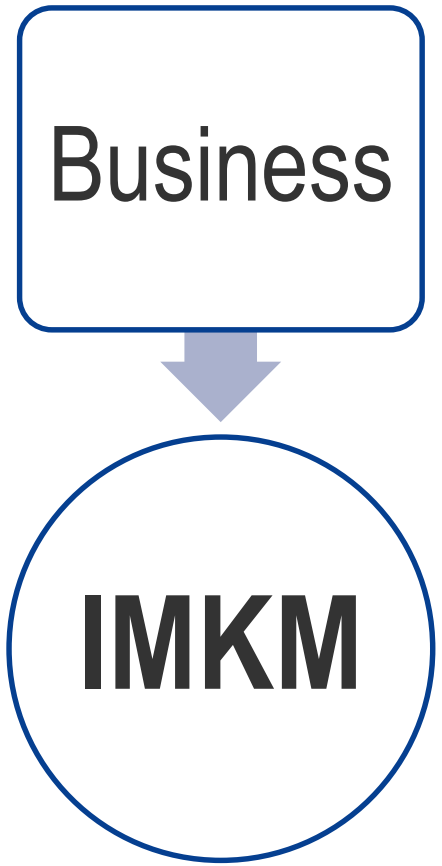
New Trends and Challenges from different Stakeholders

