

A hand is shown holding a glowing digital globe. The globe is composed of a grid of dots and has a bright light emanating from its center. Surrounding the globe are several white icons: a gear with a downward arrow, a gear with an upward arrow, a house, a cloud with an upload arrow, a microscope, and a microchip. The background is dark and blurry, showing a person's hands using a laptop.

**DIGITAL
TRANSFORMATION**

Industrie 4.0

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- **Digital Change**
- **Digital Transformation and Digitalization**
- **Enabler Technologies**
- **Implementation of the digital transformation in the Industry**
- **Levers of digital transformation**
- **Challenges**

Digital Transformation Examples



Introduction – Digital Transformation



digital connection of companies, people and technologies



networking across the **entire value chain**



traditional business models **change or disappear**



machines and software **take over tasks from people**

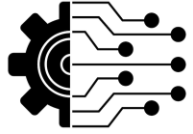
→ wide-ranging definitions

A hand in a blue suit sleeve points towards a futuristic digital interface. The interface features a central circular graphic with the text "DIGITAL TRANSFORMATION" in white. Surrounding this are various glowing blue icons: a brain with circuitry, a folder with a refresh symbol, a laptop, an email icon, a Wi-Fi symbol, a person with a headset, a checkmark, a thumbs up, a lightbulb with gears, and a network diagram. The background is dark with a bokeh effect of light points.

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01 Digital Change

What is digital change?



digital technologies change life and work

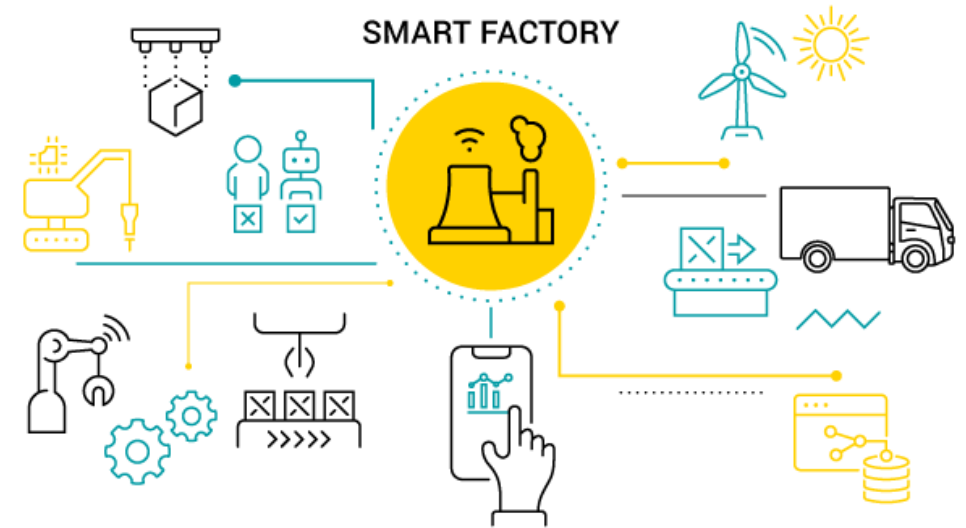
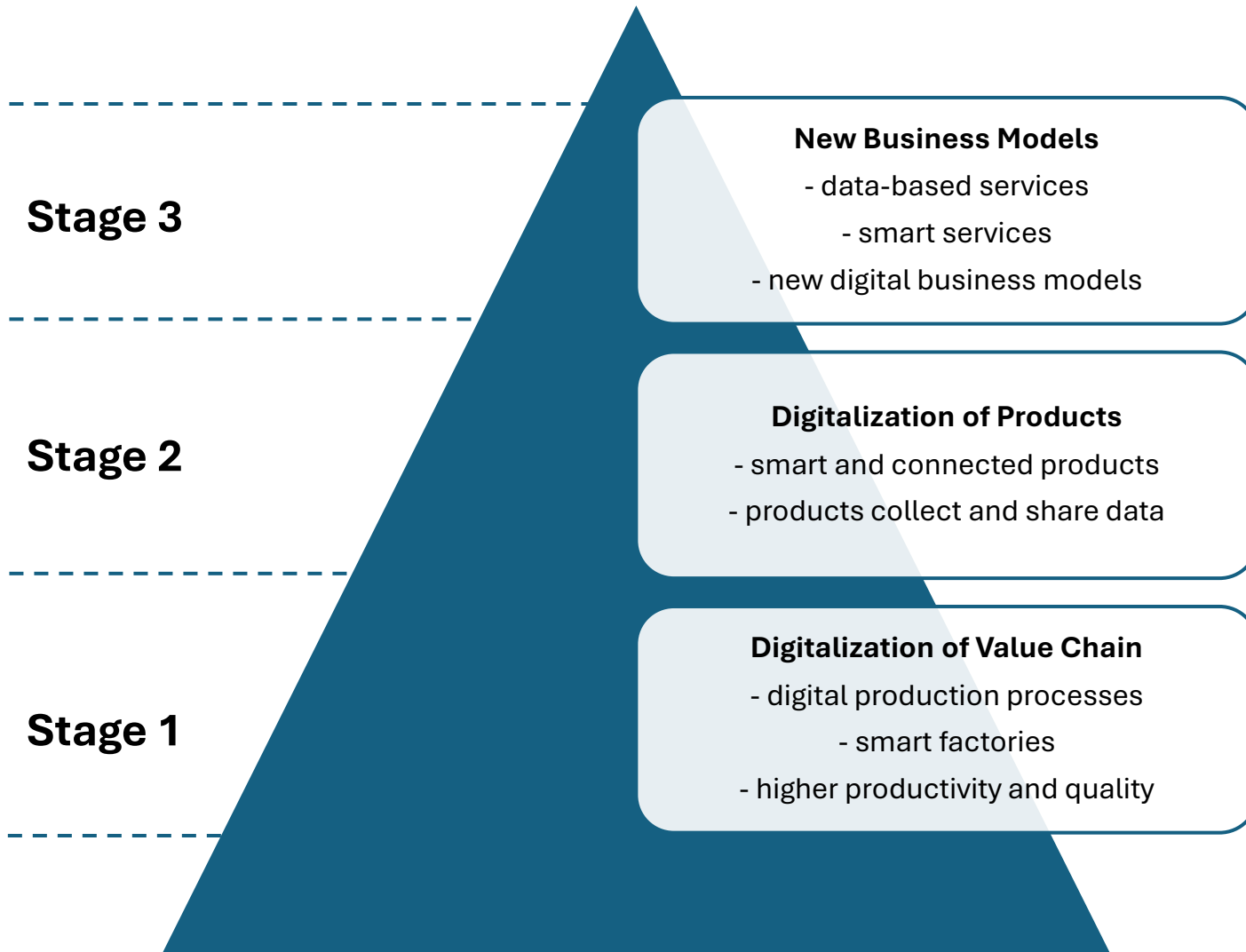


