

Boost your craft business through digital transformation



About the Course

This course was originally developed for **small and medium-sized enterprises (SMEs)** in the **Austrian craft sector**. The course was translated into English to make the course accessible for SMEs in other countries.

Our society is undergoing a major cultural transformation. Digitalization and digital transformation are changing our work, our everyday life, and the perception of our world.

*"The great transformation is to be thought of from the cultural
and not from technological change".*

([Uwe Schneidewind, Die große Transformation, 175](#))

Craft and trade have tended to observe this process with skepticism and distance - an attitude that also affects the **degree of digitalization compared to other sectors**. This course intends to **encourage** people to recognize the many **positive effects of digitalization** on skilled crafts and trades, make greater use of them for their own companies, and reflect critically on them.

*"Digitization has proven to be an important tool for crisis management and
has brought about an enormous digitalization push."*

([Arthur D. Little, 2020, 6](#))

What will you learn in this course?

- **How crafts and digitalization can be combined.** What the significance and opportunities of **digital transformation** are for your company.
- What you need to win over your **customers and employees** for this change.
- What this can change for **your business and work models**.
- How you can use **new technologies** for your company.
- What **security factors** you should pay attention to.
- How **digitalization and sustainability** belong together.

This course will also allow you to **discuss, interact** and **collaborate** in an interactive way.

How long will it take you to complete the course?

We estimate approximately **three hours** of learning time, depending on how much you want to engage. The course can be interrupted at any time and resumed later. You can also work on the individual chapters independently after the introduction (from chapter 3).

About the course authors

[Study and Management Centre Saalfelden](#) developed this course for the [DigiCulTS project](#). "DigiCulTS - Digital Culture for SMEs" is an [ErasmusPlus](#) project co-funded by the European Union and designed by the [Study and Management Centre Saalfelden](#).

Staff members: Laura Krähe, Tanja Mayerhofer, Elisabeth Schreder, Wolfgang Schöffner with the assistance of Norbert Langbrandtner.

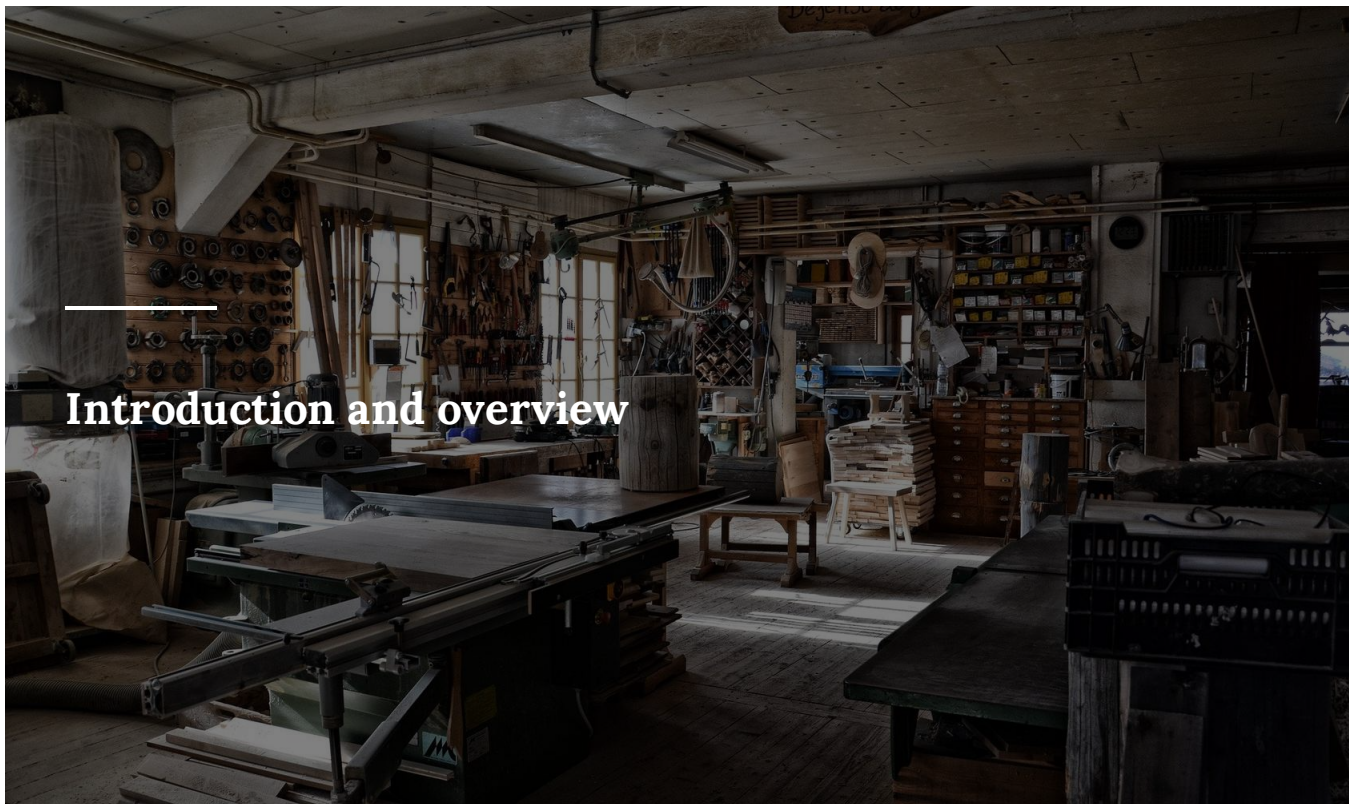
Let's start with the first chapter:

≡ 1) The importance of digital transformation for my company

≡ 2) Digitalisation in a craft business - Practical example

- ≡ 3) How do I reach my customers?
- ≡ 4) My online shop (e-commerce)
- ≡ 5) Digital Culture - How to attract and retain employees
- ≡ 6) Digital culture - Agile project management and agile teamwork
- ≡ 7) New technologies for my company
- ≡ 8) Safety
- ≡ 9) Digitisation and sustainability
- ≡ 10) Practical example Bookbindery Fuchs and outlook

1) The importance of digital transformation for my company



Introduction and overview

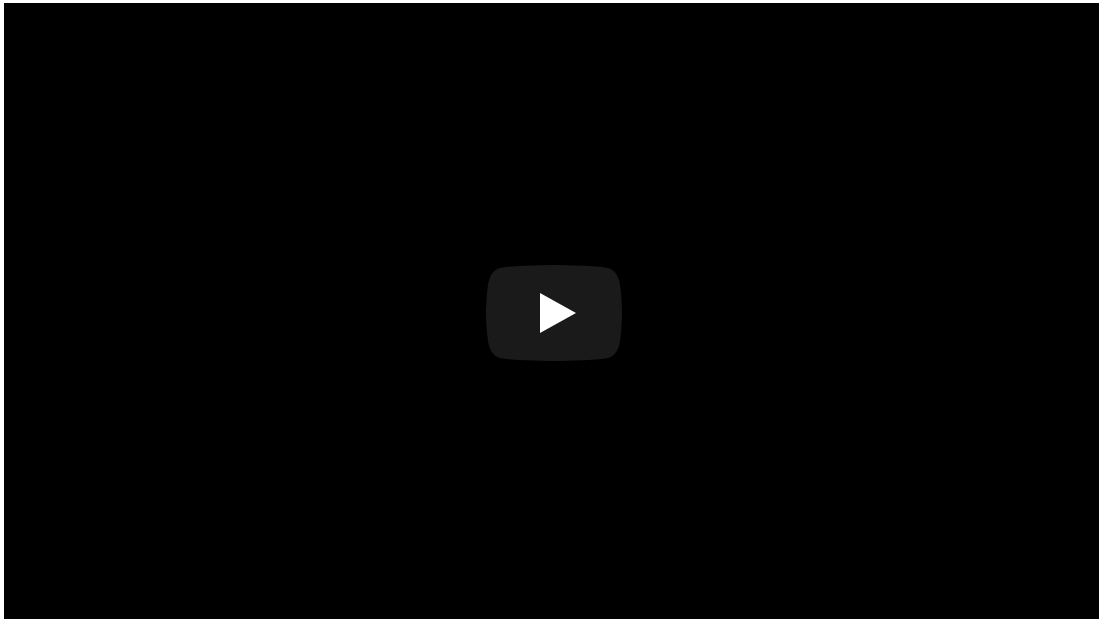
Digitization and crafts: There seem to be no significant contradictions at first glance. Shouldn't craft remain craft?

There is a lot of skepticism, so it's not surprising that experts see the greatest need to catch up digitally in trade and crafts compared to other sectors. ([SME Practical Guide to Digitalisation, 6](#))

Digital transformation – your chance

All companies are affected by digital transformation. No business model will be the same in 10 years as today. Therefore, it is not the question of whether, it is a question of how.

 YOUTUBE



What Is Digital Transformation - A Brief Introduction With Examples, Process and Statistics

Digital Transformation is not just about moving information from paper to a PC. It's about going beyond the traditional boundaries of IT and leveraging new te...

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But before we turn directly to the craft sector, let us briefly recall what **"digital transformation"** means. (cf. also our other course: "Promoting digital transformation").


While **"digitalization"** means, on the one hand, the translation from analog to digital (0/1) and, on the other hand, primarily the automation of existing business procedures and processes, **the term "digital transformation" stands for a complete social, economic and cultural change:**

- The **goal** is to change the company's culture and reflect and transform the way of working and thinking.
- The **activities** set for this purpose lead to building a digital enterprise and developing innovative, customer-centric business models that integrate digitalized data and applications.
- The particular **challenge** lies in overcoming resistance to change, strengthening a company's resilience, and promoting sustainable development.

How do you assess the importance of digital transformation for your company? Which areas could be affected?

Share your experiences with us and other course participants.

Add your answer to this question in our online discussion forum below. Just click on the button with the "plus" symbol in the bottom right corner to add a comment:

 You haven't used **Padlet** yet? It's pretty user-friendly and intuitive. You don't need to log in to use it. If you want to learn more about how to use it, you can find a short [YouTube tutorial](#) here.

The fact that the "digital revolution" is not only a technological but also a **cultural revolution** will become increasingly apparent during this course.

We need to convey already at this point that while **digitization and digital transformation** are "driven" by the development of new technologies (Internet of Things, Big Data, Artificial Intelligence, robotics, cloud computing, etc.), their **use and impact are primarily a cultural issue**. That means that technologies are artificial products and not facts of nature: **they can be changed, criticized, and developed further**.

*“It is not technology that will decide our lives (...),
what is decisive is the question of culture”*

How can we bring our values and business philosophy in line with this rapid development? How can our craft survive in this digitalized world?

Some dimensions of the digital transformation that we want to address in this course:

- Transformation of the economy: new business models, agile project management & agile teamwork, recruiting and e-commerce.
- New technologies and security
- Digitalization and sustainability



Take time to reflect. It pays off.

Time for reflection

Reflect on your practice: **What values underlie your economic actions or working attitude?** For example, are human dignity, solidarity & justice, sustainability, and transparency & co-determination guiding principles? Or do you think that human beings are driven by self-interest ("homo oeconomicus")?

Find inspiration for this in the following resources (Maja Göpel, Richard David Precht) and our eLibrary and action and practice guides on digital transformation for small and medium-sized enterprises.



Structuring and designing the digital change in skilled crafts – points of view and best practices of an innovative, changing industry

[READ MORE](#)

Maja Göpel: Rethinking our world - With transformation out of the crisis.

Lecture by the political economist and transformation expert at the German Sustainability Day 2021

German video: watch with English subtitles.

[WATCH THE VIDEO](#)

The Digital Transformation of SMEs

Policy Highlights - published by OECD

[READ MORE](#)

The future of work after COVID-19

McKinsey Global institute

[READ MORE](#)

Enterprise Architectures for the Digital Transformation in Small and Medium-sized Enterprises

by David Goerzig and Thomas Bauernhansl

[READ MORE](#)



What did you learn in this chapter?

Lessons learned

- The **distinction between digitalization and digital transformation**
- Digital transformation is taking place and affects all companies. **It is a global process but offers many possibilities for individual shaping.** It is a cultural product and not a law of nature. Therefore it can be individualized and criticized.

In the next chapter:

Company "Holzgespür": A practical example of how the individual design of the digital transformation in the skilled crafts sector can succeed.

[Next chapter](#)

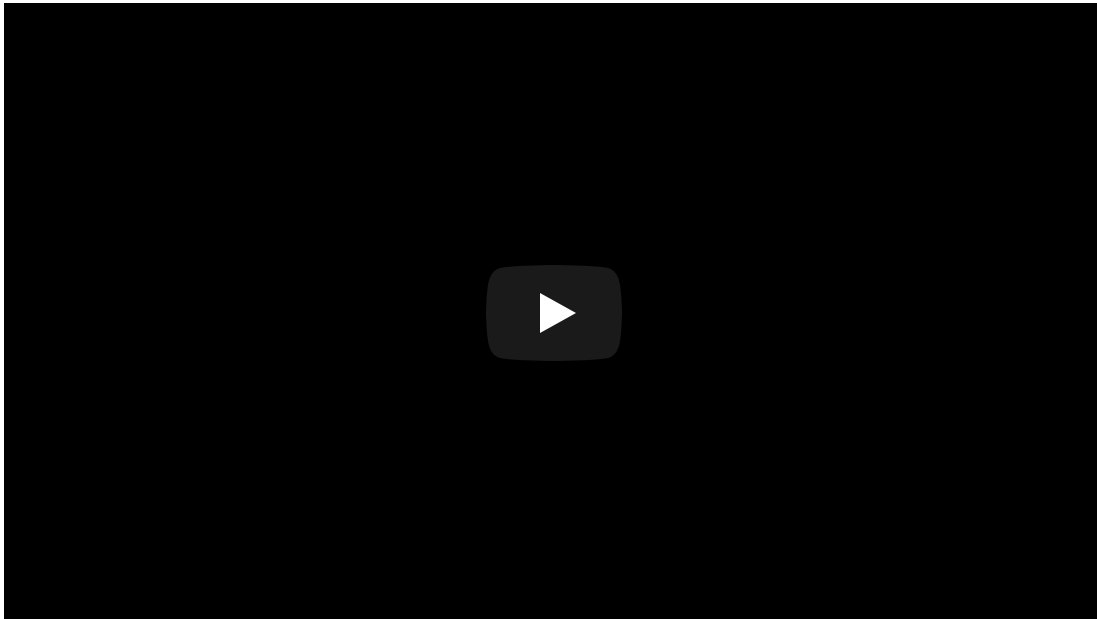
2) Digitalisation in a craft business - Practical example



Here you can see how digitalization, a new business model, and craftsmanship can be successfully harmonized using the example of carpentry.

To watch the video with **English subtitles**, please activate the auto-translation option in the settings of this YouTube video. For detailed instructions, please watch this [tutorial](#).

 YOUTUBE



Digitalisierung im Handwerk. Digitale Kompetenzen in KMU | KOFA

Handwerk 4.0: Was bedeutet Digitalisierung fürs Handwerk? Wie verändern digitale Geschäftsmodelle die Rekrutierung und das Personalmanagement eines Unternehm...

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How does "Holzgespür" use digitalization to turn traditional carpentry into a modern business model?

SUBMIT

How does the business model of Holzgespür work?

It all started with the founder's idea of turning her parents' traditional carpentry business into a **sustainable, modern company**.

How does she succeed in doing that? **Through digitalization. Customer centricity** is at the heart of digital transformation.

Never before have customers had so many choices. One click and you change not only companies but also continents.



For a long time, it was common sense to assume that you had to know your customers' needs first and foremost to win their loyalty. But since these are changing constantly and ever faster, this relationship has almost been reversed in the digital world.

What has changed? Now your **customers tell you what they want**. And they can do it from **anywhere and at any time**. So you make them co-producers and involve them in the creation process: they create their product with you - transparent in production, personalized as a product.

“You have to start with the customer in mind.”

- Steve Jobs

And this is where Julia Kasper's model comes in:

"The **idea of "Holzgespür"** is to interactively get in touch with potential customers via an online platform." (Julia Kasper)

As a customer, you are involved in creating your dining table: You choose the type of wood, the size, the shape - and watch your table grow.



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Ok

"That was a feeling of optimism again, and we got completely different perspectives, which are not just around our church tower, but are now nationwide, and it's so interesting that suddenly Zurich is being discussed, Hamburg is being discussed, Berliners come here to the carpentry, where do all the people come from, that's crazy." (Hermann Kasper, Managing Director of Holzgespür)

The early involvement of customers in the creation process of a product or service is one of the main differences between digital and traditional business models. In addition, new media and new forms of communication reduce distance in terms of location, time, and social space.

The joint development scores with charm, trust, and joy over the custom-fit, individual result.

You can find more practical examples in the resources below and the guides in chapter one.



Digitisation of the craft. Its importance and why it still triggers scepticism.

LEAD Innovation Blog

READ MORE

Digital technology and traditional craftsmanship - Can we combine them?

Article by WEBSENSA

Can craftsmanship and technology work harmoniously?

[READ MORE](#)



What did you learn in this chapter?

Lessons learned

In this second chapter, you have learned how the transformation of a classic **business model** to a digital one can be successful based on a **concrete example**.

You have found out that the **participation of customers** via social media, the possibility of **individualization** in the configuration of products or services, and the use of an **online**

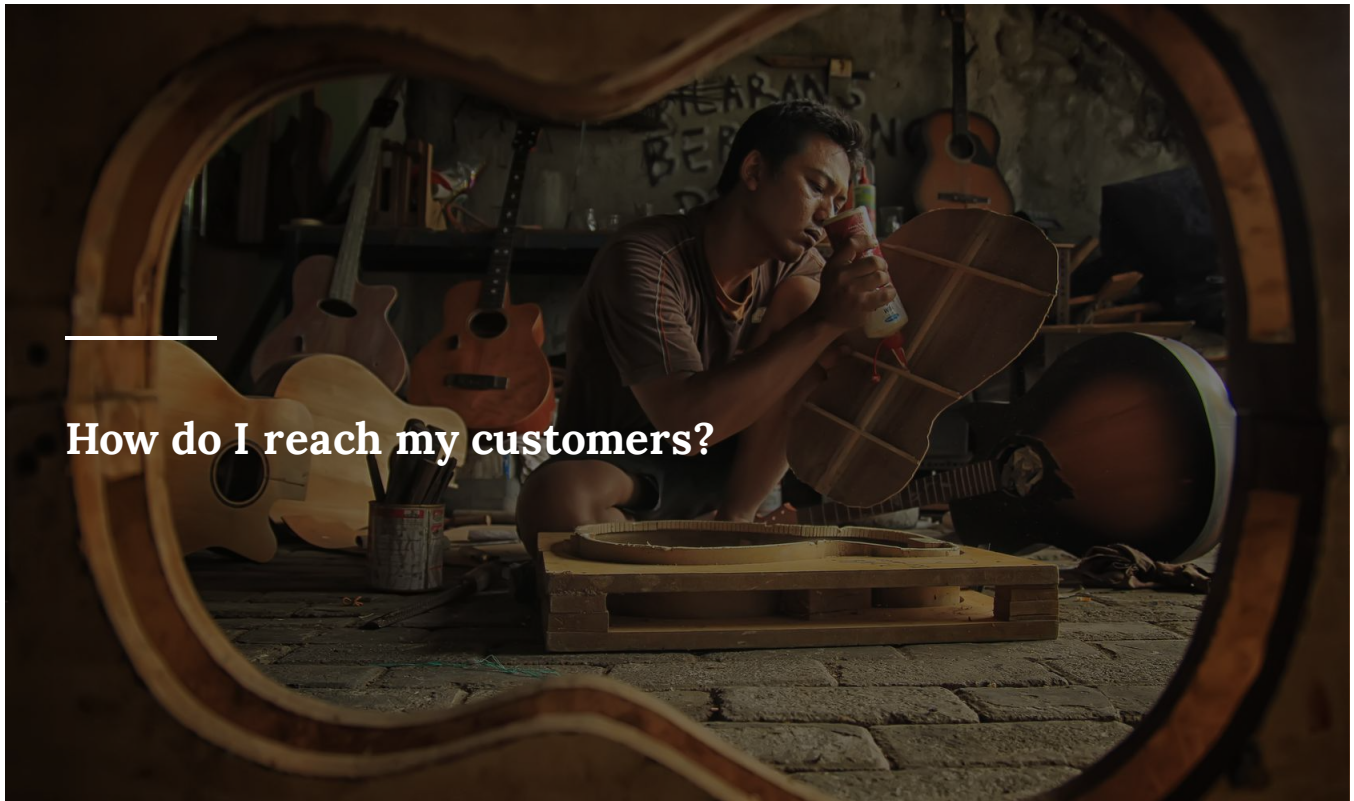
platform are of great importance for a successful digital transformation.