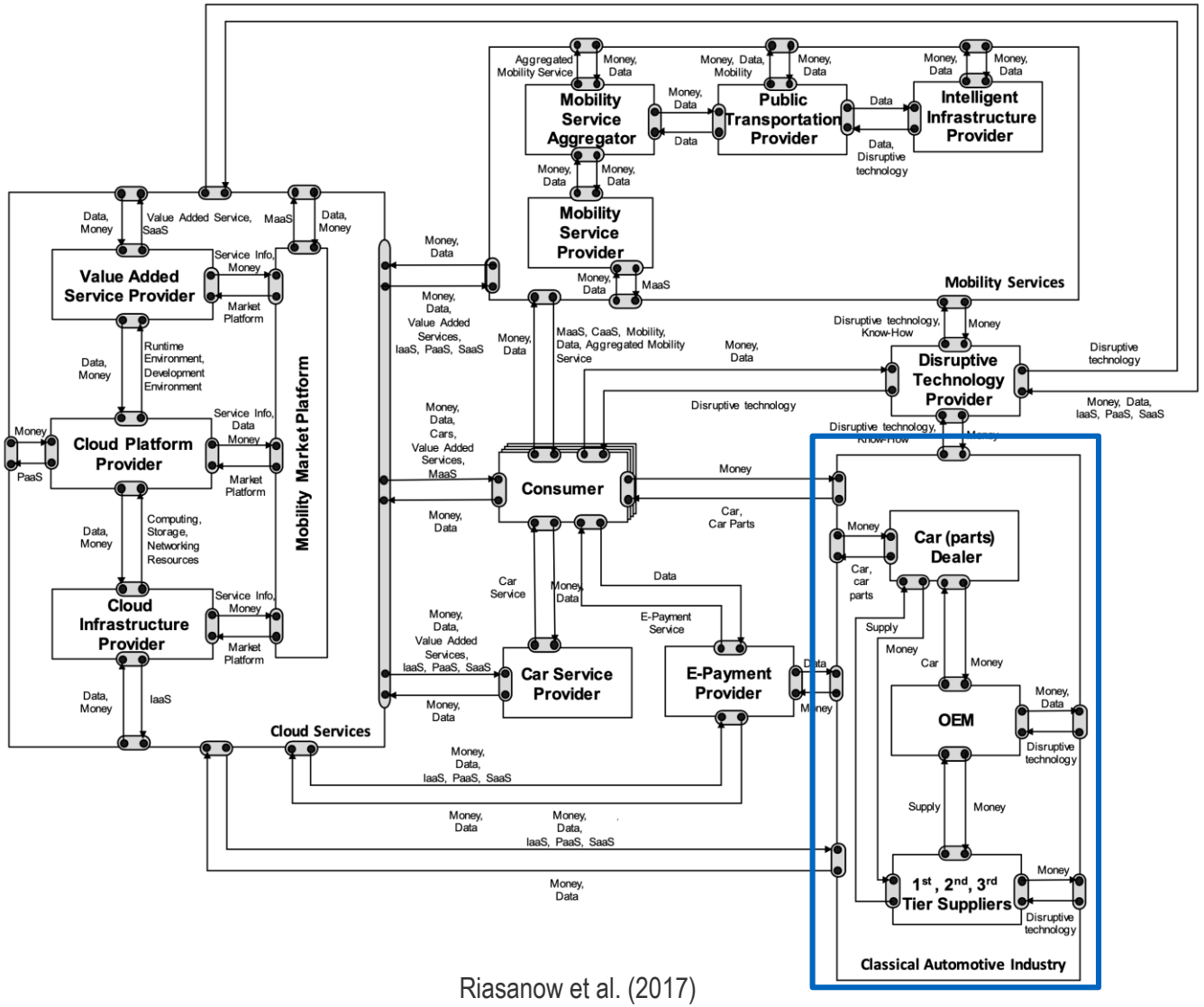


Business Trends

- Digital Platforms & Digital Ecosystems
  - Value Co-Creation between firms
  - Changing Inter-firm Relations
  - Monopolies and dependencies
- Sustainability & Social Responsibility
- (Digital) Experience-driven value propositions
- Ubiquity / Democratization of Digital Technology
- Data-driven decision-making



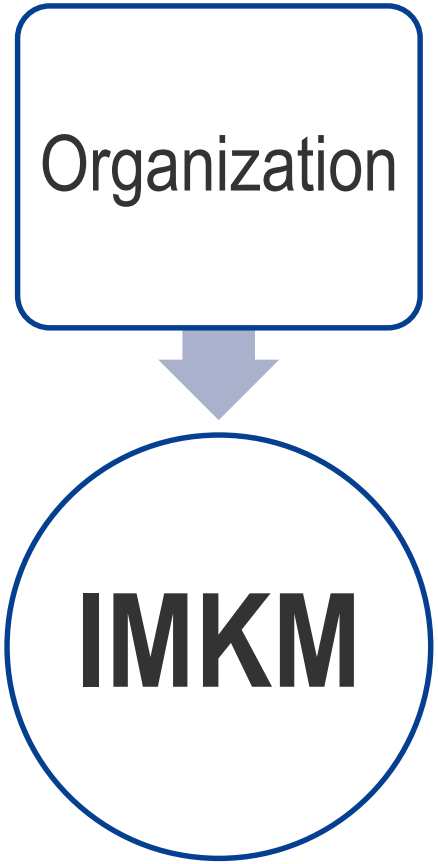
https://techwireasia.com/2018/07/the-value-proposition-of-a-digital-agency/



Riasanow et al. (2017)