huge amount of data (**Big Data**)



value chains become **digitally connected**

Stages of Digital Transformation



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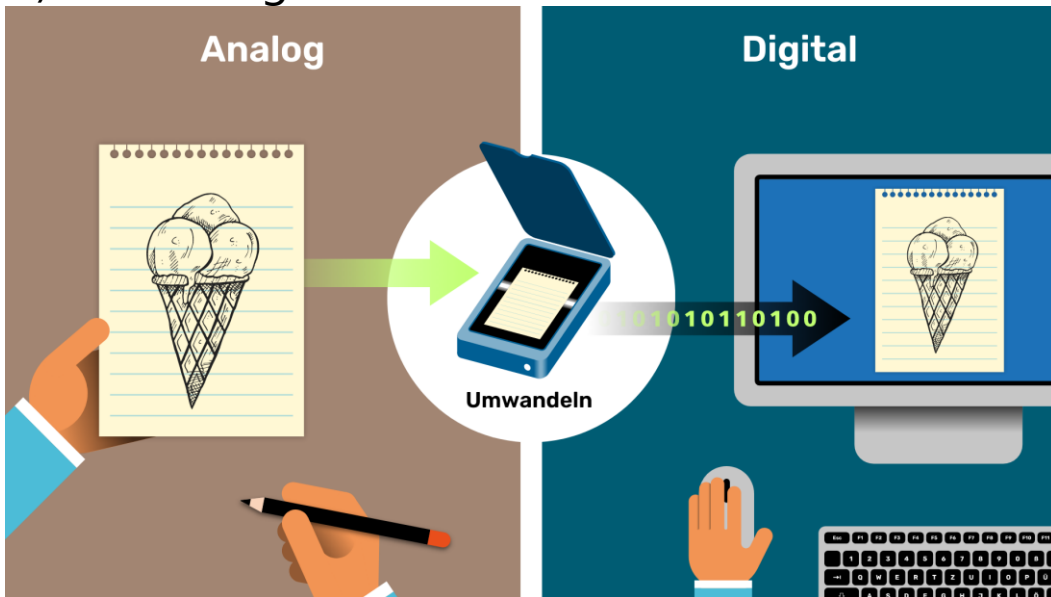
02 Digital Transformation and Digitalization