In the next chapter

So crafts and digitalization are not mutually exclusive. But how do you start? How do you reach your customers? You'll find out more about that in the next chapter.

[Next chapter](#)

3) How do I reach my customers?



How do I reach my customers?

Until a few years ago, **traditional advertising channels** were still the primary means of reaching customers. However, newspapers, magazines, radio, and TV are becoming less and less important.

Increasing digitalization has opened up **entirely new possibilities** to get in touch with potential customers!

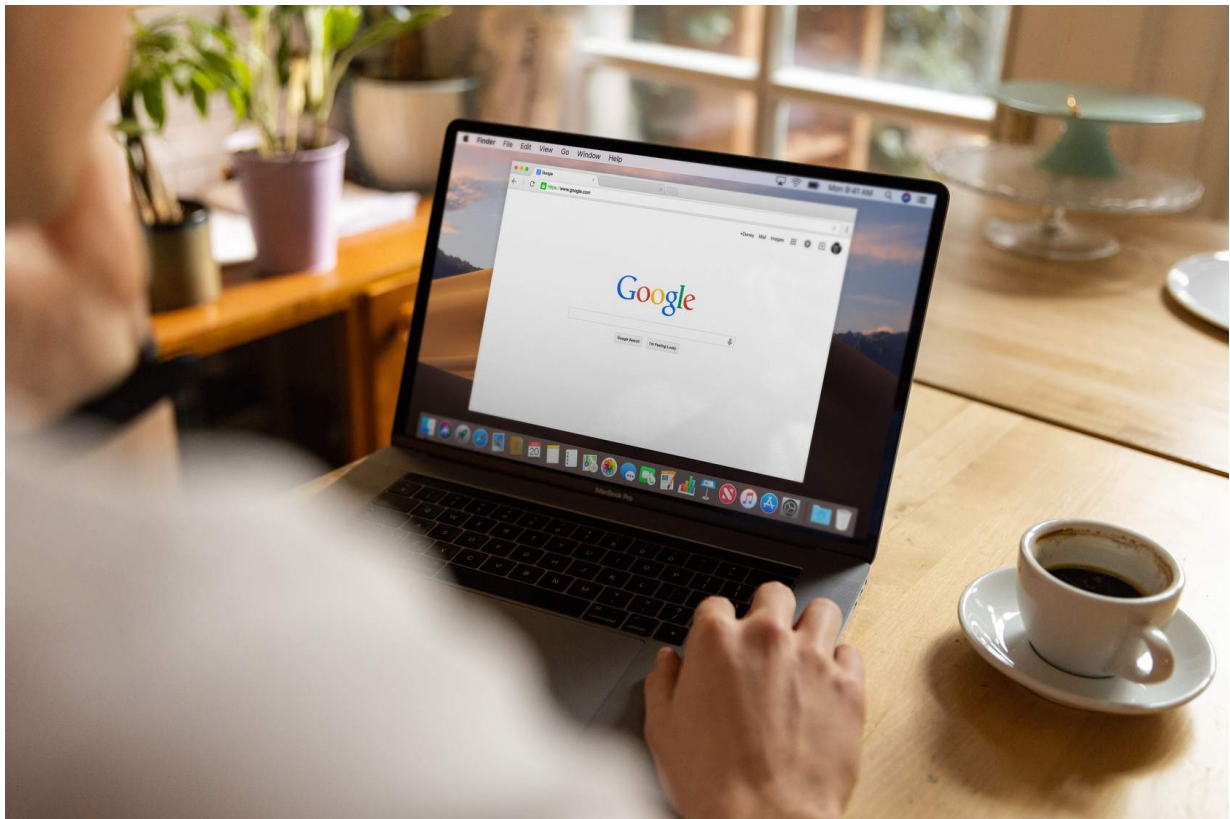
The advantages are obvious: "Everyone has a smartphone!"

- This means that every potential customer can be **reached digitally!**
- In addition, online advertising **requires little lead time** and can be adapted daily.
- **All processes can be handled via smartphone, from** the first contact, through production, to the conclusion of the sale and payment.
- Many customers already **use these options daily** and often take them for granted as a service.
- **Customer data** can be stored and used for further business development.
- There are many more good reasons to get involved with the **digitalization of your craft** now.



*“The Internet is like a wave. You either learn to swim with it
or you sink.”*

- Bill Gates



As a company, it is particularly important to be found.

The **importance of having your website** has established itself as the first cornerstone of digitalization.

Search engines like Google make it immensely more accessible for customers to find suitable products and services. That can be regional but can also be very global. For example, the products

of any local craftsman can also address customers in Dubai.

As great as the possibilities of worldwide contacts are, the **number of potential competitors is also increasing**. Therefore, it may be necessary for many small and medium-sized enterprises to offer **unique niche products** and to present them conspicuously in the big online world.

There is a solution for almost every problem online - a suitable offer for every wish. However, to escape the price trap, you have to come up with something!

First of all, you'll need understanding for conversion:

From

Product - Advertising - Customer

To

Customer - Advertising - Product



Focus on customer centricity



Who are my potential customers, what do they want, and where can they be reached?

This is where the immense possibilities of social media networks come into play!

Many successful craftspeople use them to inspire their community with their products and to commit in the long term.

“The best ideas come to me when I imagine that I'm my own customer ”

- Charles Lazarus


How does it work?

First of all, all social networks are not about classic advertising platforms - **they are about social exchange! It's about people!**

We are all **flooded with information every day**, but we can decide how much attention we pay to all the information.

In the first second, we decide whether a post interests us or not on our smartphone - **then it is wiped away with a finger or read on!**

That's why you have to take your customer's point of view radically, and the content and the regularity of your postings become decisive!



The Golden Circle by Simon Sinek

1

Good content should: **entertain, inform, educate or inspire**

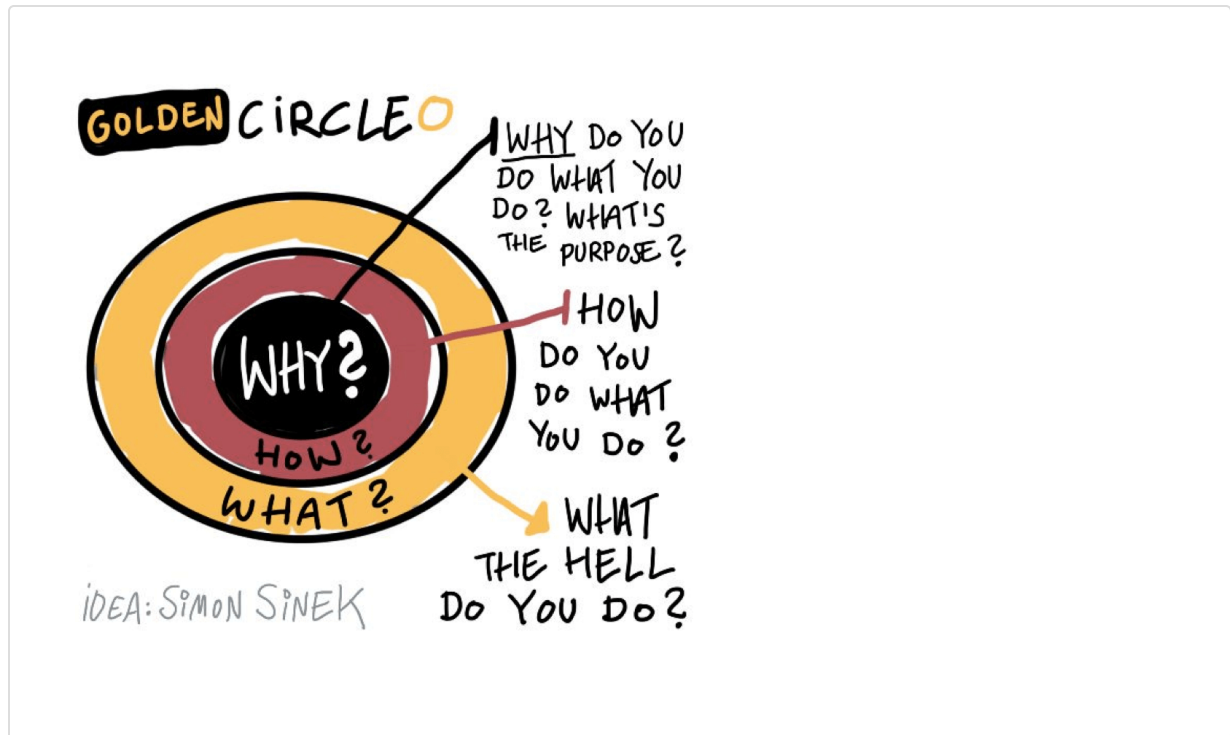
2

Good content is: **authentic, surprising, funny or challenging**

3

Good content awakens: **curiosity, attention, trust**

Pure product advertising no longer brings the desired success. [Simon Sinek's Golden Circle](#) has prevailed: **WHY – HOW – WHAT!**



Why?

Your customers are on a journey, the [customer journey](#)! There are many points on this journey, the touchpoints, where you can address them. They used to be analog (newspaper, posters, radio, TV, etc.), but now they are becoming more digital (website, email, social media, etc.).

Depending on how often your customers have heard or read about you, they now have a **picture of you and your products and services**. In the flood of information, we are exposed to every day, **values such as humanity, authenticity, and trust are becoming increasingly important** - especially for you as a craftsman!

How?

Once your clients have gained trust in you and your values, the next step is to show them **how you do things**. Especially as a craftsman, this is a great opportunity. Showing yourself and your employees at work creates a lot of trust because people buy from people!

What?

It is about your product or what you have to offer your customers. If they already know and understand your WHY and HOW, you have successfully established a relationship.

The price is no longer in the foreground for the customer, and you can establish a long-term relationship. Customer Lifetime Value (CLV) will reward you for your work upfront.

So answer the three questions in this order and show your online community your own Golden Circle in short stories.

Simon Sinek shows that successful personalities like Martin Luther King Jr. and Steve Jobs all thought, acted, and communicated according to the same natural pattern in his bestseller.

At the beginning of her work, there was always the question of why.

Time for reflection

Think about your practice: **How do you currently reach your clients? How do your clients find you? Is your business already present on social media?**

Can you imagine **thinking about and implementing a marketing strategy for your business or expanding your existing strategy?**



Take time to reflect.

It pays off.





START WITH WHY

The Golden Circle of Simon Sinek explained

[WATCH THE VIDEO](#)

Social Media Trends Report 2022

HubSpot and Talkwalker got together on a social media trends report to show you how to drive success in the accelerated age of the "now" consumer.

[READ MORE](#)

Content Marketing

Why Social Media is important for business marketing
by Marketing Insider Group

[READ MORE](#)



What have you learned in this chapter?

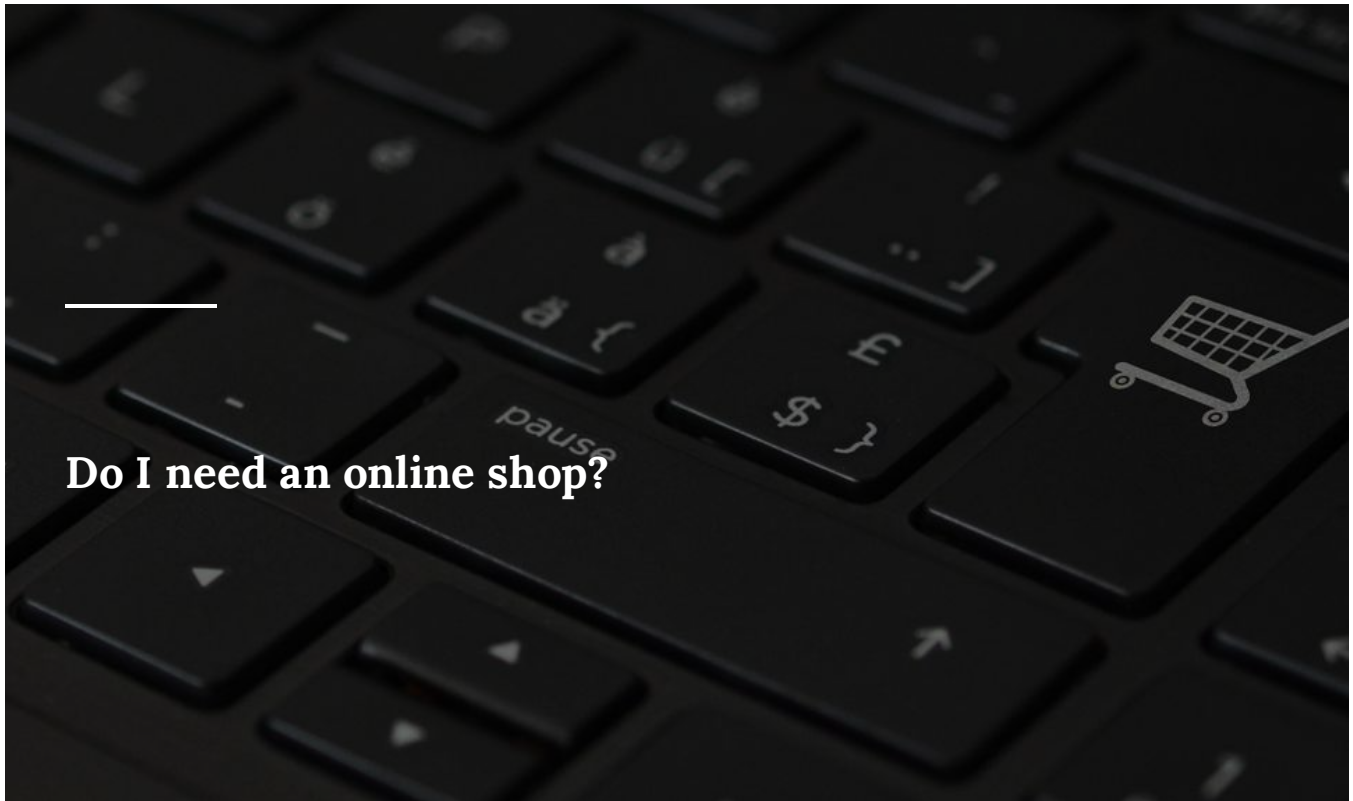
Lessons learned

- **Communication** between crafts and customers is shifting to the internet. Your company must be **present online** to be found.
- Get to know your customers' **wishes, problems, and needs; then** you can offer them solutions.
- Take your time and create good content that is relevant to your customers. Think about your **WHY-HOW-WHAT** and tell it to your customers regularly in short stories!

In the next chapter, you will learn what you need to consider when setting up an online shop.

Next chapter

4) My online shop (e-commerce)



We want to help you answer this question here. Online shops are booming, generating enormous sales. The biggest ones are also making astronomical profits. **Can you also benefit?**

Maybe you need to ask yourself a different question in times like these:

Can your business survive without an online shop?

Even before Covid-19 and the resulting lockdowns, many entrepreneurs had to deal with this. Many, even smaller companies, have chosen to do so.



- What **structures** need to be created for your online shop?
- Which **shop systems** are available and can be selected?
- How do the **economic goals** have to be set?

To answer these questions, let's start with the basics:

E-commerce **is the digitalization of processes** to trigger automated business processes based on information and communication technologies.

Companies are often faced with whether or not to launch e-commerce. The industry in which they operate and the business goals they pursue are critical factors here. However, launching an online

store is not always the right decision. That depends very individually on several factors.



*“The online shop is the extended arm of the shop.
Trust is built up via the shop, which I could never
achieve to the same extent online.”*

– Benjamin Brüser, Founder of Emmas Enkel


Entrepreneurs can take the first steps towards an online shop in the sales department, which serves both the **stationary trade and the online shop**.

In many areas, consumers often **inform themselves online and then buy locally**, or unfortunately, often from the competitor. If precisely the same product is also available online, people will buy directly from the **best or cheapest supplier**.

Click and collect, for example, is an entirely new way of combining online with offline and has paid off for many retailers during the crisis. The product is ordered online in advance and then collected directly from the retailer in person (in the offline world).

This already shows how important the topic of online marketing is and that entrepreneurs have to deal with it to remain **competitive**.





Take your chance now!

The most significant advantages are eliminating **the distance to the customer and the independent opening hours!** Regardless of time and place, you can make yourself and your company visible online, and people can shop at any time.

Your online shop becomes your best sales representative **24 hours a day, seven days a week.**

Another great advantage of e-commerce is scalability - both B2B (business to business) and B2C (business to consumer) sales can be handled and closely monitored via e-commerce.

Many of the costs incurred during the customer journey, such as rent, insurance, personnel, and other fixed expenses, can be eliminated with e-commerce.

Through social media or newsletters, personalized offers can increase **customer loyalty.**

Start-up and maintenance costs can make an online shop seem unattractive initially. **Many offers and the associated price pressure** are other challenges to adjust and react to. Customer centricity is also critical because **supply is currently growing faster than demand.**

Therefore, **analysis tools** are necessary as a component of online shops. But these must also be used and interpreted correctly.

“Most of the industry folds physical commerce into the digital world, but you have to rethink online.”

- Christoph Kappes, Digital-Chef of Feneberg



Appoint a responsible person

Every company needs one or more leading and responsible people. The same applies to online shops. The inventory, the pricing policy, and marketing and sales measures require **regular adjustment and control**.



Therefore, it is essential to **appoint a responsible person** to care for these things. This does not have to be a complete department or even a full-time employee for smaller companies. **However, the responsibility for the e-commerce division must be assigned to a specific person.**

The right shop system and the right infrastructure

Once you have decided to operate an online shop, the next question immediately arises: **Which shop system and other components are necessary?**

It would be best if you had a **product database** with all the relevant information, which at the same time makes it possible to display customer-relevant details such as prices and discounts.

You can design e-commerce with the appropriate knowledge and sufficient resources by yourself, but this is rarely done this way. The reason for this is the **existing solutions**, which can either be purchased in complete packages or are offered as **open-source solutions** in which individual adjustments can be made.

It is essential to set up an online shop to be **easy to maintain** and not necessarily require external support.

The ideal shop system is characterized by how you can **optimally present your products and services**. Furthermore, **interfaces to storage and payment systems** and web analysis tools are the basis for every successful online shop.



An **online shop is a cycle** that needs some elements to work.

Once it has been created, the first step is to install **online marketing measures** to reach customers. The easiest way to do this is via **social media channels** because the target groups can be addressed directly here.

However, these mailings must be planned and **fit the target group**. This can be done in a **CMS (Content Management System)** and various ad managers.

The people reached must be managed in a **CRM (Customer Relationship Management)**. This offers immense advantages because data can be collected on every step of the customer's journey, and action can be derived. In addition, this helps the company to optimize the system constantly!