Organizing for a Digital World

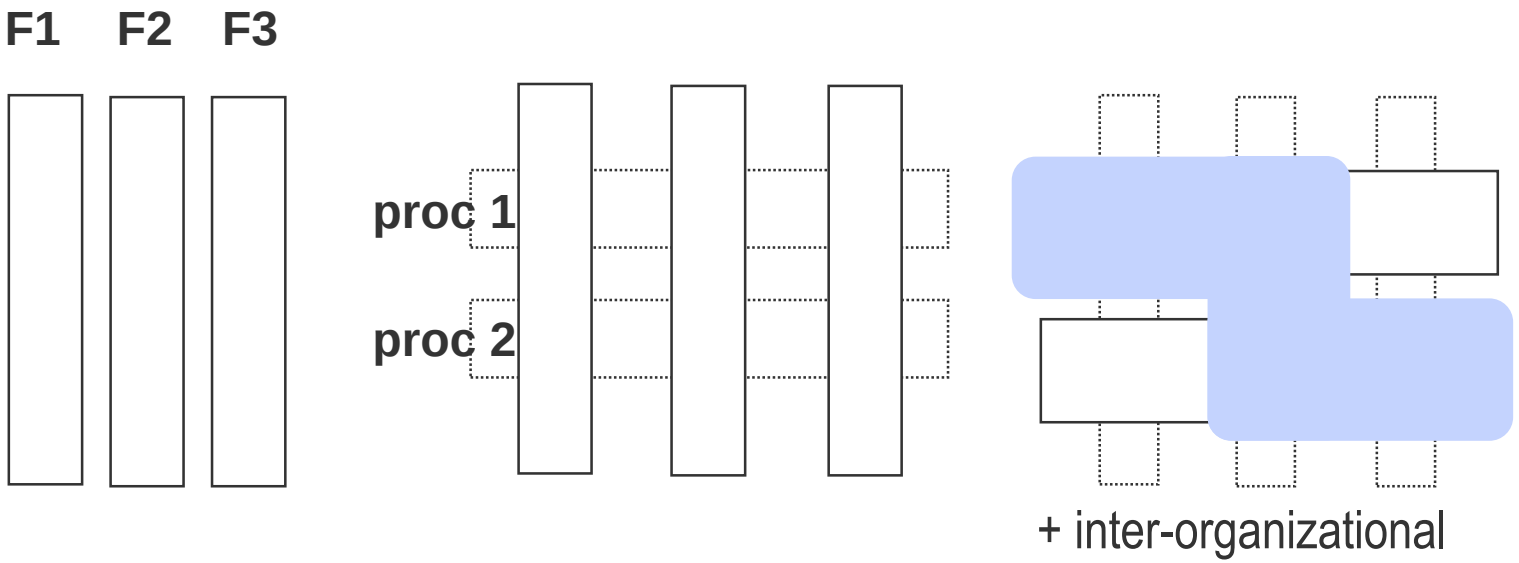
- Distributed Organizations
  - Distributed Work (e.g. COVID-19)
  - Distributed information systems
    - Cloud, APIs, Serverless, …
- Digital Maturity of Organizations & People
- Thriving in Digital Complexity
  - Organizing for innovation
  - Strategic agility to respond to unpredictable opportunities and threats
  - Building resilience in uncertain environments



https://www.telecom-handel.de/consumer-communications/corona-krise/so-vermeiden-home-office-koller-2519625.html

From Functional View To Scaling Agile

previously **then** **now**



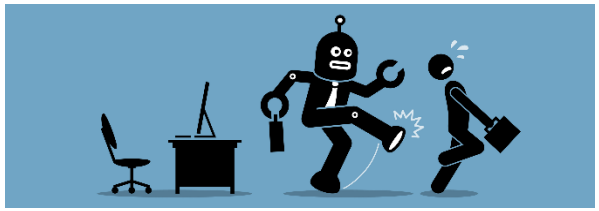
see, understand and live functions

understand processes

cross-functions cross-processes

Never Forget the Human

- Distributed Workplaces
  - Information Distribution
  - Company Culture
  - Team Work
  - Leadership
- Information & Work Overload
- Artificial Intelligence replacing human tasks
- (Data) Privacy
- Lack of qualified employees / Employee turnover