Digitalization

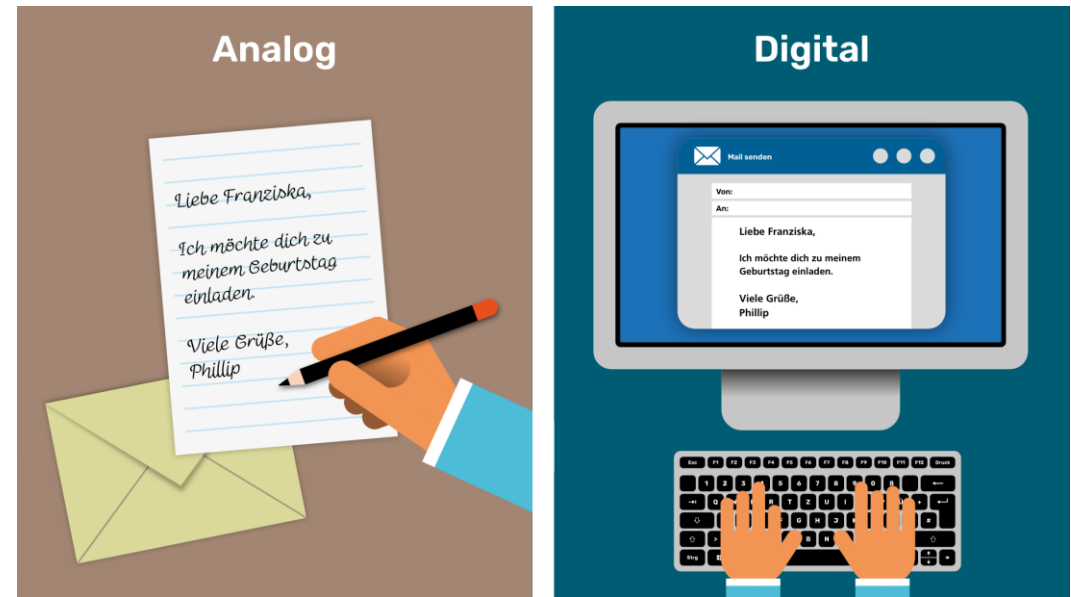


Digitalization = The transfer of analog quantities into digital values

1) Processing information



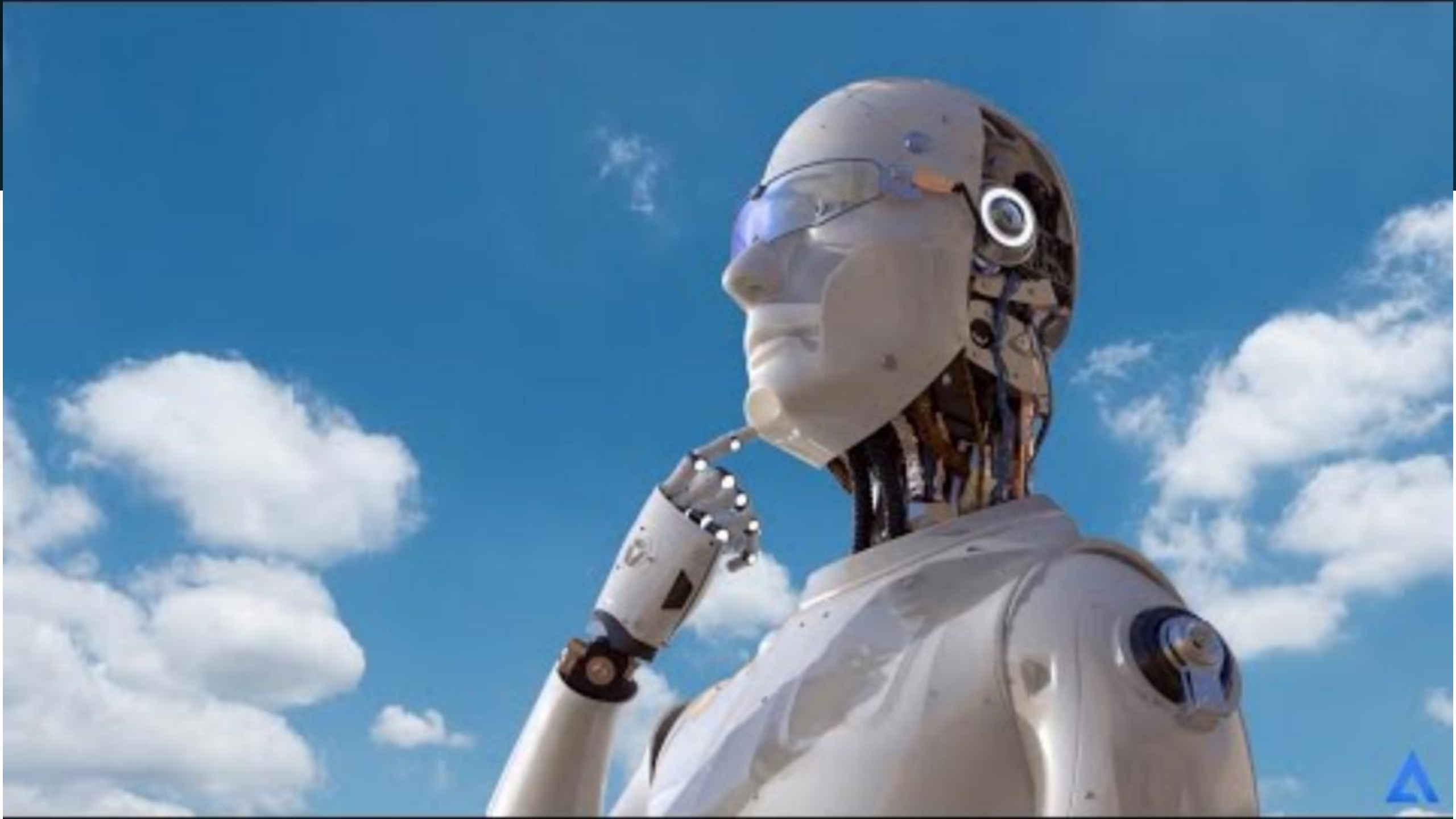
2) Computer as a tool



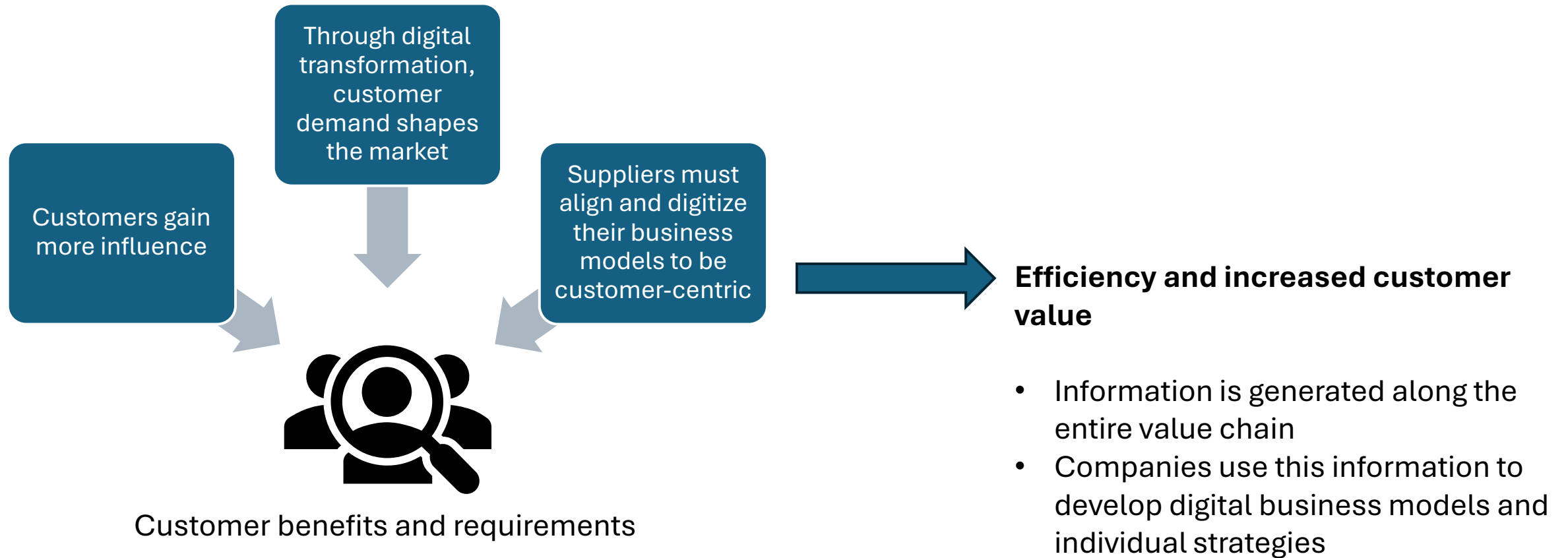
Digital transformation



Digital transformation mean solving problem in order to maximize the customer benefit.



Customer influence



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03 Enabler Technologies

What are Enabler Technologies?



- technologies that **make digital transformation possible**

- enable **new digital products, services and business models**

- connect **data, systems and people**

1.

Internet of Things

2.

Internet of Values

3.

Computing Power

What are Enabler Technologies?

1. Internet of Things

- physical devices connected to the internet
- sensors collect and share data
- machines communicate with each other (M2M)



Examples:

- Smart Home



- Smart Factories