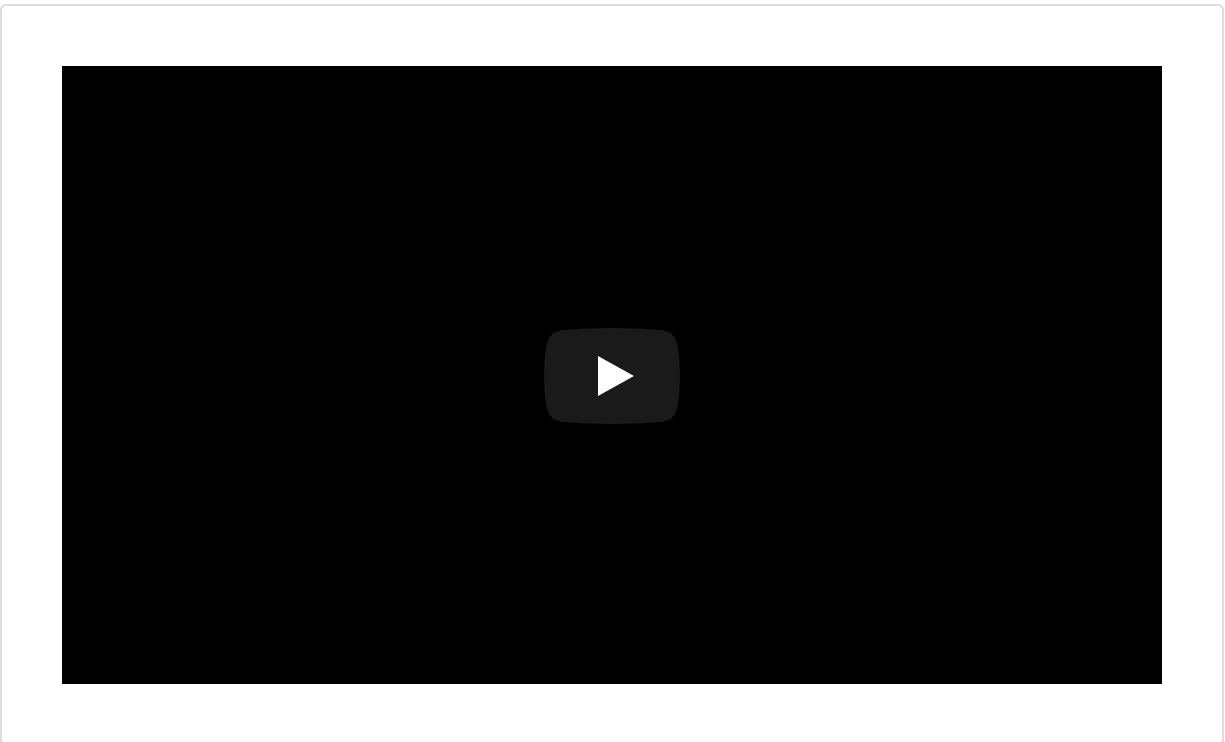
But beware, this data must always be adapted within the framework of the **GDPR (General Data Protection Regulation)**.


In the further course, the **stock and logistics** have to be integrated into the system to make the shipping run smoothly and quickly. Finally, invoice **and payment** are the next steps in the cycle and thus complete the purchase.



It may be worth considering using **marketplace models** such as Amazon or their services. They know best what customers want and how to fulfill these wishes.

AI (artificial intelligence) and the resulting algorithms automate many processes. They take all the data, analyze the strategies and make very accurate predictions about the behavior of your target groups. Meanwhile, the accuracy of these automated processes has taken on almost frightening dimensions. Everyone who has ever ordered from Amazon or other large companies knows this. You have the feeling that all you have to do is make a wish or say it, and shortly afterward, you will be bombarded with advertisements and offers.





Goals in e-commerce

The right strategy also leads to the goal of e-commerce, namely **profitability**. That is why it is essential to plan and set goals.

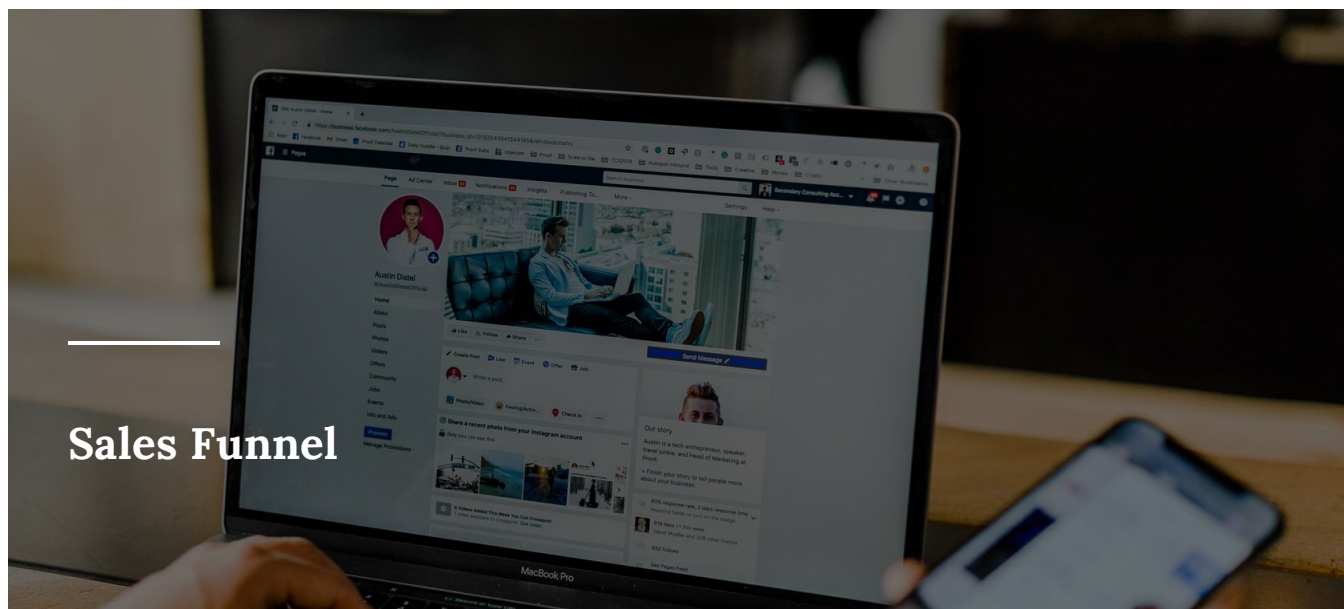
The central objective of e-commerce is to increase sales and, thus, turnover. However, the **first contact in an online shop is often not synonymous with a paying customer**. Accordingly, it is essential to create offers and stimuli. Creativity is usually required here.

Winning a new customer is more of a burden on the marketing budget than persuading a customer to buy again. However, to survive in the long term, it is necessary to strengthen customer relationships. Therefore, it is extremely important not to lose sight of **customer loyalty as a goal**.



Only satisfied customers are willing to buy again. This is why digital marketing opportunities such as **email**, **social media**, and **retargeting** are essential.

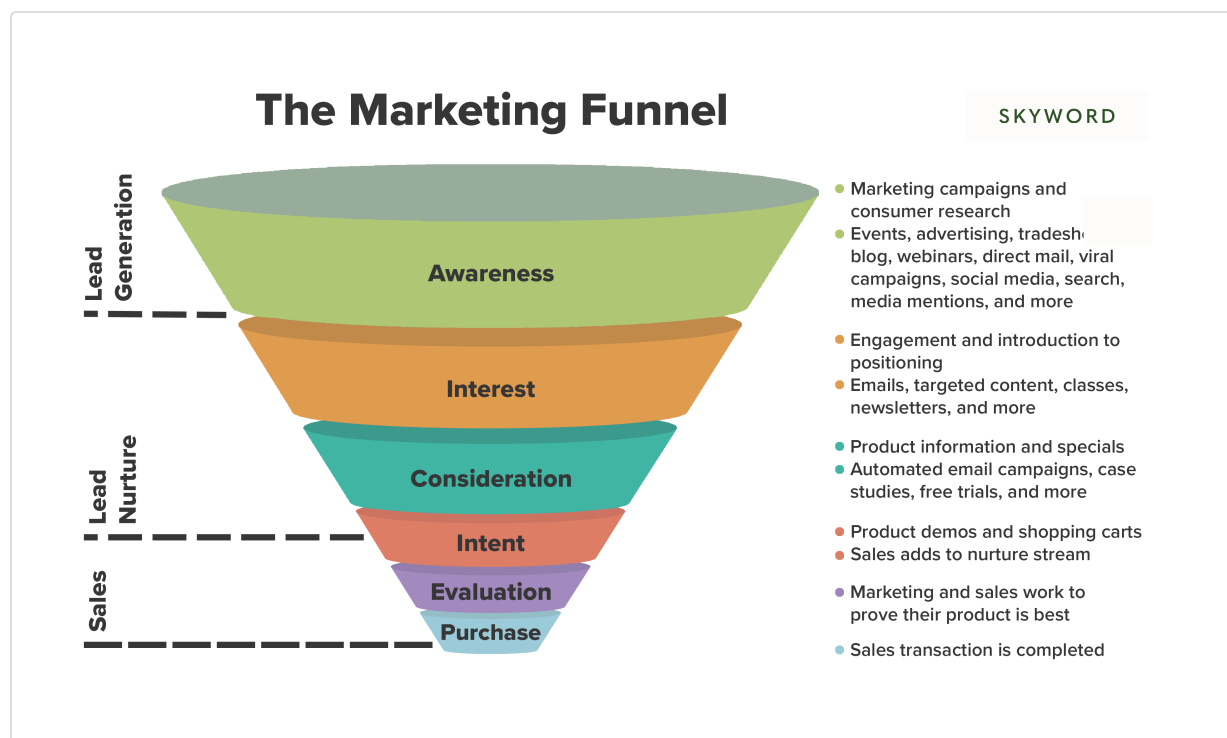
Your customers also can rate **you**, **your company**, and **your products online**. This already plays a vital role in the purchase decision and should not be underestimated.





As in traditional retailing, it is also necessary for online retailing to consider the buying process based on a **stage model**.

Starting from the **attention phase**, where the aim is to **make people aware of a product, a service, or an offer**, the **purchase consideration phase** should be primarily concerned with **ensuring that customer needs and expectations are met** in the best possible way. In the last step, the buying phase is approached, where the willingness to buy is already firm.



In this stage model - the so-called **sales funnel** - new customers in B2C and B2B can also be **clearly distinguished from existing customers**. This makes it possible to align the goals, set specific goals for each phase, and map and continuously measurably optimize them.



What to do now?

Before starting an e-commerce project, you should be well prepared.

If you want to sell via an online shop, there are many small but important questions to consider:

☐

Can your products/services also be **sold well digitally** or do your products/services require a **lot of explanation**?

☐

Does it have to be your **own online shop** or is it also enough to sell through **partner networks** and assign a certain fee for it?

☐

How do you build the **right system landscape** - from logistics, payment systems and databases to customer loyalty programmes - around your online shop?

Especially at the beginning, it can be constructive to get the correct answers from **experts** or at least to make use of the experience of your colleagues or co-workers!



9 Best eCommerce Marketing Strategies for 2022

eCommerce Marketing Strategies by AdNabu

[READ MORE](#)

eCommerce Marketing: Ultimate Guide to Succeed in 2022 (and Beyond) Beginners guide for

eCommerce Marketing by AdNabu

[READ MORE](#)

Ultimate List of Ecommerce Tools for 2022

Blog written by Neal Goyal/Hubspot

[READ MORE](#)

The future of shopping: what's in store?

by The Economist

[WATCH THE VIDEO](#)



What lessons could you take away?

Lessons learned


In this chapter, you have learned to:

- determine your target group
- define and decide on your potential markets
- select the number of online shop visitors and contacts, and buyers
- build, maintain and strengthen customer loyalty
- to be close to the customers with social media channels and enhance their individuality.
- to optimally build up the customer journey via online marketing
- to take the most straightforward possible steps from initial contact to purchase
- measure user behavior through analysis tools
- integrate and use upselling measures

In the next chapter, you will learn more about:

Digital Culture - How to attract and retain employees

5) Digital Culture - How to attract and retain employees

A LEGO minifigure with a black head and a frustrated expression is sitting at a black desk. On the desk is a small computer monitor displaying a blue screen with white text, a keyboard, and a mouse. The minifigure is wearing a black vest over a white shirt. The background is a plain, light-colored wall.

Why is it so difficult to find great employees?

The shortage of skilled labor is a central issue in many small and large companies. In recent years, the labor market has undergone a significant change. In the past, when looking for new employees, you placed a job advertisement, many applicants came forward, and you could pick the best candidate, but today this is precisely the opposite.

Aside from the demographic change, a shift from the employer market to the employee market occurred. Qualified employees are harder to find these days. We also speak of a "[war for talents](#)" as

companies compete for qualified professionals or even hire them away from each other.

Social media as the solution to the skills shortage?

"Social media recruiting is considered an established panacea in the fight against the transition of skilled workers. With good reason, as this solution is now at the top of the list among the most popular recruiting channels in German-speaking countries, alongside online job advertisements, company career pages, and employee recommendations." ([Dannhäuser, 2020](#))

The way how companies reach potential candidates has changed significantly. Recruitment is increasingly directed towards relevant social media channels, such as LinkedIn, Xing, Facebook, Instagram, YouTube, Vimeo, and company rating portals, depending on the target group.

Candidates want a certain degree of privacy. Direct contact, respectively [active sourcing](#) via a private email address, is considered acceptable by 5 out of 10. Candidates think Facebook or messenger services are unsuitable for making contact.

Companies often use social media channels for image films. Every third candidate of [Generation Z](#) frequently receives advertisements on Facebook from various companies. The [Baby Boomer](#) generation most often receives advertisements on LinkedIn.

To make contact and be perceived positively by potential applicants, it is highly advisable to deal with Employer Branding. In the next section, you will find out what this is all about.



Increasing employer attractiveness through Employer Branding

The shortage of skilled labor and the "war for talents" are omnipresent across all branches. This makes it more critical to **develop a strategy**, no matter how small a company is. First impressions always leave a lasting impression, so companies must communicate in a targeted manner. If you want to be visible to qualified employees and want to win employees for your company in the long term, the first step should be dealing with "Employer Branding".

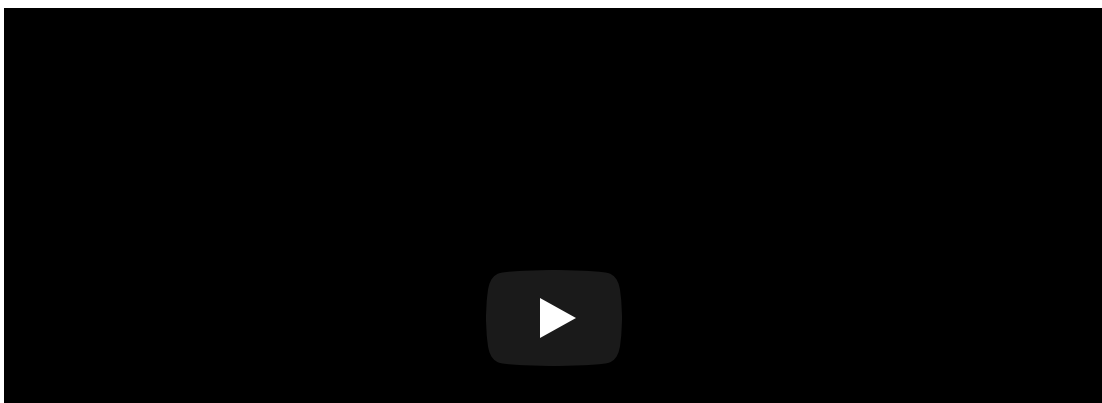
What is Employer Branding?



It is crucial to present yourself as an attractive employer to the public and within the company when it comes to Employer Branding. Therefore, the focus is always on **AUTHENTICITY**. The best concept is for nothing if the company does not implement and practice it.

Applicants tend to study the company intensively before they apply. In addition, they pay attention to how a company presents itself to the public. Can I identify with its values?

The following video describes in a few minutes what employees can expect in this company.





Tip: Short recruitment videos are popular and can be easily shared on various social media channels.

Applicants have a clear idea of what they expect from a future employer. **Creating a positive and appreciative environment for applicants** from the first to the last contact with your company strengthens **your employer's brand**.

Employees pay particular attention to:

INTERNAL FACTORS IN A COMPANY

EXTERNAL FACTORS IN A COMPANY

- the company culture and management culture
- appreciative working atmosphere
- the workplace environment
- career opportunities and further training

INTERNAL FACTORS IN A COMPANY

EXTERNAL FACTORS IN A COMPANY

- Appearance of the corporate website and career site
- Appearance of social media platforms
- Employer profiles and ratings on platforms

Exactly these internal and external factors also affect "Employer Branding" and give a company its image, creating a distinctive [employer brand](#).

What are the advantages of Employer Branding?

Increase the visibility of the company —

- You can distinguish yourself from competitors and emphasize what the company stands for.

Increase the quality of applications —

- Job candidates can find out in advance if they match the company. This saves time for both the company and the applicant. In addition, it reduces the chance that candidates discover that they are not a good fit for the company during the interview.

Employee motivation and productivity —

- An employee-friendly working environment ensures satisfied and motivated employees. The more a team can identify with the goals and values of a company, the more productive and efficient the output.

Employees are valuable Ambassadors —

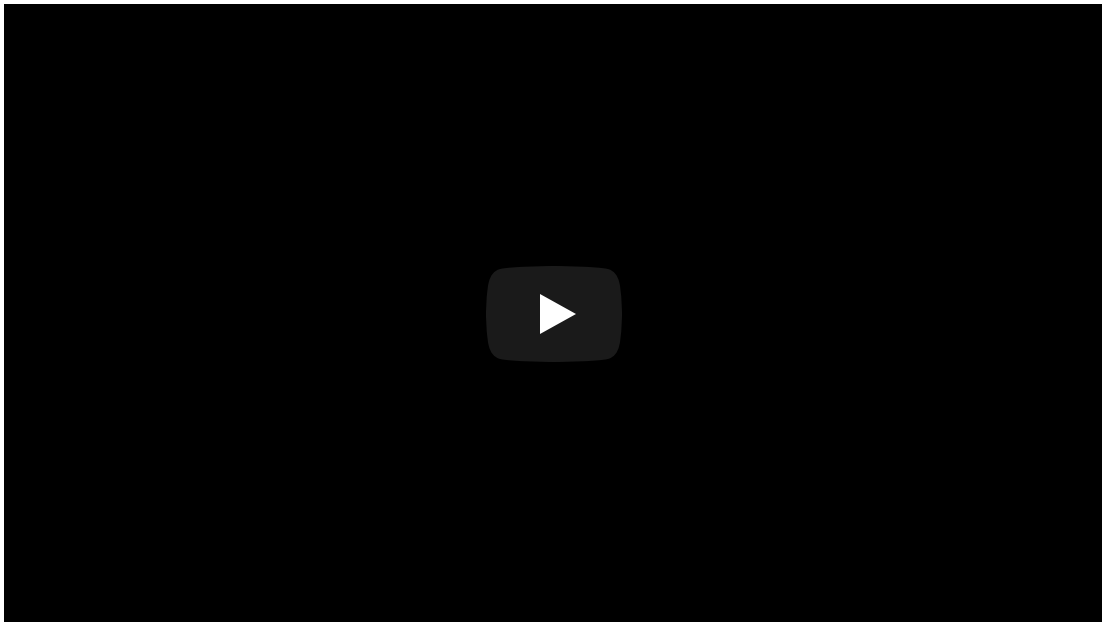
- Good corporate culture creates satisfied, motivated employees who communicate this to the external environment. Not only are the product or service a company's trademark, but the employees are also the best advertisement for a company.