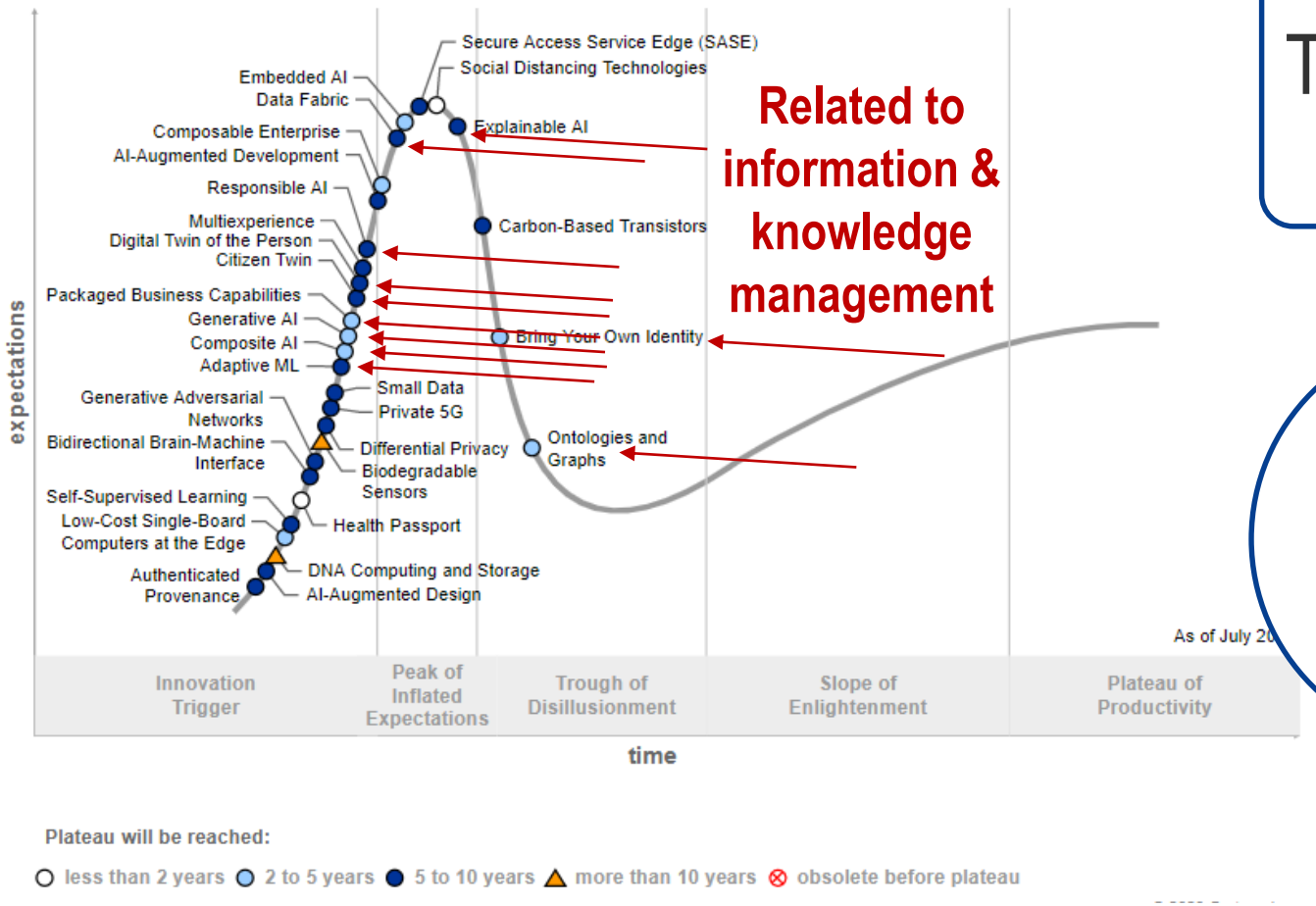


People

IMKM

https://becominghuman.ai/ai-robots-do-not-threaten-humans-but-super-humans-do-21c29ea455db?gi=d4d55f3e4053

Gartner's 2019 Hype Cycle for Emerging Technologies



Related to information & knowledge management

Technology

IMKM

Gartner (2020)

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Core Literature: Krcmar, Informationsmanagement (2015)

1. Einleitung (pp.1-8)
2. Begriffe und Definitionen (pp.11-26)
3. Modellierung (pp. 31-78)
4. Aufgabe des Informationsmanagements: Informationsmanagement (pp. 85-109)
5. Aufgabe des Informationsmanagements: Management der Informationswirtschaft (pp. 113-165)
6. Aufgabe des Informationsmanagements: Management der Informationssysteme (pp. 173-302)
7. Aufgabe des Informationsmanagements: Management der Informations- und Kommunikationstechnik (pp. 315-385)
8. Führungsaufgaben des Informationsmanagements (pp. 393-578)
9. Referenzmodelle des Informationsmanagements (pp. 601-630)
10. Einsatzfelder und Herausforderungen des Informationsmanagements (pp. 633-753)
11. Fallstudie „Rockhaus AG“ (pp. 767-783)

Additional Reading

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- Ackoff, R. L. (1989). From data to wisdom. Journal of applied systems analysis, 16(1), 3-9.
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- Smith, G. D., Arnold, D. R., & Bizzell, B. G. (1986). Strategy and business policy. Houghton Mifflin School.
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