Benefits

Automation

Efficiency

Predictive maintenance



What are Enabler Technologies?

2. Internet of Values

- technology for **secure and transparent digital transactions**
- data stored across multiple computers
- transactions cannot be changed

Example:

- „Grüne Flotte“ Freiburg



Benefits

Trust Transparency Automated Agreements

Favorit: Günterstalst... X

Fahrtbeginn

Fahrtende

heute
14:15

heute
22:00

August 2022 Uhrzeit

Mo	Di	Mi	Do	Fr	Sa	So	Uhrzeit
							21:15
							21:30
1	2	3	4	5	6	7	21:45
8	9	10	11	12	13	14	22:00
15	16	17	18	19	20	21	22:15
22	23	24	25	26	27	28	22:30
29	30	31	1	2	3	4	22:45

Schließen



Ford Focus

M EM-SW 4006

belegt >

14:15 - 22:00



Ford Fiesta

S EM-SW 5044

belegt >

14:15 - 22:00

Merzhauser Str. 16

770 m



Ford EcoSport

S EM-SW 4025



Ford Fiesta XS

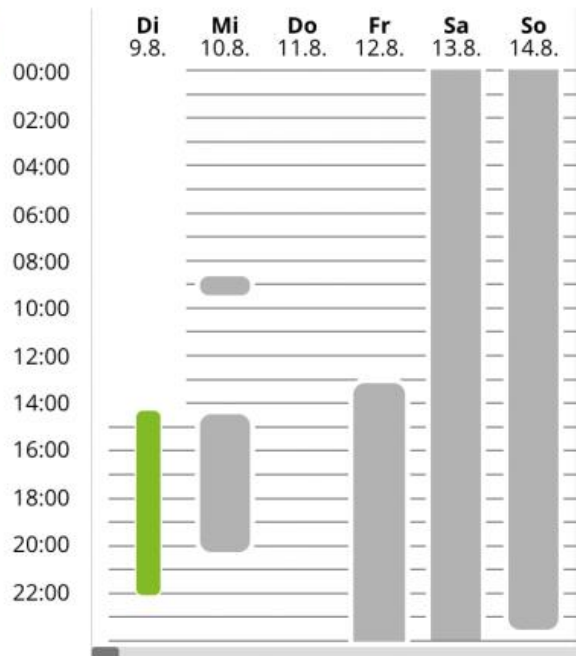
XS EM-SW 3033

EM-SW 4025 X



Buchen

Verfügbarkeitsanzeige



< + 1 Tag

Buchen

+ 1 Tag >

What are Enabler Technologies?