Lower rate of fluctuation —

- The more employees feel connected to a company, the more difficult it is for them to change jobs. The most essential key factors here are that a company pays attention to a feel-good climate, has an open ear for the needs of employees, and continuously values both new and long-term employees.

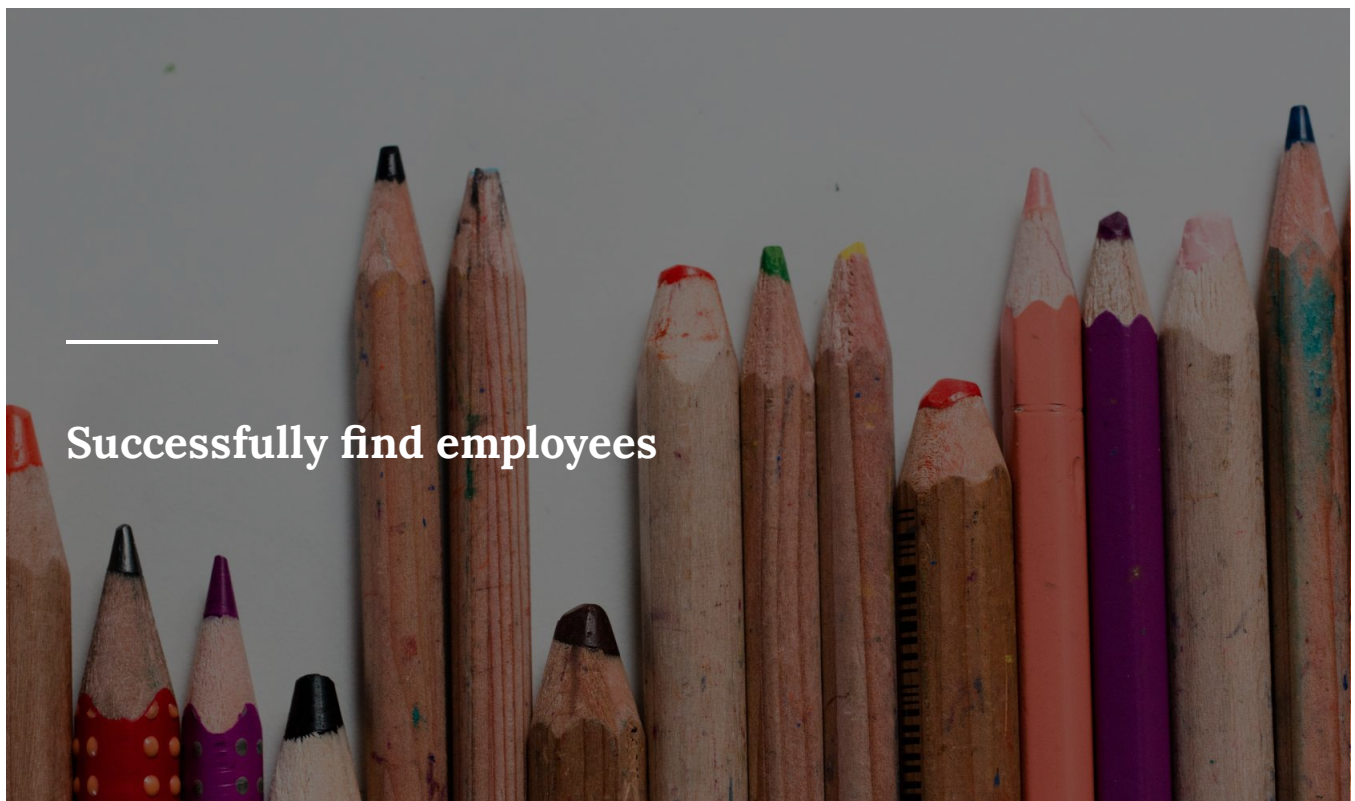
In the following video, successful Employer Branding is explained clearly in six steps:





The 6-Step Employer Branding Process

[VIEW ON YOUTUBE >](#)

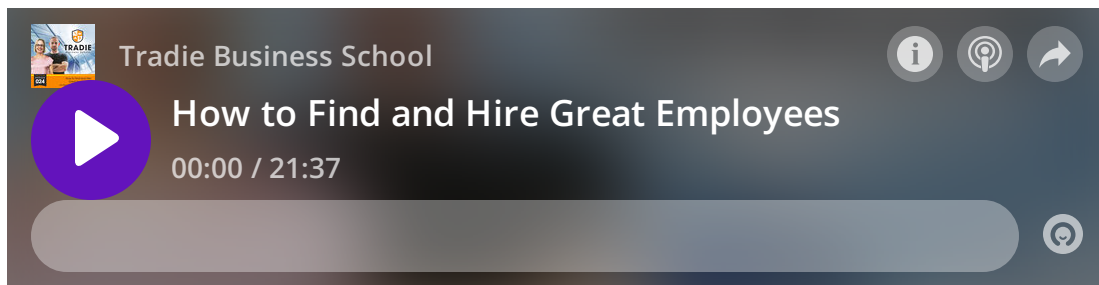


Successfully find employees

„Strategy and the right focus are everything!“

Qualified and especially motivated employees are the heart of every company. They are the main ingredients for a successful business. Unfortunately, small and medium-sized enterprises often do not have the visibility of large companies, which usually have their HR department. Nevertheless, **small and medium-sized enterprises also have good chances of finding qualified employees** if they are aware of their **company culture** and are willing to apply Employer Branding measures.

Podcast tip on the topic >>

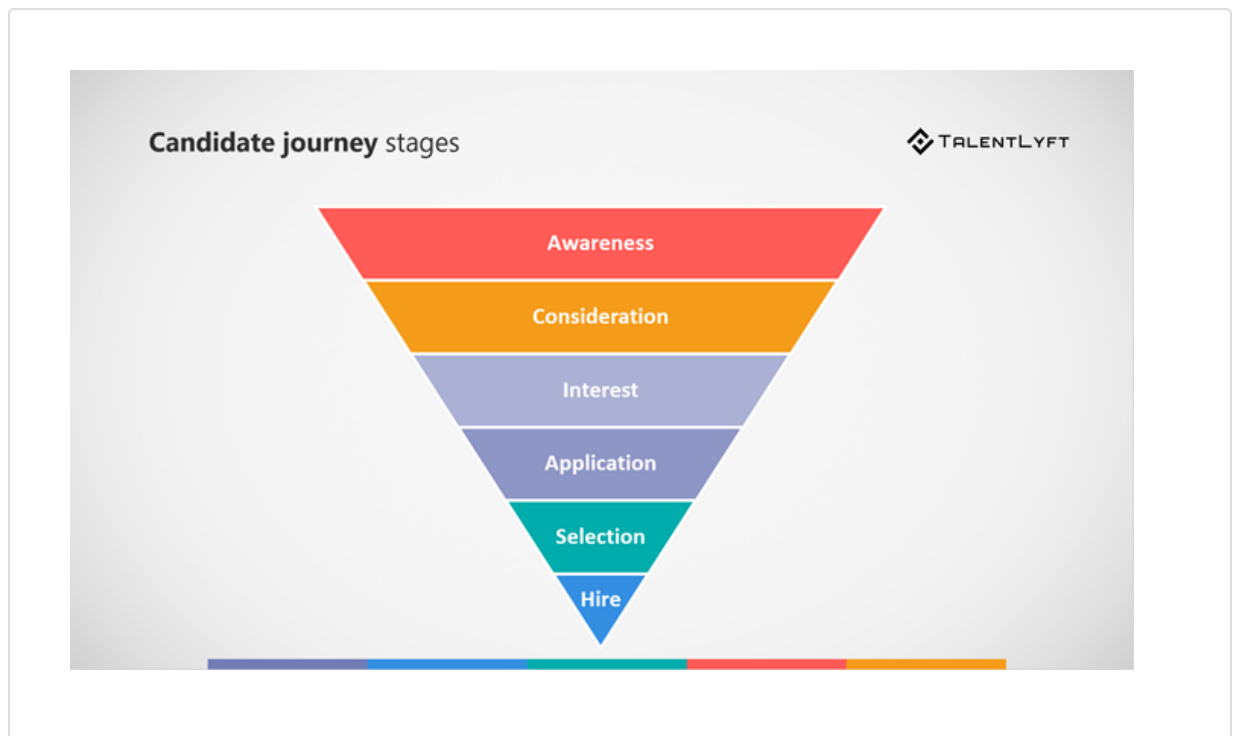


How to find and hire great employees

You have explored the topic of Employer Branding and figured out for yourself how you want to present yourself as an attractive employer in the labor market. You have defined your distinctive employer brand that reflects your values. In the process, you make sure that you present an authentic image. Then you are ready for the Candidate Journey!

The [Candidate Journey](#) is the applicant's path in the application process. As supply and demand have shifted in the labor market, it is not sufficient anymore for companies to place a job ad in the newspaper.

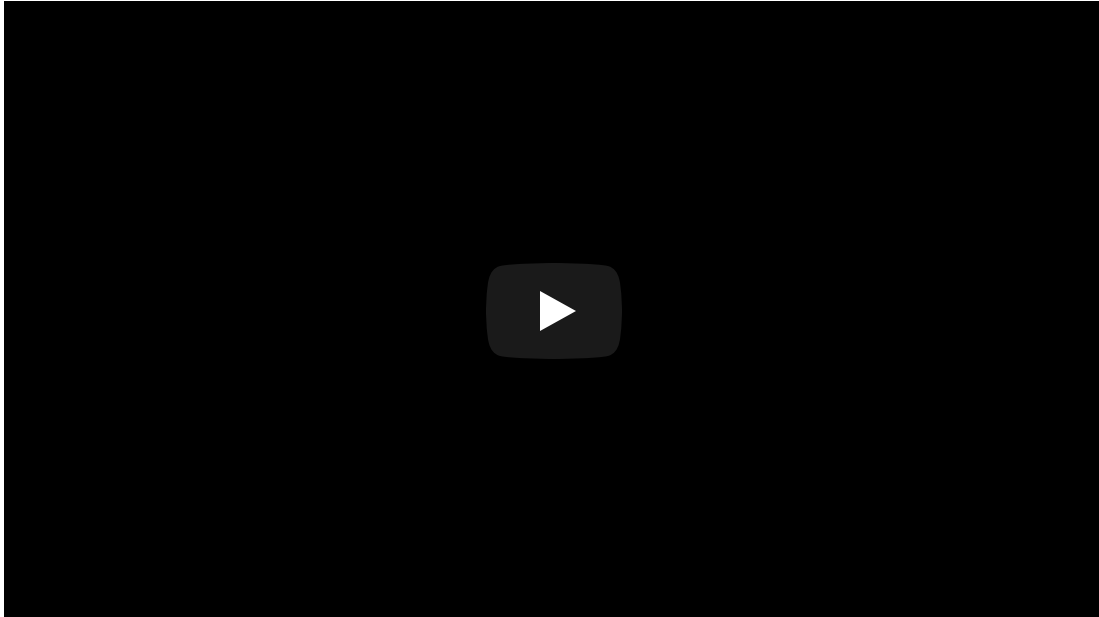
Nowadays, employers are obliged to be aware of and respond to the needs of applicants AND their employees. Therefore, employer Branding can attract the right talents in the [Candidate Journey](#) and turn them into employees during the onboarding process.



1) Awareness

- Questions that arise at the beginning of this process: How do applicants become aware of us? How and where do we attract the attention of our candidates?
- With the help of the [Candidate Persona](#), this step is made easier; it gives you a rough picture of where potential applicants might come across the company's job advertisements.
- The Candidate Persona is comparable to a profile in which an applicant's professional and personal components are defined.
- The Candidate Persona Profile also helps in the creation of the job advertisement.

 YOUTUBE



How to Create a Candidate Persona?

[VIEW ON YOUTUBE >](#)

2) Consideration (Job Ad)

- The quality of the job advertisement has a significant influence on the impression of a company.
- A top job ad can only attract top applicants if it looks very appealing. If the job ad reads like everything else on the market, don't be surprised if the applications are only average.
- A guide on [How to create the perfect job advertisement](#)



3) Interest & 4) Application

- The application process should be kept short and simple.
- Possibility of mobile application
- Possibility to send applications to the company via different channels.
- Keep it short and simple for online application forms, target questions, and information.
- The obligation to register should be avoided, as registration steps hold up and quickly become annoying.
- Data such as CVs can be uploaded easily and quickly.

Readers' tip: "[The future of recruiting](#)" and a Podcast tip on the topic >>

 **APPLE PODCASTS**



TalentCulture #WorkTrends: The Future of Recruiting on Apple Podcasts

COVID-19 changed the world of work--and the world of hiring--forever. And in today's digital-first recruiting environment, recruiters have challenges unlike anything they've faced in previous decades. Fortunately, modern recruiting technology also offers tools to mitigate those challenges.

READ MORE APPLE PODCASTS >

5) Hire

The last step of the Candidate Journey is the invitation to an interview or the feedback to applicants.

- Pre-selection - the applications received are screened and sorted according to the defined criteria (e.g., with the help of the Candidate Persona).
- Feedback on an application should ideally be given after seven days at the latest.
- Interview - The selected applicants are invited to an interview.

- A second-round can be arranged in which the candidate is introduced to the existing team. This also helps to assess whether the cultural fit is given.
- In the case of a rejection, applicants would like to know the reason for the refusal.
- In the best case, a contract is signed, and an Onboarding phase starts.
- The Candidate Journey ends here, and the Employee Experience begins.

i Tip: Create a career pool

Your search for applicants was very successful and several great candidates applied?! Don't throw these applications away!

Contact the candidates and inform them about the preliminary rejection. You may ask them if they are interested to be included in your career pool. If a position becomes available, you can approach these candidates again and possibly shorten the application time.





How do I keep my employees in the company?

You are thinking... It is done! The goal of finding a suitable applicant has been achieved. A new employee has joined the team. The mission seems to have been accomplished.

Not entirely.

Even though a candidate has been successfully recruited, the work continues internally to be perceived as an attractive employer and to attract and retain satisfied employees in the long term.

"True beauty comes from the inside - in a company too."

For new employees, the onboarding phase begins. The company makes every effort to ensure that the new person finds their way into the company's daily routine.

It is also essential that existing employees are involved so that the newcomer is not given the impression of being favored. Once this phase is completed, the final, long-term phase begins - the employee loyalty phase.

Many employers ask themselves these questions:

How can I keep my employees in the company for the long term?

And what do employees want?

First of all, you are correct in assuming that money plays an important role. Regular salary increases, bonuses, and benefits are desirable assets. Seventy-seven percent of Austrian employees are willing to change jobs for a higher salary.

“91 % of the people interviewed feel that it is important **to be valued at work**. For 88 %, work must be **fun**.

87 % emphasize the importance of having enough leisure time. In the middle range are a job that suits one's social skills (79%), being able to do something **meaningful** (78%), a **high value of social responsibility** in the company, and a job that suits the **professional skills** (75% each), a **company culture** that corresponds closely to **personal values** (71%), and a strict **separation of private and professional life** (65%).”

[karriere.at](https://www.karriere.at)

Think about, which benefits in your company motivate employees

Every company has strengths and weaknesses, and you can become aware of them by developing an employer brand. Be aware of your weaknesses, and don't sweep them under the carpet. At the same time, highlight the major plus points for your company.

Employee loyalty can be increased, for example, through:

1

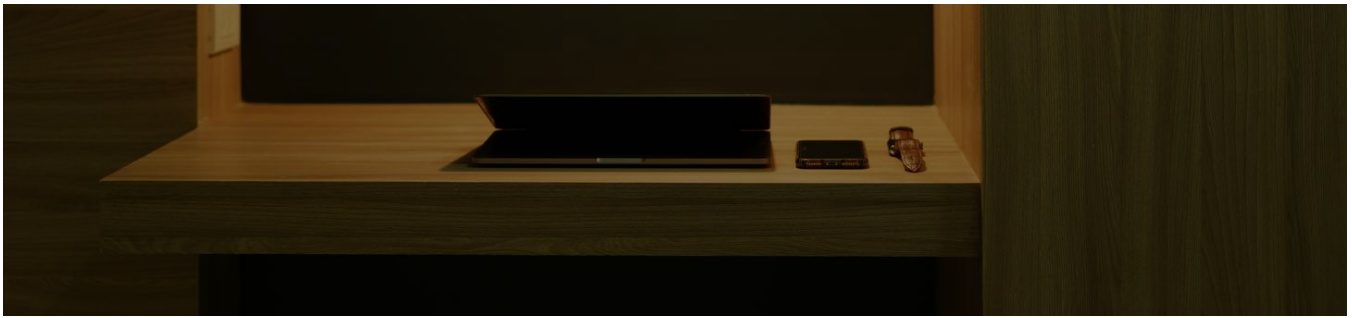
Clear corporate objectives

2

A living company culture

- 3 A secure job
- 4 Communication, regularly requesting and giving feedback
- 5 Appreciation
- 6 Family-friendly working time models
- 7 Exciting career opportunities
- 8 Financial incentives and benefits
- 9 Further training opportunities
- 10 Promote mobility
- 11 Health in the workplace
- 12 Work-Life-Balance

"Loyalty is an inner attitude based on mutuality. It is a choice of commitment and trustworthiness based on shared values, interests and goals."



You have completed Unit 5, "**Digital Culture - How to attract and retain employees.**" If you have read up to this point, you seem very interested in the topic. So we are happy about that.

Have you noticed something? Some terms in the text are linked to further readings that allow you to explore different topics deeper.



Video: What will the future of jobs be like?

[WATCH VIDEO](#)

TalentCulture #WorkTrends

Podcast channel - You'll get all the news you need to stay current, and hear from leading experts, HR tech vendors and HR practitioners about what inspires them.

[GO TO PODCAST](#)

The Future of Jobs Report 2020

The Future of Jobs Report provides the timely insights needed to orient labour markets and workers towards opportunity today and in the future of work.

[READ MORE](#)

The Top 10 Ways To Attract And Retain Great Talent

Here are the top ten ways to move your company to the top of your candidate's consideration list.

[READ MORE](#)

Winning The War For Talent in Product Development

"Skills shortages and a labour mismatch are challenging product-development teams. The solution could lie within the existing workforce. ..."

[READ MORE](#)

What Is Employer Branding and How Can It Grow Your Business?

"Every company has a reputation. It could include thoughts about your products, services, leaders, team members, history, and more. And your company's reputation can also go beyond to inspire a specific perception — emotional, instinctive, intellectual — in the people who see your ads, use your products, and eventually, speak to others about you. ..."

[READ MORE](#)

Human-Centred Artificial Intelligence for Human Resources: A Toolkit for Human Resources Professionals

World Economic Forum - The toolkit consists of three components. The guide provides an overview of AI in HR, how AI works, and key considerations for the responsible adoption and monitoring of AI systems.

[READ MORE](#)



Lessons Learned

This learning unit aimed to introduce the topics

- Skills shortage

- Social Media Recruiting
- Employer Branding and Employer Brand
- Candidate Journey and Candidate Persona
- How to retain and motivate employees.

In the next chapter you will learn more about:

Digital Culture - Agile Project Management and Agile Teamwork

6) Digital culture - Agile project management and agile teamwork



The agile and digital transformation

Finding **good, motivated, and competent employees** is one thing. However, actively and with pleasure, shaping **a company's agile and digital transformation** is perhaps an even more significant challenge. *Digitalization demands new ways of working together.*

„According to the management consultancy McKinsey, 70 percent of attempts to implement digital innovations fail due to the factors of culture and mindset.“

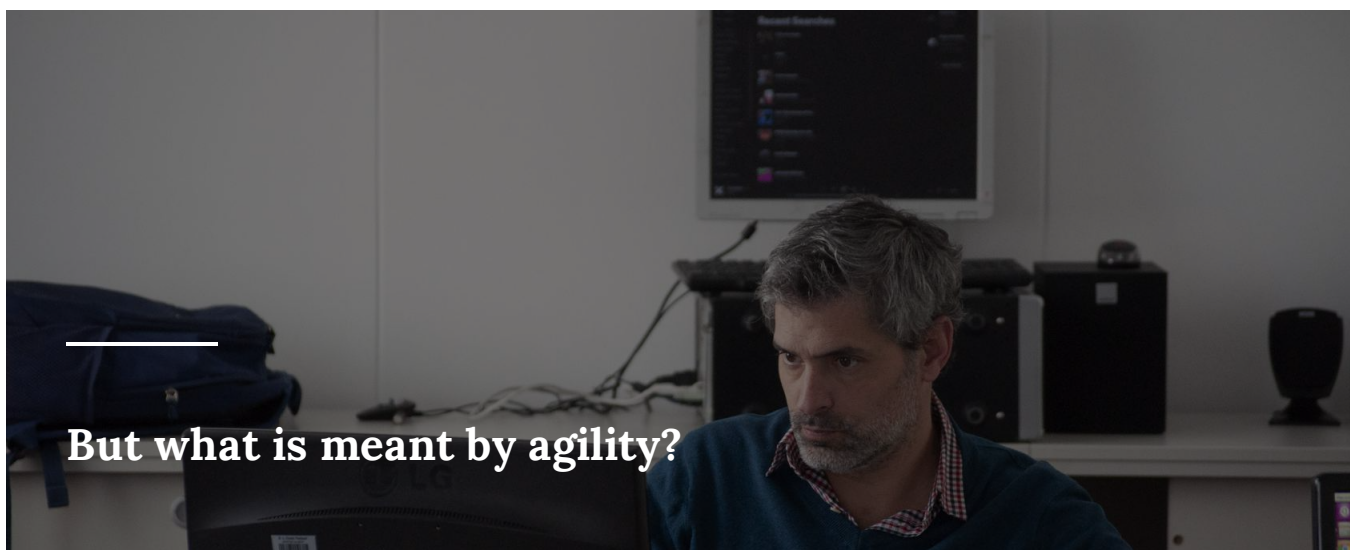
([Andrea König](#))

*"More and more companies are advocating for a value-oriented agile change."
([Andre Radon/Claudia Aryus: \(Why\) culture drives digitalization \(2021\)](#))*

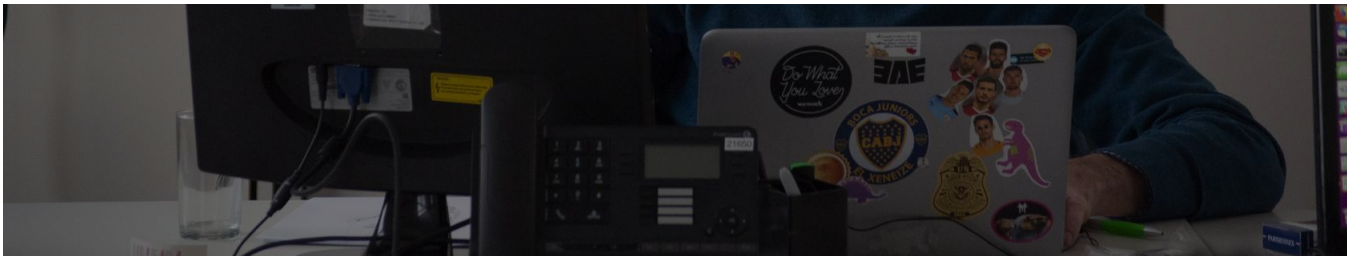
We will see how this cultural change can have a particularly productive effect on teamwork and project management.

We understand "**culture**" here broadly: it is primarily about **how we interpret and shape the digital world and what meaning we give it**. As a **new cultural technique**, digital transformation fundamentally changes how we **perceive and think, communicate, acquire knowledge, and work**.

„When we think about culture, we think about a standard set of behaviors, plus the underlying mindsets that shape how people work and interact day to day.“ ([McKinsey, Brooke Weddle](#))



But what is meant by agility?



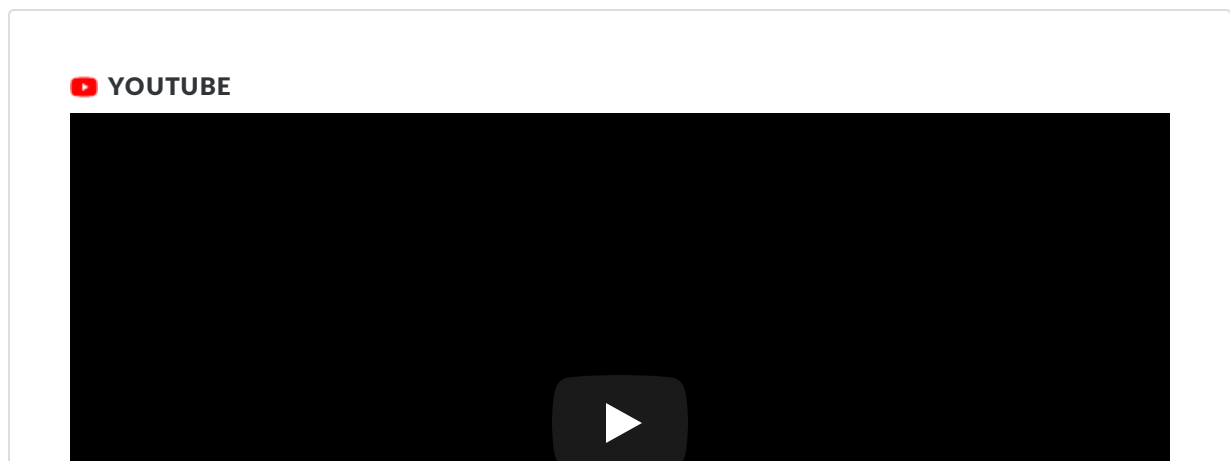
The term "agility" goes back to the Latin word *agilis*, translated as "easily movable, fast, busy."

„Agility, in particular, is a characteristic that is often understood under agility and interpreted by companies for themselves. (...) The agile characteristics have been identified as a competitive focus, and being agile since the early 1990s has meant mastering change (Dove 2001, 5-8) and withstanding or even being ahead of the competition based on agile capabilities.“ ([Hattendorf, Die Aktualität des Agilen](#))

"Agility is a characteristic of the management of an organization (business enterprise, non-profit organization or public authority) to act flexibly, anticipatively and proactively to introduce necessary changes." - and is therefore particularly suitable for implementing the **Digital Transformation**.
([Agilität \(Management\) - Wikipedia](#))

The **concept of agility** responds to the challenges of an ever more rapidly changing world. Therefore, its characteristics are often summarised under the acronym **VUCA**.

"VUCA" is an acronym that refers to "volatility", "uncertainty", "complexity" and "ambiguity".





Agile in under 3 minutes

Agile helps you to work faster and be happier. Here, we explain the basic principles of an agile work place. At Organize Agile, our focus is to radically incr...

VIEW ON YOUTUBE >

First described in the "[Manifesto for Agile Software Development](#)" in 2001, this method has been successfully implemented in almost all areas and departments: **product development, marketing,** and even **process optimization.**

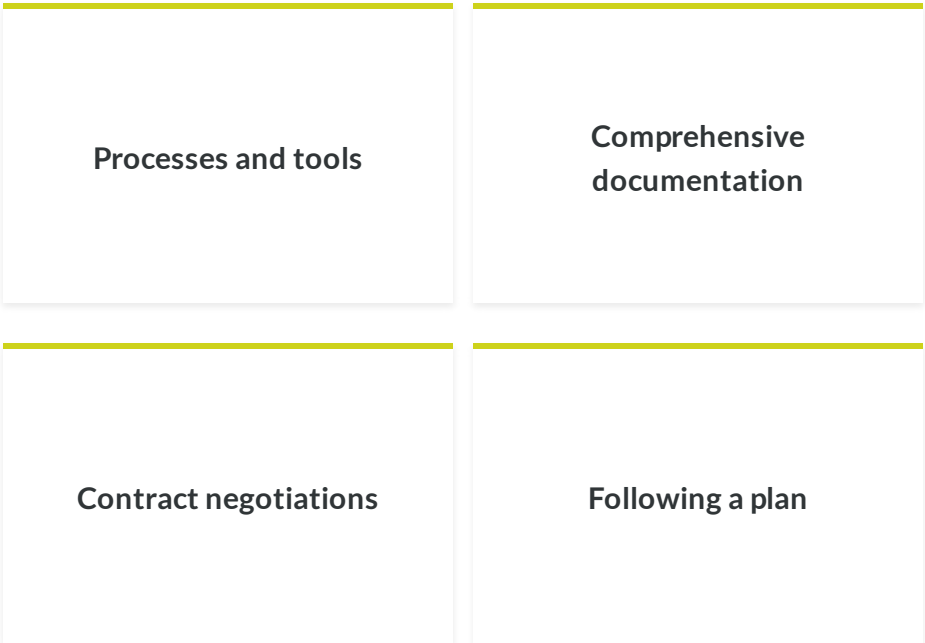
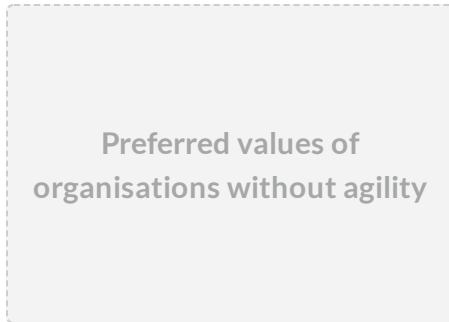
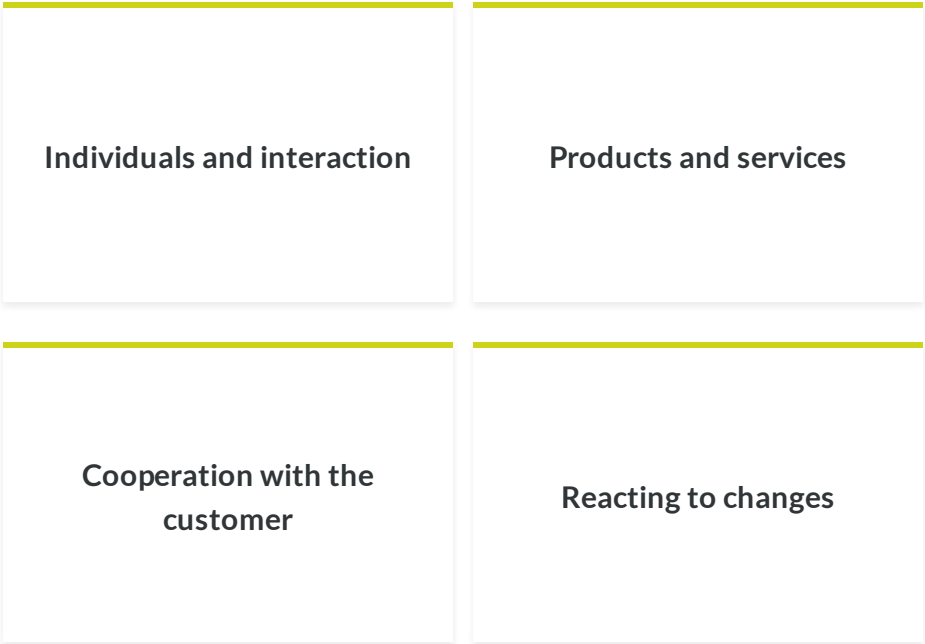
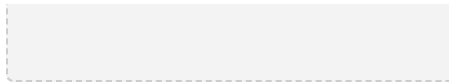
Principles of agility

Agility is a set of values that values **individuals and interactions** more than processes and tools, values **working software** more than extensive documentation, values **collaboration with the customer** more than contract negotiations, and prefers **reacting to change** over strictly following a plan.

([Agilität \(Management\) - Wikipedia](#))

Which values belong to which type of organization? Drag the respective card into the correct container:

Preferred values of
organisations with agility



The foundation of agile methods and agility is the mindset, the attitude from which agility springs.

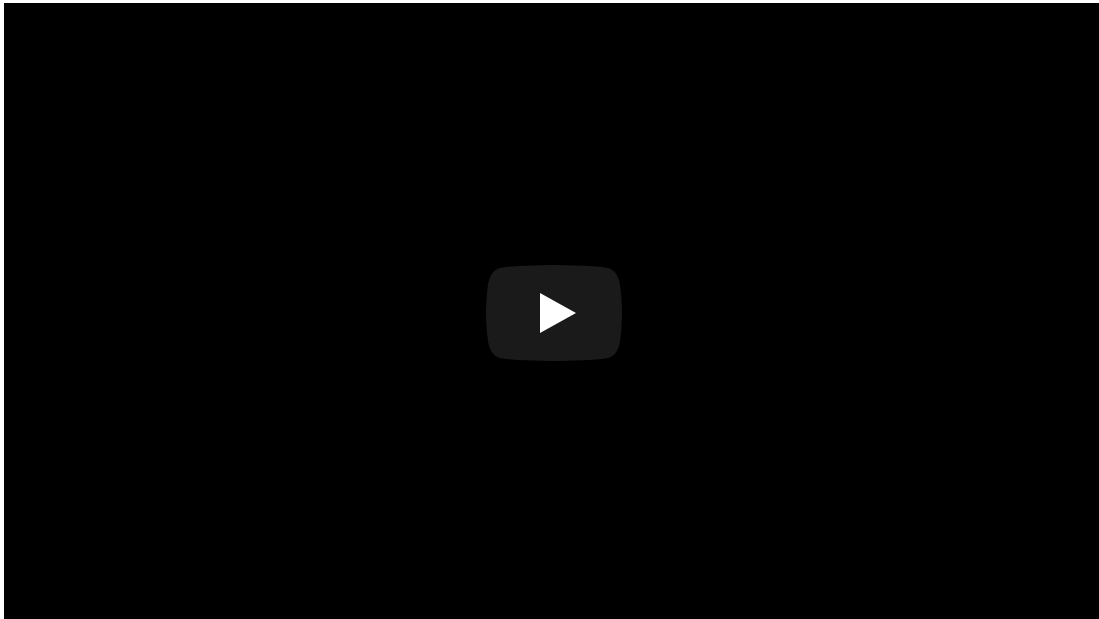
The points characterize it:

- Openness
- Wanting to make a difference together
- Customer orientation
- No silo thinking
- Trust
- Quick reaction and attitude to change
- Courage



In contrast to classic project management, [agile project management](#) promotes **continuous process optimization**. The digital transformation requires new approaches and approaches from individual teams and entire companies. We have to react earlier and faster to changes to adapt to and meet the realities of the market and societal goals, for which traditional structures are often only suitable to a limited extent.

To watch the video with **English subtitles**, please activate the auto-translation option in the settings of this YouTube video. For detailed instructions, please watch this [tutorial](#).



What characterises agile project management?

☐

Perfect product before market launch

☐

"Good enough" - early testing of drafts/versions

☐

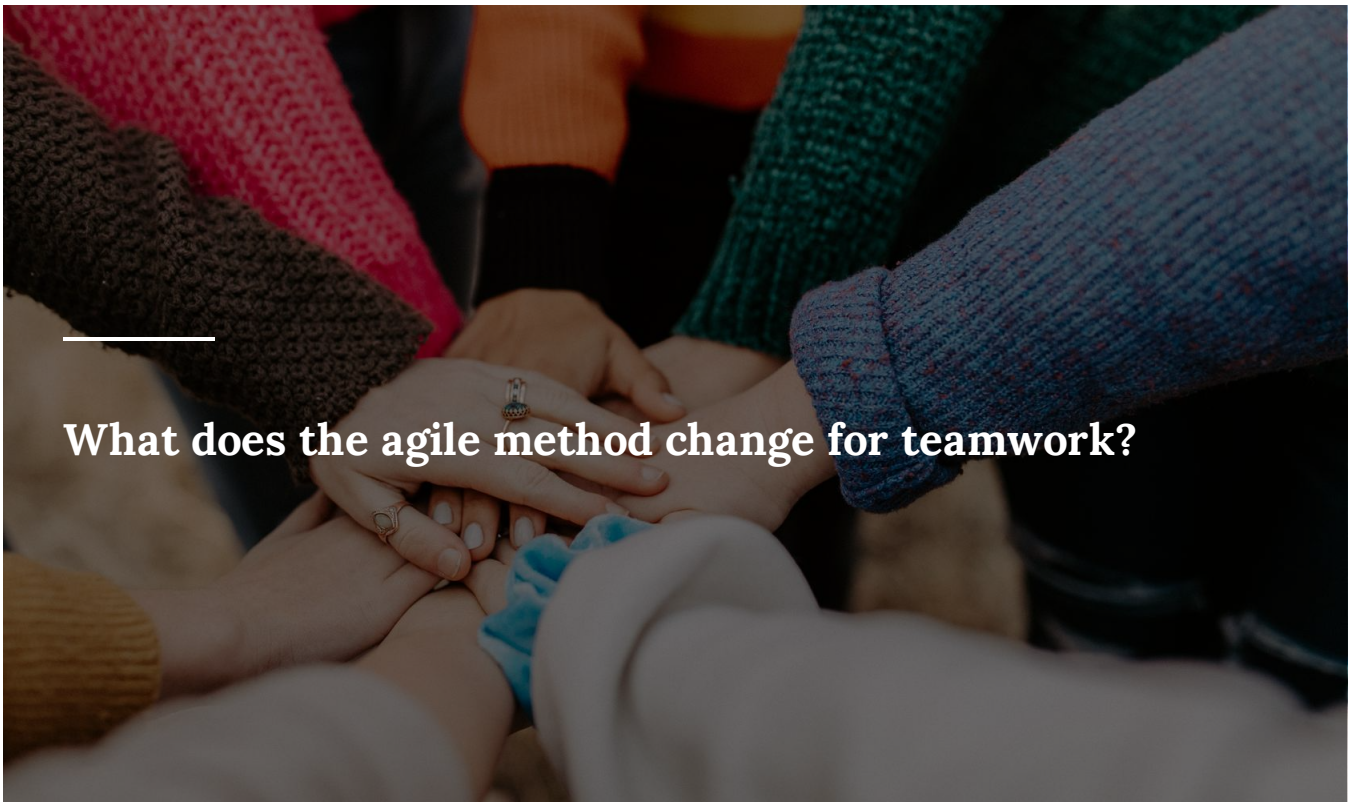
Masterplan

☐

Iterative (step-by-step, repetitive) approach

SUBMIT

What does the agile method change for teamwork?



Traditionally, specialists often work separately and sequentially in developing a product or service, i.e., one after the other. Technicians develop a solution, designers shape the product, and IT specialists program the software according to a predefined plan and milestones.



However, according to agile principles, products are created from the outset across sectors and in very close consultation with everyone involved in the development process.

Essential points of agile teamwork

The idea of agile work is that the teams are **cross-functional**, i.e., employees with different skills and knowledge work together within the development team to solve **complex tasks quickly and independently**.

Experimentation is encouraged, and mistakes are part of the iteration system (=repetition). Trial and error lead to ever more acceptable adaptation. Not the perfect product, but a prototype that is **"good enough for now"** guides the team's aspirations. Stakeholders and customers become co-producers and ultimately get what they need and want through their feedback. The team's learning process is accelerated by the early involvement of the target group.

The focus of agile working is on effectiveness, not efficiency. The right thing should be built, not the same product, just cheaper and faster. This means that agile working does not mean that one employee suddenly takes over the work of ten colleagues and completes it in the shortest possible time.