3. Computing Power

- ability of computers to process huge amounts of data
- computing performance growing rapidly

Enables:

- Artificial Intelligence
- Machine Learning
- predictive analytics

Examples

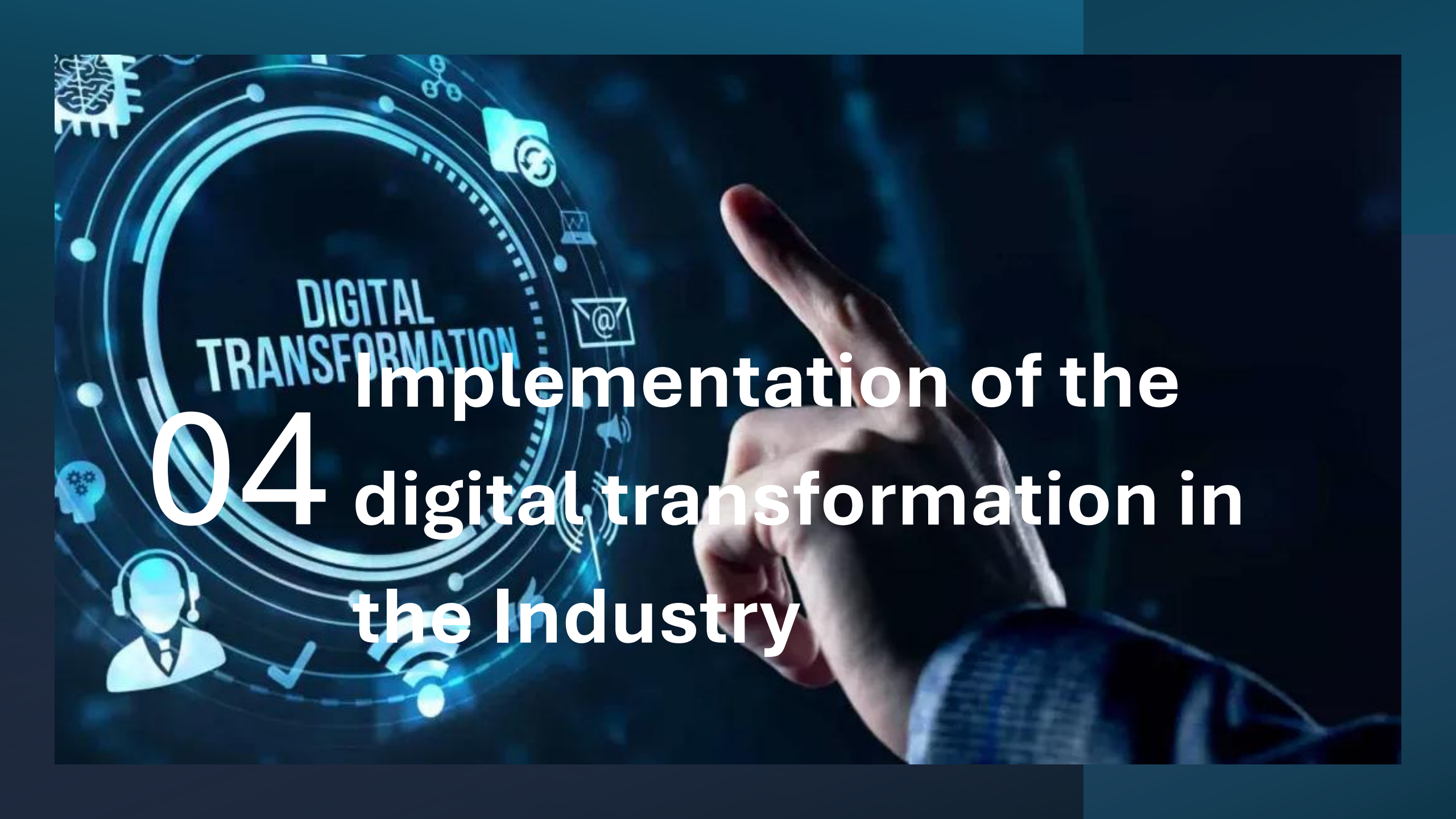
Autonomous Vehicles

AI Systems



WAYMO



A hand in a blue suit sleeve points towards a futuristic digital interface. The interface features a central circular graphic with the text 'DIGITAL TRANSFORMATION' and the number '04'. Surrounding this are various icons representing technology, communication, and industry. The background is a dark blue gradient with glowing light effects.