According to [Olaf Hinz](#), a renowned change manager, three guard rails are essential for digital and agile transformation.

1) Principles instead of rules

Effective agile transformation is more likely to work if you focus on formulating principles because principles are superior to rules in our diverse, flexible, and uncertain world.

Principles do not impose rules but provide a framework in which there is room for autonomy, creativity, and taking responsibility. This promotes transparency and personal responsibility. Hiding behind rules is a thing of the past.

Effective principles are, for example:

- Customer satisfaction and the active involvement of stakeholders
- Group opinion before individual opinion
- Trial and error and feedback loops
- Visualization and brevity
- Self-organization and empowerment

2) Decentralised instead of centralised

"Agile digital transformation processes should enable the organization to respond well to the acceleration and dynamics of digitalization." Decentralized structures are superior to centralized control and make your company **more flexible, faster, diverse, and resourceful**.

3) Fluids instead of rigid structures

Organizations that implement agility succeed in **liquefying hierarchical structures**. Fluid structures are characterized by diversity and constant adaptation and enable a **quick response to new challenges**.



Techniques and elements of project management (selection)

""You can read a lot about agility and culture, but in the end you just have to do it.""

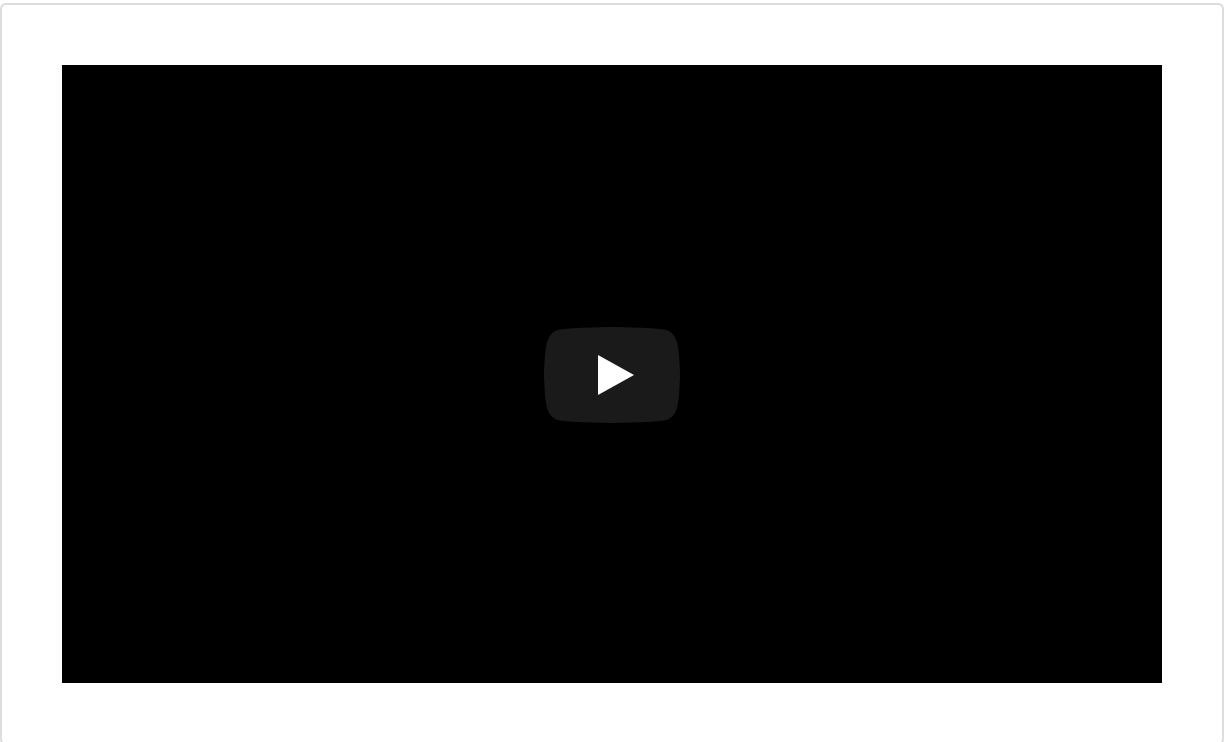
([Claudia Aryus, SEAT Agile Center of Excellence](#))

Now we would like to introduce you to suitable methods and tools for implementing agile management.

1

SCRUM framework

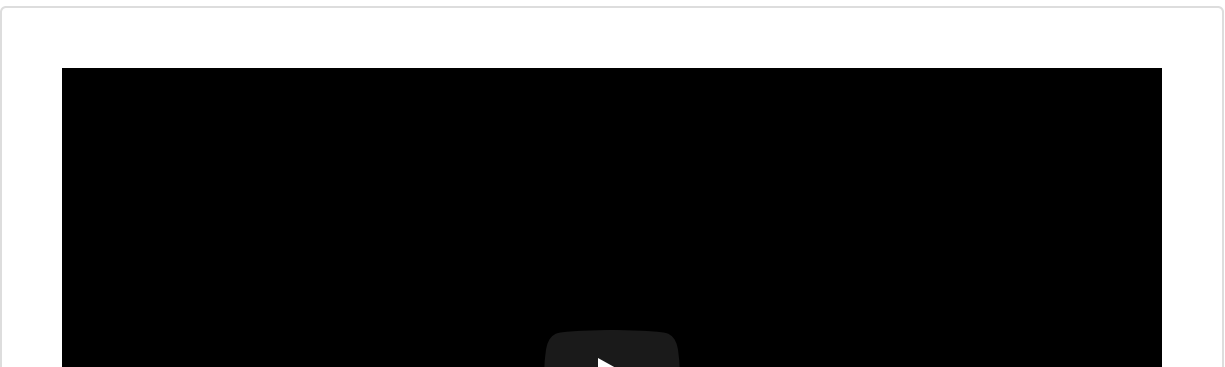
It comes from software development and is particularly suitable for any product development.



2

Kanban method

It is very suitable for the practical management of **change**. It is a method of Lean Management to control the flow of material. Cards contain the material. Kanban (jap. Kan = signal, Ban = card).

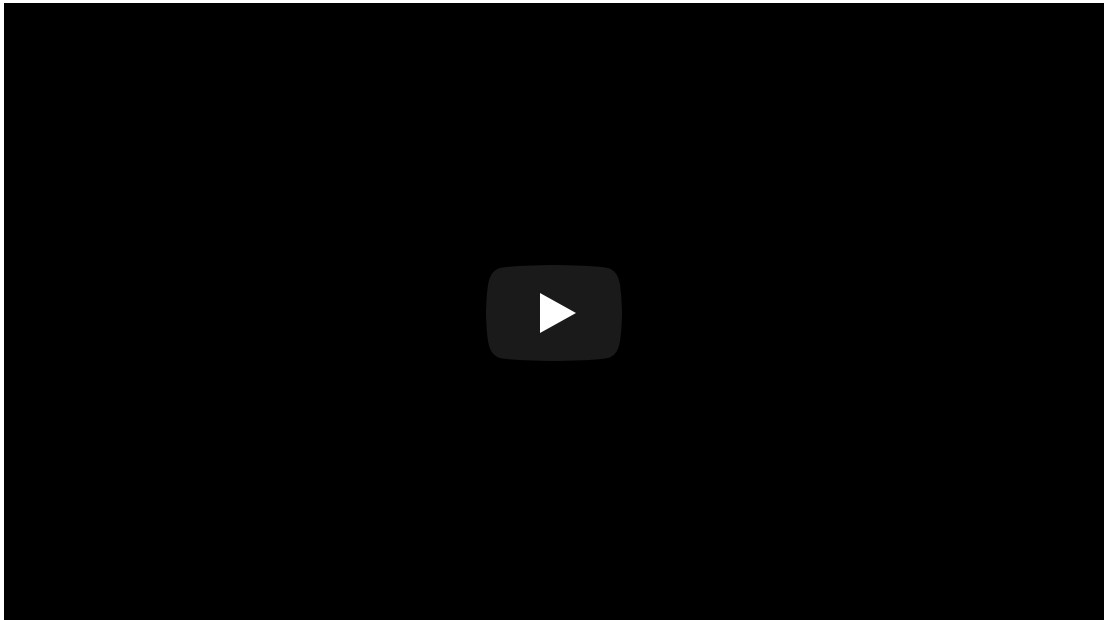




3

Design thinking

It is one of the agile methods especially suitable for working in digital transformation processes.





Critical reflection

In principle, **agile methods are based on flat hierarchies, autonomy, and mindful communication** within the team. However, this should not obscure that it is above all the **values and goals** that determine a **successful transformation**. Unfortunately, those who only want to use agile project management and agile teamwork to increase efficiency have not yet left the **neoliberal paradigm** of always-faster and always-more.

Digital transformation from our **(cultural studies) perspective and** the view of the EU's **Green Deal**, on the other hand, **aims for an economy that is embedded in our culture and society (Karl Polanyi) and places people at the center within planetary boundaries**.

Read more in Chapter 9: Digitisation and sustainability.





Share your experiences and discuss with like-minded people

We have created an online discussion forum for you on [Padlet](#) to share your thoughts and experiences with your peers. It is a **digital brainstorming and discussion space** where you can post, comment, or like other posts. We look forward to discussing the following question with you:

There is no doubt that digitalization has accelerated our private and professional lives. Agile methods are suitable for reacting quickly to new developments. **Where do you see advantages and disadvantages in this acceleration process?**

Add your answer to these questions in our **online discussion forum** below. Just click on the **button with the "plus" symbol** in the bottom right corner to add your comment:



You can open the padlet in a separate browser tab [here](#).

i You haven't used Padlet yet? It's pretty user-friendly and intuitive. You don't need to log in to use it. If you want to learn more about how to use it, you can find a short [YouTube tutorial](#) here.





The 12 Basic Principles of Agile Project Management

Written by Kate Swanberg

[READ MORE](#)

Agile Project Management: A Comprehensive Guide

Looking to learn Agile project management? If so, find out what Agile means, where it comes from, and what makes a project Agile in our extensive guide.

by Kanbanize

[READ MORE](#)

Agile Working: Overhyped or the Future of SMEs?

Factorial Blog, by Annick

[READ MORE](#)

The future of agile teamwork

Video on monday.com

[WATCH THE VIDEO](#)

Agile Project Management Tutorial

What is agile project management? Video by simplylearn

[WATCH THE VIDEO](#)



What did you take away from this chapter?

Lessons learned

In this chapter, you have learned:

- What is meant by agility
- What distinguishes agile project management from classic project management
- Which three guard rails you should follow during implementation
- Which methods and tools are helpful for agile teamwork
- Why values and goals are crucial in digital transformation

In the next chapter, you'll learn more about new technologies for your company.

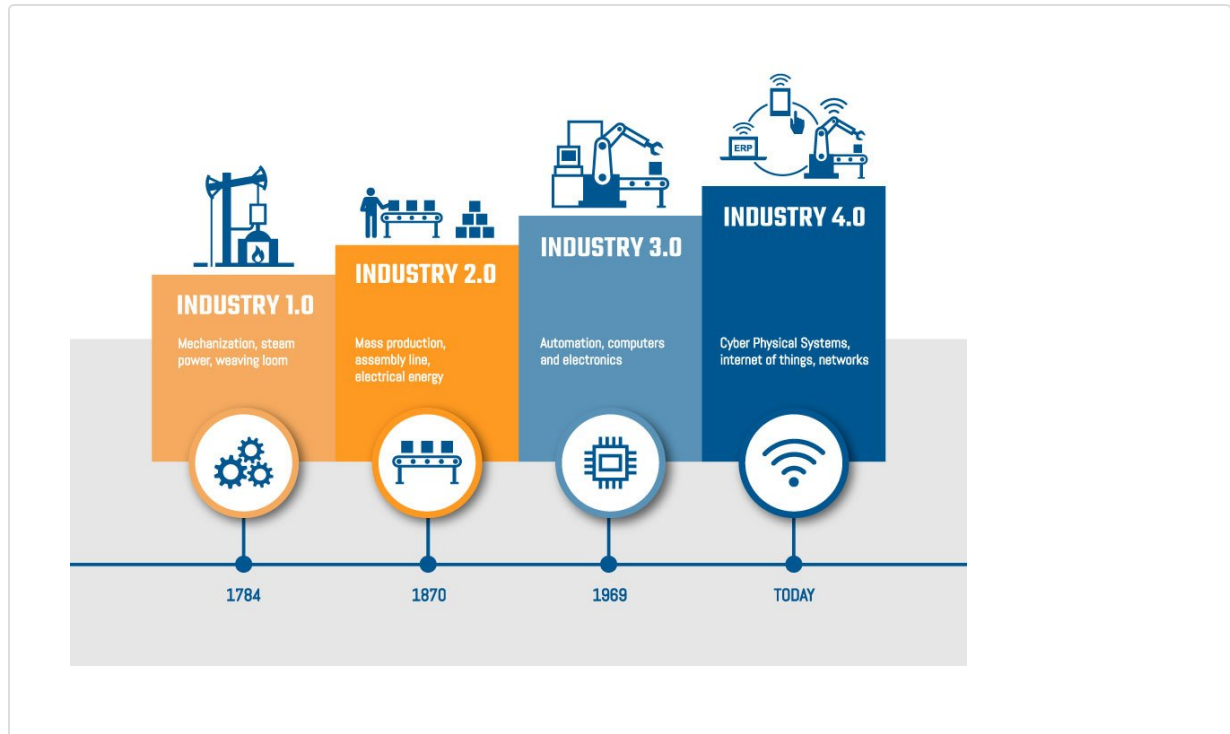
[Next chapter](#)

7) New technologies for my company



This chapter will introduce you to some of the technologies whose development is driving digital transformation and ask **what significance they could also have for your company.**

Before that, let's take a brief look at the history of industrial revolutions.



The triggering moment of each of these revolutions was technological innovation:

1) Mechanisation

by replacing muscle power with water power and steam,

2) Automation

through the use of electrical energy and the division of labor, and

3) Digitalisation

through the use of programmable machine controls for the extensive automation and standardization of wide areas of production, but also many administrative processes with the help of IT.

4) Networking

After stages of mechanization, automation, and digitalization, the decisive turn towards Industry 4.0 takes place in networking and communication between systems:

"Industry 4.0 describes a form of industrial value creation characterized by (extensive) digitalization, automation, and networking of all actors involved in the value creation and affects companies' processes, products, or business models."
([Handbuch Industrie 5.0 und Digitale Transformation \(2019\), 16](#)).

People, machines, and products are directly networked (Internet of Things, AI).



The realization that technological innovations open up incredible potential but that their social and cultural value still requires human, and ethical shaping, ultimately led to the demand for a different

version:

Industrie 5.0: A transformative Vision for Europe

Here we come to the **core of digital culture - ethical responsibility**.

Three values guide the vision of a transformed Industry 5.0. It is:

- **human-centric**
promotes talent, diversity, and empowerment
- **sustainable**
leads action on sustainability and respects planetary boundaries
- **resilient**
is agile and resilient with flexible and adaptable technologies.

If this vision were to become a reality, it would indeed be a revolution, a conscious shift away from neo-liberal thinking towards new economic models and climate protection:

Criticism of the technologically oriented **paradigm of Industry 4.0**

It is **not suitable**

- for use in the context of the **climate crisis** and **planetary emergency**,
- and it does not and does not address profound **social tensions**.

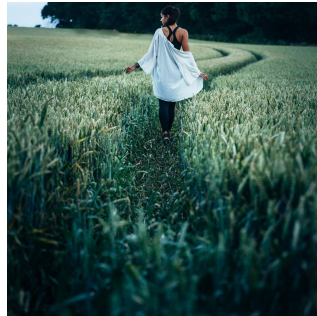
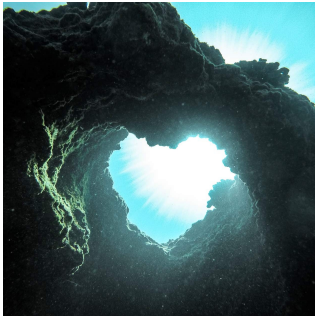
On the contrary, it is structurally aligned with the optimization of business models and economic thinking that are the root causes of the threats we now face. The current digital economy is a winner-takes-all model that creates a technological monopoly and giant wealth inequality.

Industrie 5.0: A transformative Vision for Europe



What is needed, therefore, is a change of paradigm

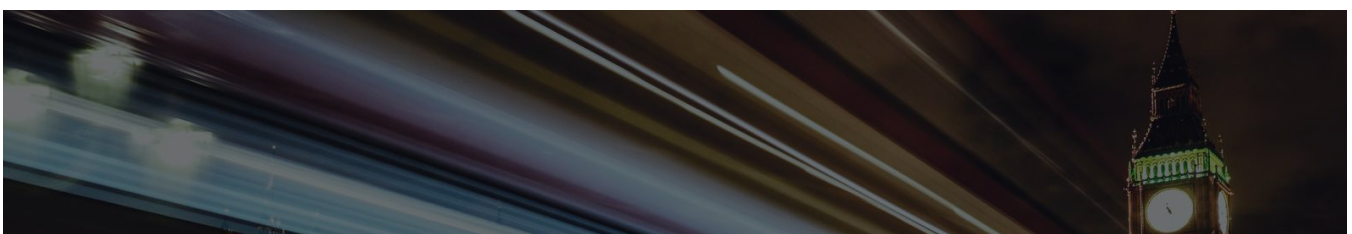
"The vision for '[Industry 5.0](#)' we propose moves past a narrow and traditional focus on technology-or economic enabled growth of the existing extractive, production and consumption-driven economic model to a more transformative view of growth that is focused on human progress and well-being based on reducing and shifting consumption to new forms of sustainable, circular and regenerative economic value creation and equitable prosperity."



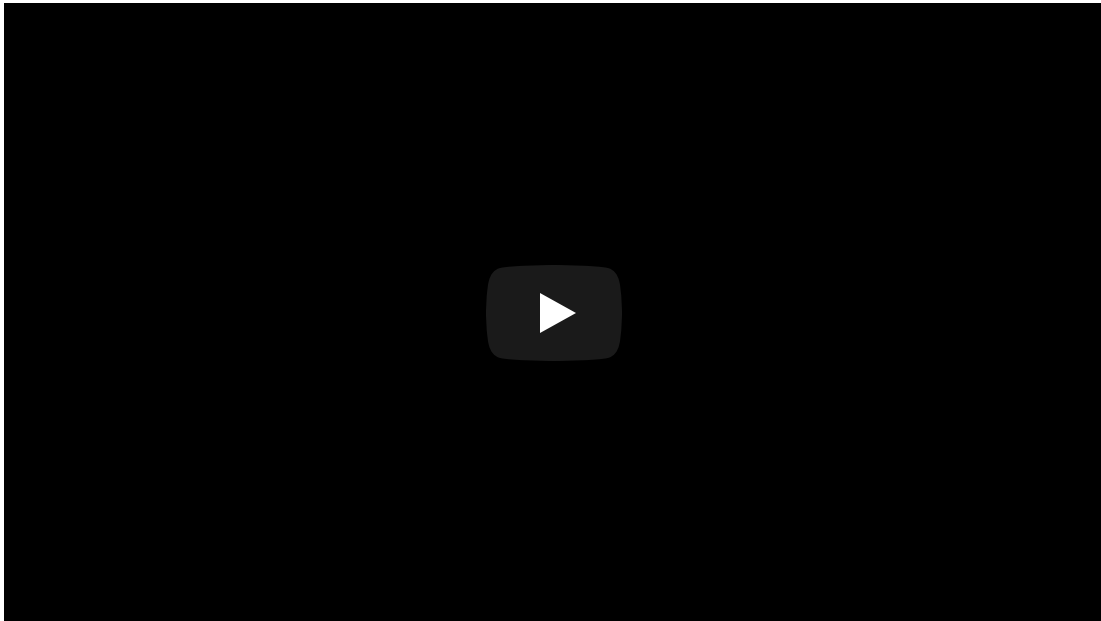
"Rather than representing a technological leap forward, Industry 5.0 actually nests the Industry 4.0 approach in a broader context, providing regenerative purpose and directionality to the technological transformation of industrial production for people-planet-prosperity rather than simply value extraction to benefit shareholders." ([Industrie 5.0: A transformative Vision for Europe](#))

Below we present some of the most powerful new technologies and their potential applications for SMEs:

Big Data, Blockchain, Cloud Computing, and Artificial Intelligence



Big Data



Definition:

The term **Big Data** comes from the English language and can be translated as "masses of data."