04 Implementation of the digital transformation in the Industry

Digital Transformation Roadmap – Key Steps

Define Digital Reality

Understand current business model and industry digital maturity

Set Digital Ambition

Establish goals for time, cost, and quality improvements

Identify Digital Potentials

Analyze best practices and enabling technologies; derive future options

Evaluate Digital Fit

Check alignment with current model, customer needs, and goals

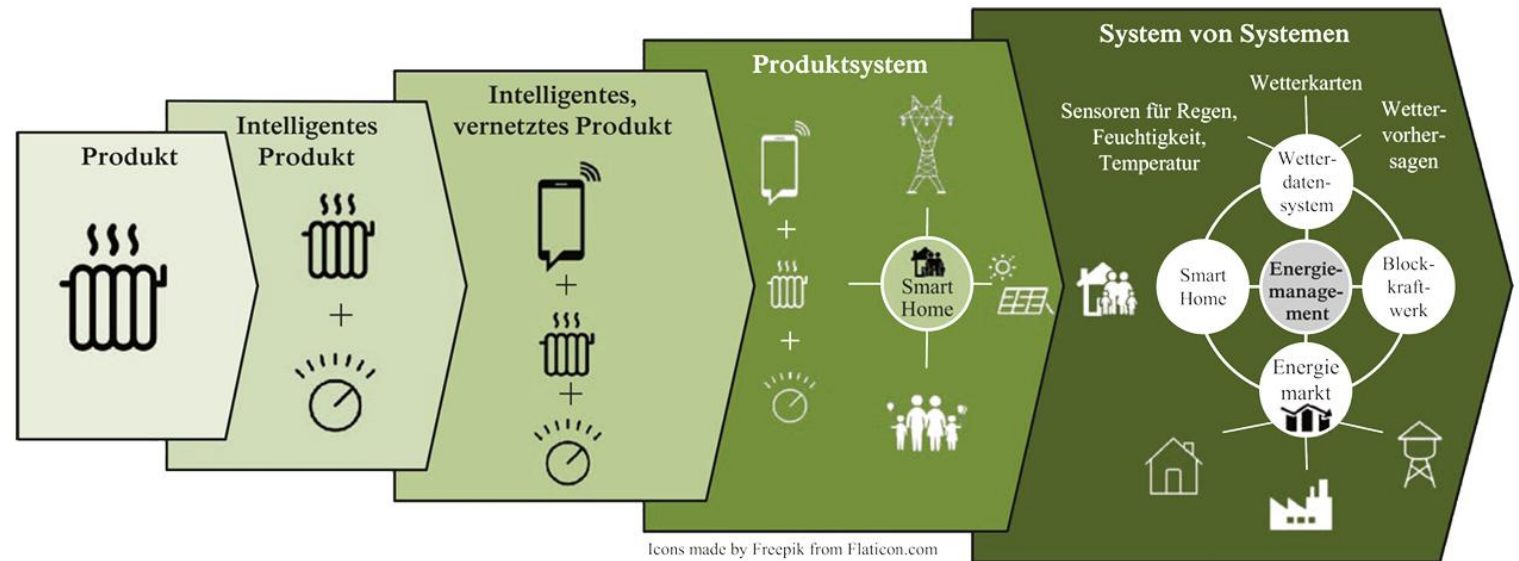
Implement Digital Model

Execute the most promising option

Implementation in the industry

The basic requirement for implementation is a business model that...

- ... describes the future system of systems (SoS)



Implementation in the industry

The basic requirement for implementation is a business model that...

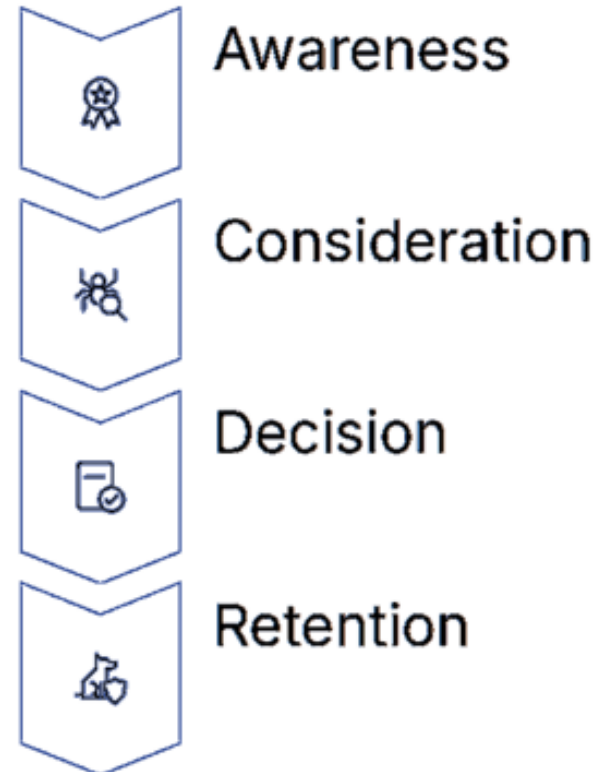
- ... describes the future system of systems
- ... defines the necessary technical infrastructure



Implementation in the industry

The basic requirement for implementation is a business model that...