- It refers to data volumes that are so complex that they require new computer-based forms of processing.
- This contrasts with "small data," which refers to quantities of data that can be understood and processed by a human alone or with the help of a simple computer program or that only relate to a single person or a narrowly defined set of circumstances.
- **Big Data is also an umbrella term that summarises different activities connected to the enormous masses of data.**

Big Data means

1. to **collect a great deal of different data**. Numerous sensors and programs collect and process information for this purpose. These are installed on tablets, smartphones, or computers, for example. If the collected data is analog, it is digitized.
2. to **store the digitized information as data as structured as possible**. This is how complex databases are created. They are needed to process the masses of data with the help of computers.
3. to **link the data and to recognize new correlations through data evaluation**. Structuring makes it possible to interrogate data stocks in a targeted manner and to compare them with each other based on particular aspects. Often, assumptions or theories are to be confirmed or refuted using data evaluation.

(vgl. [Siemens Stiftung 2019. Licensed under CC BY-SA 4.0 international](#))

The following article provides a brief overview of the possibilities and functions of data analysis: "[Big Data Analytics](#)." Here you will also find important Big Data technologies (e.g., Hadoop, an open-source framework for storing and processing large amounts of data); Hadoop, an open-source framework for storing and processing large amounts of data. Hadoop can process large amounts of structured and unstructured data).



What does this mean for my company?

Where you can apply big data analytics, for example:

- Customer acquisition and retention
- Targeted advertising
- Product development
- Price optimization
- Supply chain and channel analysis
- Risk management
- Improved decision making

Time for reflection

Data is the **most essential resource** of our century. Unlike oil, however, its value does not increase through consumption but "through different, multiple and combined uses" ([Machtmaschinen \(2020\), 36](#)). For data and knowledge are, in economic terms, **"not rival" goods that wear out through use but rather gain value through it.**

The hope of some internet pioneers to contribute to the democratization of knowledge through data exchange was promising but has only been partially fulfilled (e.g., Wikipedia or open databases such as Open Educational Resources).

Instead, **"power machines"** have emerged, **data monopolies** that seem to be reserved for only a few "digital superstars" from the USA (Google (Alphabet), Amazon, Facebook (Meta Platforms), Apple, and Microsoft), and China.

In Europe, attempts are being made to counter this development with regulations supposed to regulate this "legal vacuum." With the

- **General Data Protection Regulation (GDPR)** and the
- *"Digital Services Act: more security and responsibility in the online environment."* ([Digital Service Act](#))

"A data protection regulation is as necessary for our prosperity and democracy as a data protection regulation is for our civil liberties. Both are two sides of the same coin." ([Machtmaschinen\(2020\), 23](#))

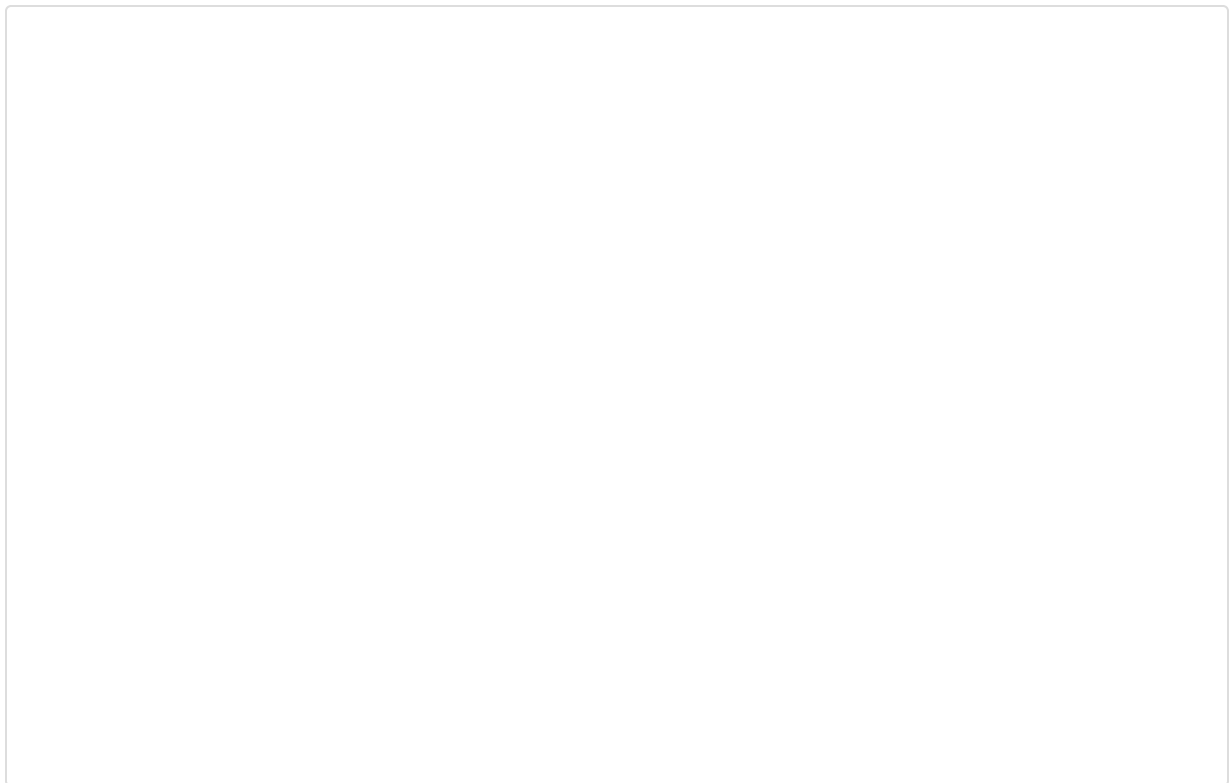
„The time is ripe for the disempowerment of the information powers that only became great through our information."([ed., 24](#))

"Data for all is good for all." ([ed., 26](#))

We have set up an online discussion forum for you on [Padlet](#) to share your thoughts and experiences with like-minded people. It is a **digital brainstorming and discussion space** where you can post, comment, or like other posts. We look forward to discussing the following topics with you:

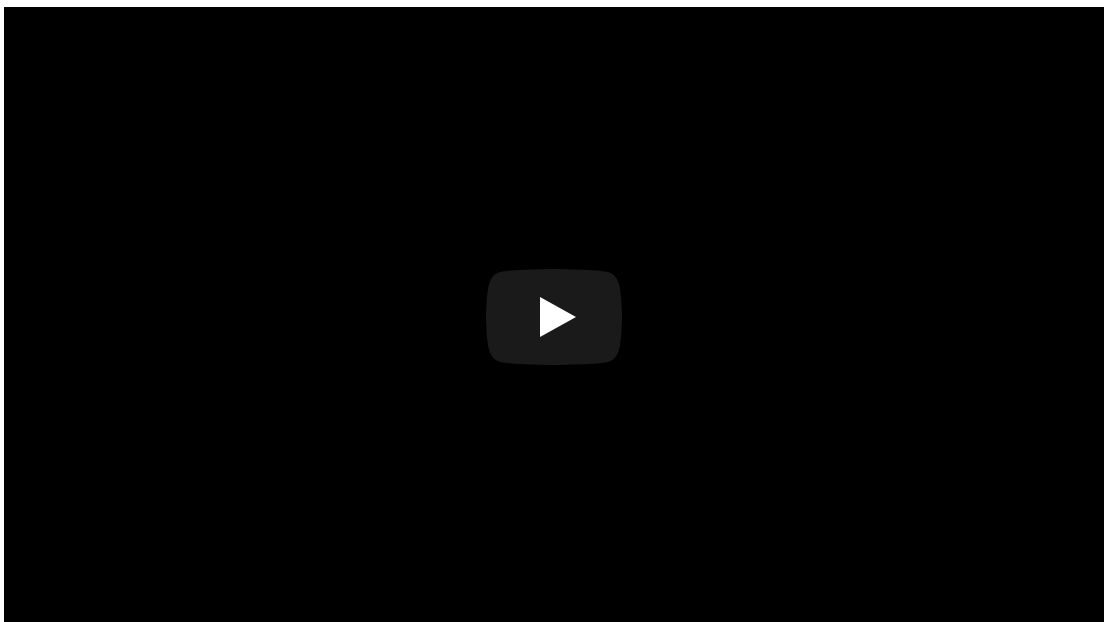
- What is your position?
- Should data be artificially scarce through regulation?
- Should the use of data be made as easy as possible?
- What are the arguments for one, what for the other?

Add your answer to these questions in our **online discussion forum** below. Just click on the **button with the "plus" symbol** in the bottom right corner to add your comment:



You haven't used Padlet yet? It's pretty user-friendly and intuitive. You don't need to log in to use it. If you want to learn more about how to use it, here is a short [YouTube tutorial](#).

Blockchain



Definition:

A **blockchain** represents a collection of data that - broken down into individual data blocks - is stored in a distributed manner across several/many applications without a central administrator ("distributed ledger" approach).

In addition, the individual data blocks (and each new data block created by adding data) are secured **by forming hash values**. This means that the block's content cannot be changed afterward (at least not without this being verifiable). This mode of operation can be compared to the digital signature of individual electronic documents. ([WKO Austria](#))

Blockchain technology has found its way into public discussion. Pilot projects are being carried out worldwide, and initial experiences are being gathered. We summarise the most important facts for you and want to give you an easy introduction to the blockchain world.

What does this mean for my company?

Potential for practice: Global **initiatives of important representatives of the financial industry** have been formed in a short time to investigate possible application scenarios in various areas (e.g., securities, insurance, etc.). In addition to the use of **blockchain as a transparent and efficient booking procedure**, intensive research is being conducted in the area of smart contracts in particular. Since concrete procedures are already being implemented in practice, a very dynamic development continues to emerge.



Possible fields of application

- Cryptocurrencies
- Banking & Securities
- Insurance
- Music Industry
- Travel
- Internet of Things & Sharing Economy
- Manufacturing, Logistics & Trade
- Government (national and international) & humanitarian aid

You can find examples of the respective fields here: [Blockchain in practice \(2019\)](#)

The **use in supply chain tracking** seems to us to be particularly promising for SMEs:

„Blockchain technology is also used in the global supply chain and logistics industry for tracking the movement of goods across multiple locations. The transparent recording of data relating to the movement of goods on the blockchain will introduce transparency. All stakeholders can know the exact point where the goods are per time. This brings effective management of all entities involved in the transaction. Besides the real-time tracking of goods, blockchain integration in the supply chain can also help provide security for the cash transactions involved, minimize delays, cut extra expenses, and reduce employees' failures. “ ([Marcel Isler, 2021](#))





Criticism and outlook

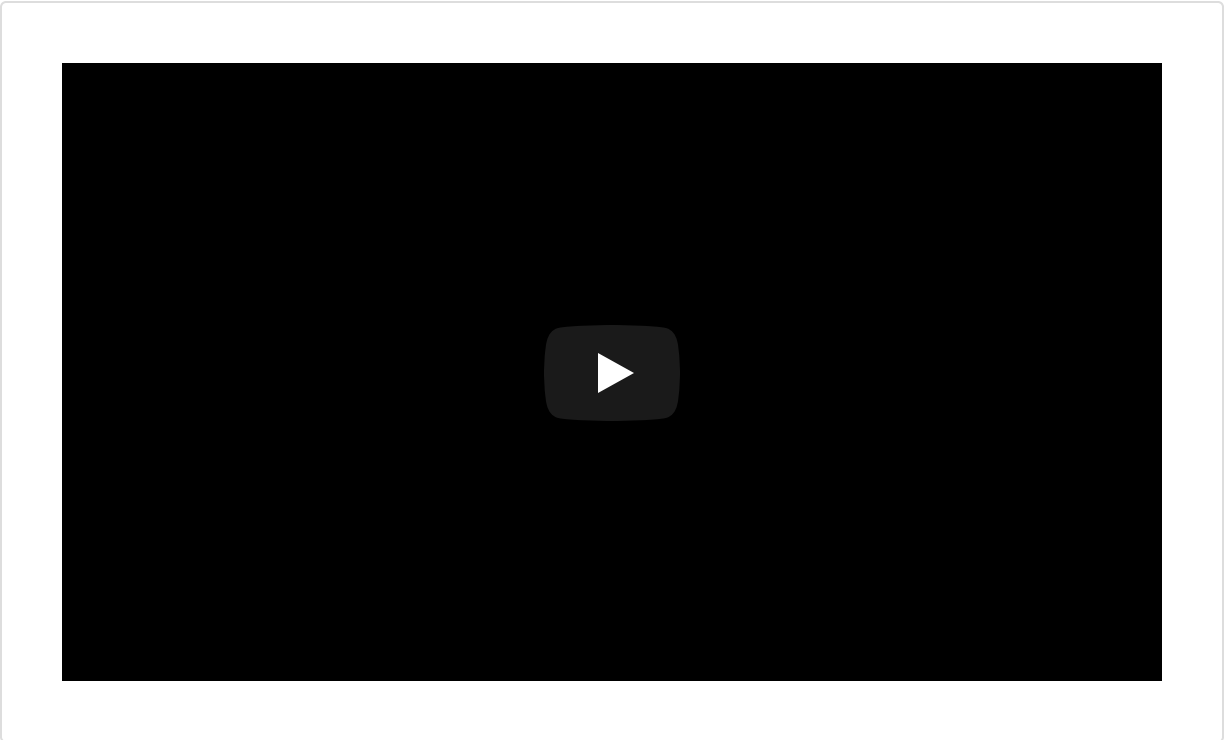
Although there are **high expectations concerning the potential for use**, it is not yet foreseeable how the dissemination of blockchain-based technologies will develop in practice. Especially in the financial sector, **many legal, regulatory and technical framework conditions** concerning such systems have not yet been conclusively clarified. Moreover, they are heavily dependent on the design of the respective blockchain. However, there is also potential outside the financial sector. For example, in the emerging [Internet of Things](#), blockchain technology could **efficiently and securely** certify ownership, verify identities, or process micropayments between devices.

([Prof. Dr. Andreas Mitschele, Duale Hochschule Baden-Württemberg Stuttgart](#))

"A fundamental disadvantage of blockchain technology is its **inefficiency**. This is because the blocks must first be calculated in parallel by a large number of parties in an elaborate process and then also permanently stored in parallel" ([Blockchain in der Praxis \(2019\), 8](#)), and the extremely high power consumption associated with this.



Cloud Computing



Definition

The term "cloud computing" is often described with the abstract text "data processing in the cloud" and stands for **demand-oriented and flexible outsourcing of IT services**. Computing resources (e.g., servers, storage, databases, network components, software, analytical and intelligent functions) are provided via the internet, i.e., the cloud, to offer **faster innovations, flexible resources, and economies of scale**. Services are delivered in real-time over the internet as a service, and billing is based on usage or volume. This allows you to **reduce your operating costs, run your infrastructure more efficiently and scale on demand**.

The main advantages of Cloud Computing

Cloud computing is fundamentally changing the way companies traditionally think about IT resources. There are **seven main reasons** why companies choose cloud computing services:

([Microsoft: What is Cloud Computing?](#))

Costs —

With cloud computing, there are **no investment costs** for purchasing hardware and software or for setting up and running local data centers, which require server racks, round-the-clock power and cooling, and IT experts to manage the infrastructure. That adds up quickly.

Speed —

Since most cloud computing services are **on-demand** and self-service offerings, even **extremely large amounts of computing resources can be provisioned in a matter of minutes**. This provisioning typically takes just a few clicks of the mouse, giving businesses **great flexibility** and eliminating the pressures associated with capacity planning.

Global scaling —

One of the benefits of cloud computing services is the ability to scale elastically. In the cloud context, this means **providing the right amount of IT resources** (for example, a higher or lower computing power, storage capacity, or bandwidth) **exactly when it is needed** - and from the right geographical location.

Productivity —

Local data centers typically go hand in hand with a considerable setup and administration effort. This includes setting up hardware, applying software patches, and other time-consuming IT management tasks. Many of these tasks no longer need to be performed with cloud computing, allowing IT teams **to focus on more important business objectives**.

Performance —

The most extensive cloud computing services run on a global network of **secure data centers** regularly upgraded to the latest generation of **fast and efficient computing hardware**. This setup offers several advantages over a single enterprise data center, such as lower application network latencies and more significant cost savings.

Reliability —

Cloud computing simplifies data backup, disaster recovery, and business continuity and reduces associated costs by allowing data to be mirrored across multiple redundant locations on the cloud provider's network.