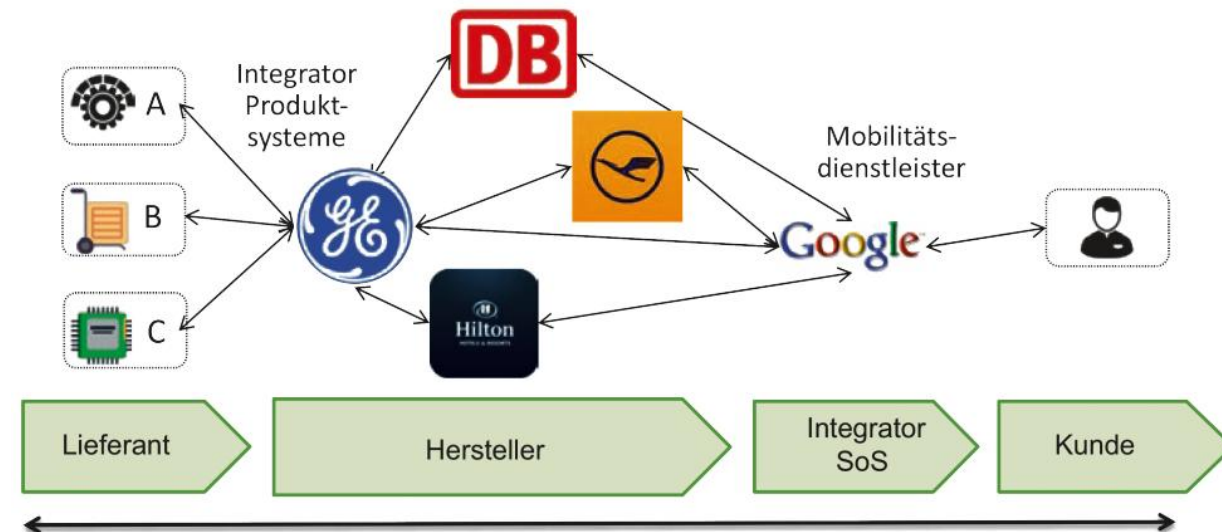
- ... describes the future system of systems
- ... defines the necessary technical infrastructure
- ... determines the customer journey



Implementation in the industry

The basic requirement for implementation is a business model that...

- ... describes the future system of systems
- ... defines the necessary technical infrastructure
- ... determines the customer journey
- ... represents the horizontal and vertical value network



Icons made by freepik from flaticon.com; Logos: GE, Google, Deutsche Bahn, Lufthansa und Hilton Hotels.

Example of a successful digital business model



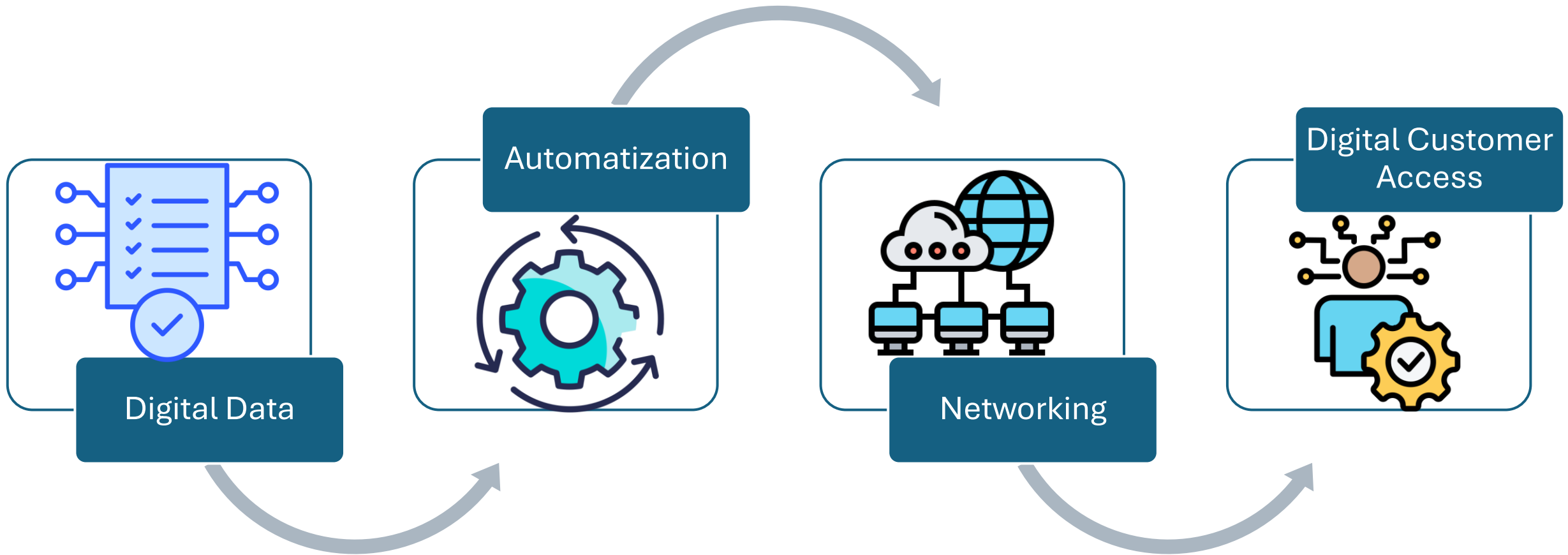
- Introduction of **ThyssenKrupp MAX**, a sensor-based elevator monitoring system
- Uses predictive analytics to detect failures early and enable predictive maintenance
- Reduces elevator downtime and increases maintenance efficiency
- Creates competitive advantage and transforms a low-margin service into a digital business model

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05 Levers of Digital Transformation

Levers of Digital Transformation



Levers of Digital Transformation



Digital Data

- collection and analysis of digital data
- improves efficiency and decision making
- enables better forecasts
- data becomes an economic asset

Examples

data analytics predictive analytics data-driven services

Levers of Digital Transformation



Automatization

- use of technology and artificial intelligence
- systems can operate autonomously

Benefits

faster processes lower operating costs fewer errors

Key Advantages:

- batch size of 1
- personalized products at low cost

Levers of Digital Transformation



Networking

- connection of machines, systems and companies
- enabled by fast internet and digital networks

Benefits

connected supply chains real-time information exchange higher flexibility
faster innovation cycles

Levers of Digital Transformation



- internet provides direct access to customers
- companies can reach global markets
- better understanding of customer behaviour

Role of platforms:

- connect companies and customers
- control customer interfaces

Examples

online platforms digital marketplaces

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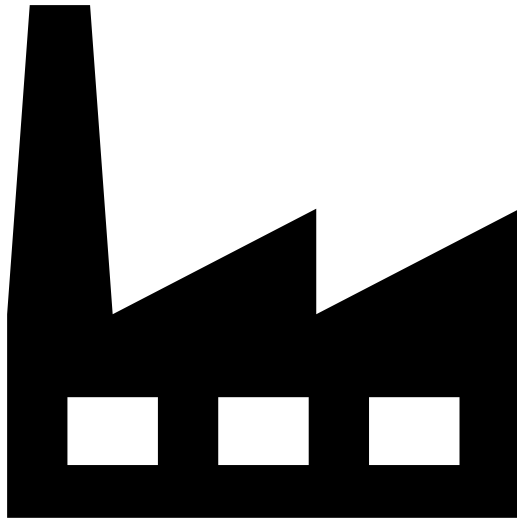


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06 Challenges

Challenges

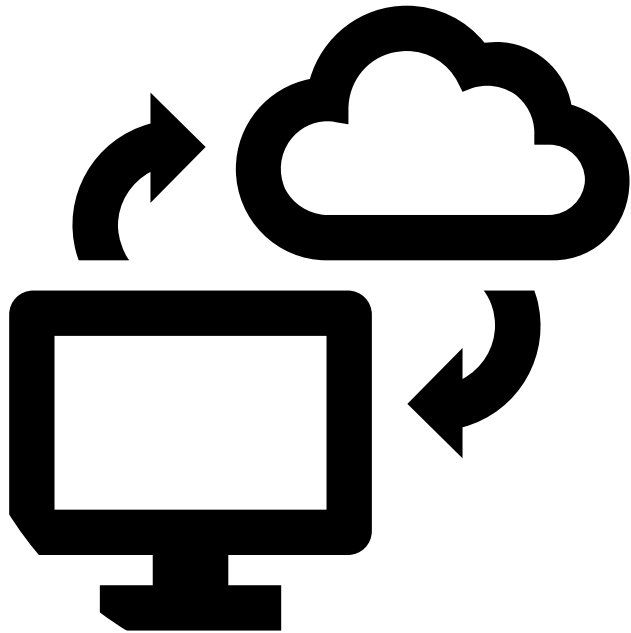


- Lack of comprehensive, company-wide digital strategies
- Growing number of digital interaction channels
- Strong pressure from fast-moving technology leaders
- Risk of being overtaken by more innovative competitors
- Market concentration: global monopoly positions in some industries



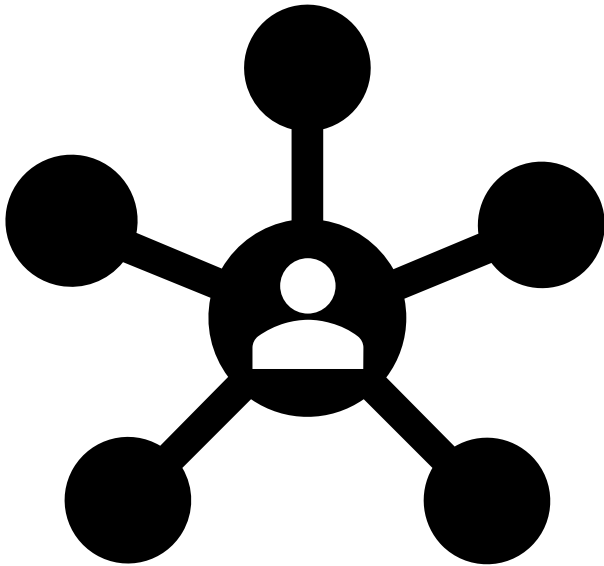
Rapid market disruption: 50% of top-revenue U.S. companies disappeared since 2000

Challenges



- Massive growth of data volumes
- Need for secure data storage processing
- Continuous adaptation to evolving technological requirements

Challenges



- Increasing income inequality due to automation
- Job losses in traditional sectors
- Government must provide financial support for displaced workers
- Need for continuous training and reskilling to stay relevant
- Long-term need to rethink social models if machines replace large parts of the workforce



Thank you for
your attention!

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