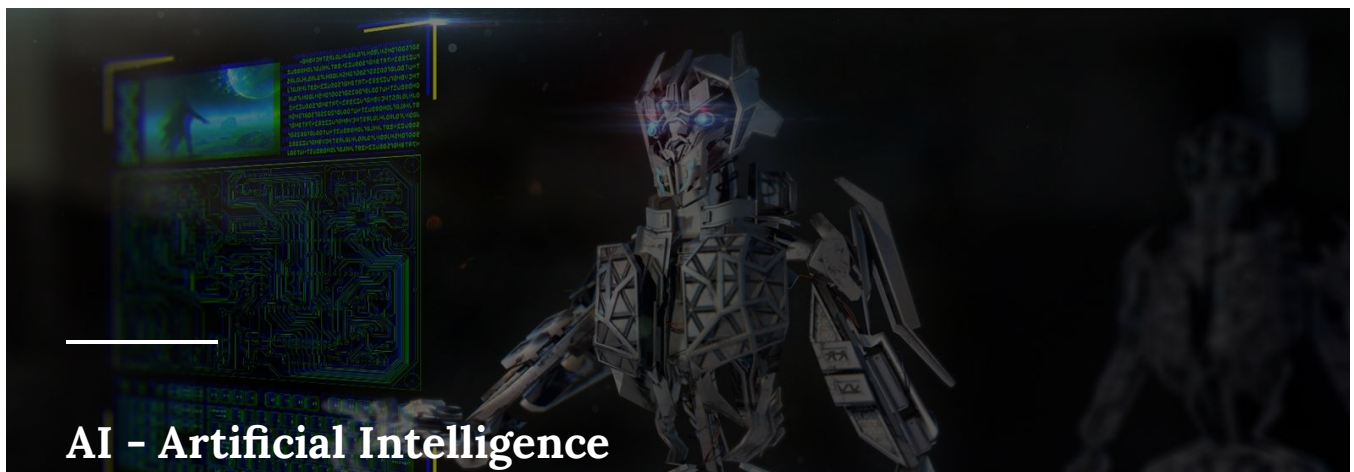
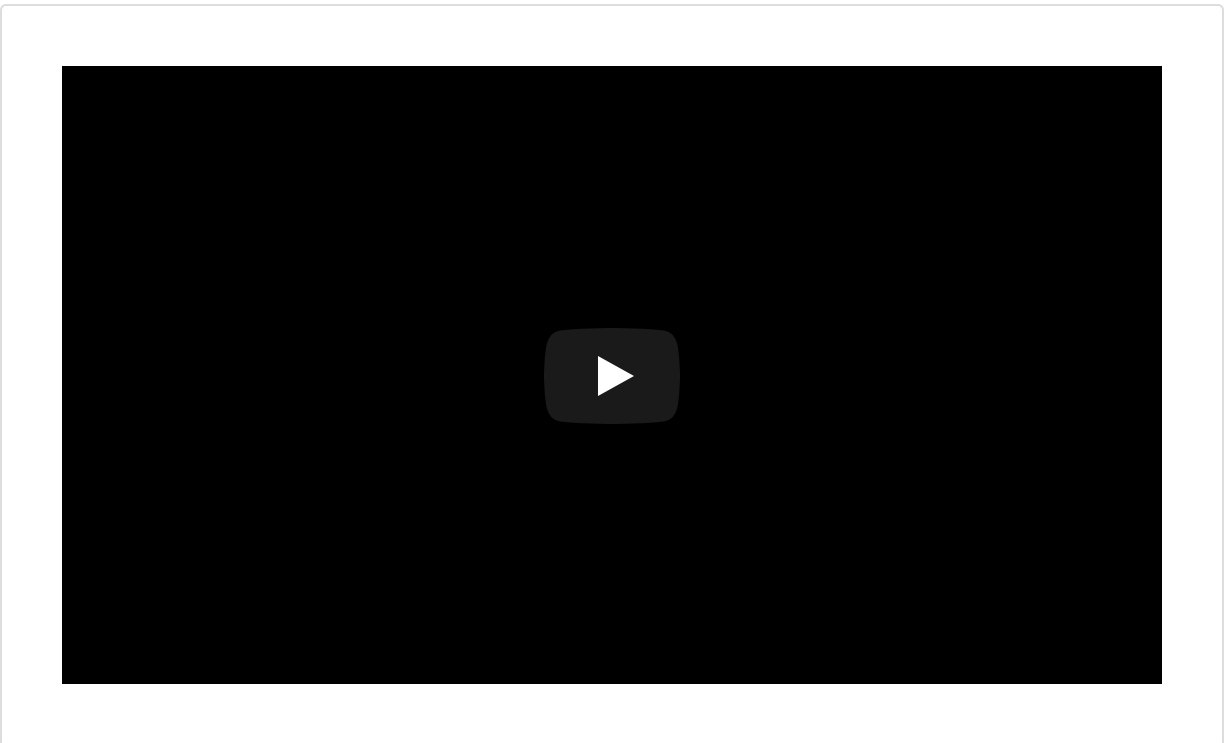
Security —

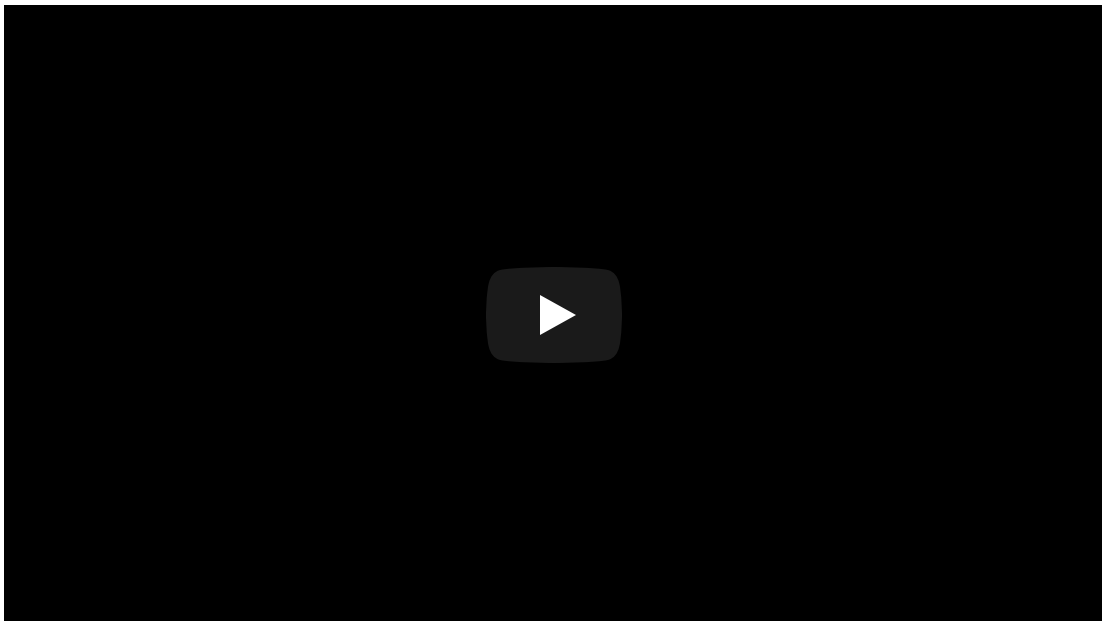
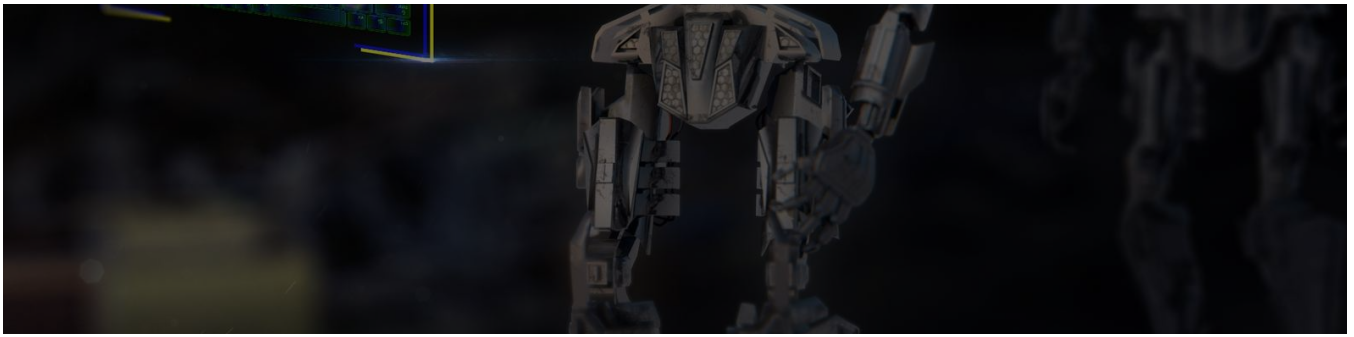
Many cloud providers provide numerous policies, technologies, and controls that strengthen the overall **security of your environments** and help protect your data, apps, and infrastructure from potential threats.

You want to store your data in Austria?

The "[Austrian Cloud](#)" seal of approval enables providers of Austrian cloud solutions to indicate that they explicitly store the data in Austria. The seal of approval makes it easier for users to find companies with a domestic storage location!

What does this mean for my company?





Artificial Intelligence – Introduction: Perspectives on AI

Of all the new technologies, it is the most exciting and controversial. While the "high priests of artificial intelligence" (David Richard Precht) euphorically celebrate the transformation of the "deficient human being" (Arnold Gehlen) in utopian visions of unimagined possibilities, others see the demise of humankind looming dystopian.

Now, we will take up three of the most widespread scenarios.

Scenario „AI replaces us. “

"Intelligent robots populate the earth and co-exist with us humans. They were developed by humans in their own image and brought to life. With the help of their artificial intelligence, they develop a life of their own and defy human domination." This narrative can be found in numerous films, books, computer games, plays, and other works of art. Humans are usually given the role of protecting their existence and planet from intelligent machines that have become dangerous. Films like "The Matrix" or "Blade Runner" made these negative future scenarios popular in recent decades. With the advance of digitalization, they seem to be moving closer to the present and are also being taken up in the media.

Scenario „AI saves us. “

In addition to the somewhat negative view of artificial intelligence, there is also a positive idea of the future with AI. This idea says that AI is a super machine that solves problems on its own and makes people's lives easier. It can process much more information than humans and is physically less limited and "invulnerable." AI is superior to humans because it is not subject to feelings in its decisions, i.e., it is more rational. It always decides rationally. Accordingly, it does not want to replace or even destroy humans.

Scenario „AI supports us. “

Experts take a more differentiated approach to the topic, especially in specialist circles. They often do not represent either of the two ideas of the future of AI described so far. Instead, the idea that AI will develop into a valuable assistant in some areas that can take work away from humans in specific tasks often prevails in expert circles. At the same time, humans should always remain in control of machines.

What is the current "reality"?

The views on the future of AI thus diverge significantly but have one thing in common: **they have a lot of confidence in AI.** This raises the question of how far AI has developed, what opportunities

can be derived from it, and what challenges need to be overcome. To be able to assess this, the following questions should be clarified:

- What does AI mean exactly?
- Can natural intelligence really be replicated artificially?
- What constitutes the intelligence of machines?
- How does an AI learn, and to what extent is it intelligent?
- What exemplary applications are there, and how do they work?
- How and where can AI help?
- What risks does AI pose, and how can they be countered?
- What are the current limits?
- And finally: What can be derived from this for the future?

([Siemens Stiftung, 2019](#))



Advantages of Artificial Intelligence

EU countries are already strong in digital technology and business-to-business applications. With a strong legal framework to protect privacy and freedom of expression and quality digital infrastructures, the EU could become a world leader in the data economy.

Advantages for citizens —

AI could help improve healthcare, make cars and other forms of transport safer, and bring tailored, cheaper, and more durable products and services to market. Access to information, education and training can also be facilitated through AI - this is already of particular importance concerning distance learning and continuing education in the context of the Covid-19 pandemic. AI can contribute to job security by, for example, using robots for dangerous work steps. New jobs are being created as industries using AI grow and evolve.

Opportunities for companies —

Artificial intelligence enables the development of a new generation of products and services, including in sectors where European companies already have a strong position: green economy and circular economy, engineering, agriculture, healthcare, fashion, and tourism. In addition, AI can optimize distribution channels, improve maintenance techniques, increase product performance and quality, improve customer service and help save energy.

Dangers and challenges of AI

The increasing reliance on AI systems also brings [potential risks](#).

Insufficient and excessive use of AI —

AI can help to successfully implement EU programmes such as the Green Deal and open up competitive advantages. If the EU misses these opportunities, there could be negative consequences, such as economic stagnation, lack of infrastructure, lack of investment spirit, lower investment and poorer opportunities for citizens and businesses. But overuse of AI can also be problematic. Possible examples include investing in applications that turn out not to be useful or using AI in areas for which it is not suited.

Liability: Who is responsible in case of damage? —

A significant challenge is determining who is responsible for damages caused by AI-based devices or services. For example, should the damages be covered by the owner, the vehicle manufacturer, or the programmer in an accident involving a self-driving vehicle, or the damages? If the manufacturer were free of any responsibility, then there would also be no incentive to offer a good product or service and people's trust in new technologies would be damaged; too strict regulations would in turn nip innovation in the bud.

Dangers for fundamental rights and democracy —

Artificial intelligence results depend on how it is designed and what data is used. Both data and design can be intentionally or unintentionally biased. For example, some important problem factors may not be embedded in the algorithm, or the algorithm may be programmed to reflect and replicate structural biases. In addition, the use of numbers could make AI appear fact-based and accurate, even if this is not the case ("mat washing").

If AI is not used correctly, it could lead to decisions influenced by ethnicity, gender, or age, such as

job hiring or lending.

There are also potential crucial privacy and data protection implications. For example, AI can be used for facial recognition or online tracking and profiling individuals.

Impact on jobs —

The use of AI in the workplace is expected to lead to job savings. Although artificial intelligence is also associated with the creation of new jobs, education and training will play a crucial role in preventing long-term unemployment and training a skilled workforce.

Further readings on the topic of Artificial Intelligence (AI)

To get you started, you can find a definition and numerous examples of applications on the website of the European Parliament: [What is artificial intelligence, and how is it used?](#)

Artificial Intelligence in Society (OECD)

The artificial intelligence (AI) landscape has evolved significantly from 1950 when Alan Turing first posed the question of whether machines can think. Today, AI is transforming societies and economies.

[READ MORE](#)

Confronting the risks of artificial intelligence

With great power comes great responsibility. Organizations can mitigate the risks of applying artificial intelligence and advanced analytics by embracing three principles.

READ MORE

Getting to know—and manage—your biggest AI risks

A systematic approach to identifying and prioritizing AI risks can help organizations effectively target mitigation efforts.

READ MORE

The Key Definitions Of Artificial Intelligence (AI) That Explain Its Importance

Discussions of artificial intelligence (AI) have created a certain amount of unease by those who fear it will quickly evolve from being a benefit to human society to taking over.

READ MORE

Time for reflection

Philosophical and cultural issues

Numerous **utopias and dystopias** shape the discussion about artificial intelligence. Some see it as an opportunity to expand and transcend the human being through technology (**transhumanism**) or even leave it behind (**posthumanism**). Others, on the contrary, call for Digital Humanism. Here are some suggestions:

- Sarah Spiekermann: [Digital ethics: How human should artificial intelligence be?](#) (Video)
German - watch with English subtitles
- [Digital Humanism or how to be adult about the digital age](#) | Nathalie Weidenfeld | TEDxMünchen (Video)
- [Vienna Manifesto on Digital Humanism](#)

Which technology fits which function?

≡ Big Data

Personalised customer acquisition

≡ Cloud Computing

Office independent of place

≡ Blockchain

Supply chain tracking

≡ Artificial Intelligence

Self-learning diagnostic procedure

SUBMIT



What did you learn in this chapter?

Lessons learned

In this chapter, you have learned about some of the most important digital technologies (big data, blockchain, cloud computing, and artificial intelligence) with their opportunities and risks and which practical applications are possible, and where you can find tips for implementation.

By reflecting on previous industrial revolutions (1-5), you will be able to classify current technological developments and interpret their social function.

In the next chapter, we will look at IT security and how you can protect yourself and your company.

[Next chapter](#)

8) Safety



"With the **ongoing digital transformation** and the **increasing networking of many areas** of everyday life with the internet, enormous market opportunities are being opened up, but the **importance of cybersecurity** is also increasing as a result. The threat from the net has become commonplace for years, but companies need appropriate cybersecurity strategies to **effectively manage security risks**, as more and more data is being generated and collected than ever before."

([KPMG, Cyber Security in Österreich 2020](#))

New ways of working and the relevance of cybersecurity

"Cybersecurity plays an important role in implementing **new work and organizational concepts**. New work concepts, for example, make use of digital technologies to give employees **self-determination over working time and place**, but this also increases the demands on cybersecurity. However, it is not enough to equip employees with a fast internet connection, laptop, software, and headset to be able to work flexibly and efficiently via smart working. **It is essential that, in addition to suitable collaboration tools, specific precautions are taken to ensure the necessary cybersecurity.**" ([Konverto, Smart Working and Cyber Security](#))

SMEs tend to have **lower digital security practices** and usually have a more limited ability to detect security incidents. The COVID-19 pandemic has led to **more businesses relying on digital technologies** than before. Digital transformation also increases the need for SMEs to address digital security risks and the likelihood of becoming victims of cybercrime. (OECD, 2021)



What dangers lurk in the digital world?



The most important threats to cyber security

During the COVID-19 pandemic, companies had to adapt quickly to new working conditions - opening new doors and more opportunities for cybercriminals. According to ENISA, there are nine main threat groups:

- **Ransomware**
Attackers encrypt a company's data and demand payment to restore access
- **Cryptojacking**
Cybercriminals secretly use a victim's computing power to generate cryptocurrency.
- **Data security threats**
Data breaches/data leaks
- **Malware**
Software that triggers a process that compromises a system
- **Disinformation/misinformation**
the dissemination of misleading information
- **Non-malicious threats**
human error and misconfiguration of a system
- **Threats to availability and integrity**
Attacks that prevent users of a system from accessing their information
- **Email threats**
Aim to manipulate people into becoming victims of an email attack
- **Supply chain threats**
Attacks on, e.g., a service provider to gain access to a customer's data

According to the agency's report, 76 percent of Europeans believe they are at increased risk of becoming victims of cybercrime. ([European Parliament](#))

"Especially for SMEs, it is not always easy to find out where the weak points are due to their size and limited human resources. As a result, there is a lot of **catching up regarding IT security**," notes Prof. Dr. Marcus Gelderie from the Digital Product Design and Development degree program at [Aalen University](#).

To sensitize employees accordingly and **protect companies from hacker attacks, password theft, and data theft**, Gelderie initiated the [BAKGame](#) project together with the [Technical Academy Schwäbisch Gmünd](#) (TA). The acronym stands for "**threat analysis in SMEs through gamification**."

The **aim** is to convey competencies and skills related to IT security in a target group-oriented and realistic manner through the research, development, and evaluation of learning games.



Phishing emails can be dangerous for you and your business.

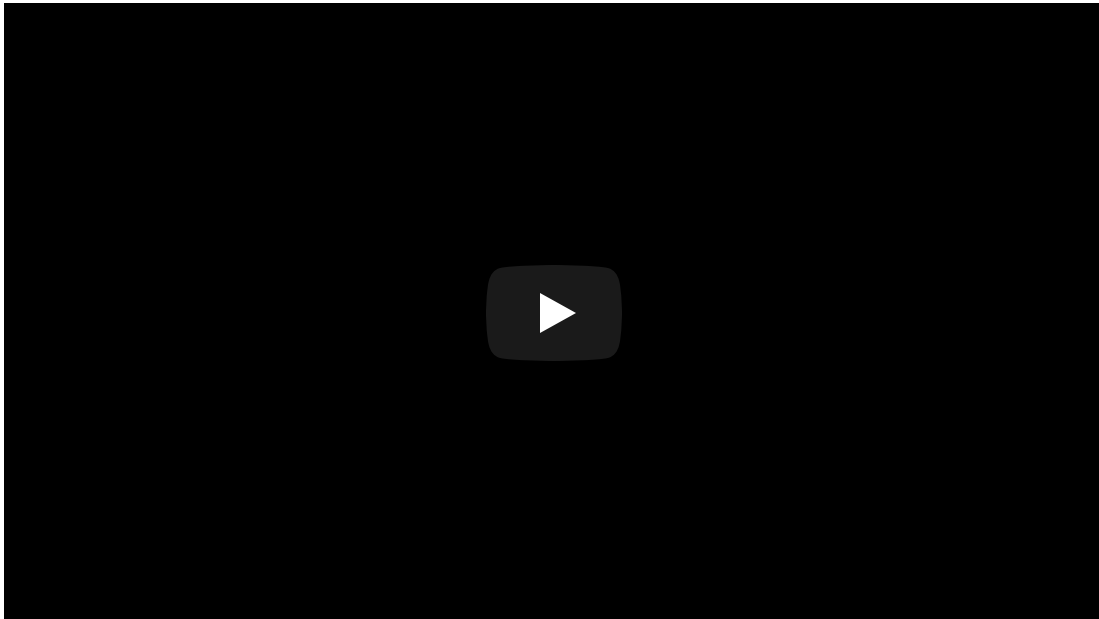
Phishing mails

Click! And the new sports shoes are paid for, or the text messages are sent: **The internet has simplified many things in life, but also for fraudsters.** They use messengers, websites, and emails to obtain **personal data**, and can cause significant damage.

Phishing" (a combination of the words "password" and "fishing") not only affects private individuals **but is also a great danger for companies.**

([University of Aalen in Cooperation with the Technical Academy Schwäbisch Gmünd](#))

 YOUTUBE



What is phishing? Learn how this attack works

VIEW ON YOUTUBE >

We have summarised how you can recognize phishing emails in the following list. At the end of the list, you will find a short self-test.

Forged sender address —

A frequently encountered feature is a forged sender address. In most cases, this can be recognized because the sender's name does not match the e-mail address. However, it can also happen that the email address is fake.

Receiver field —

If you receive multiple email addresses, the recipient's address can tell you whether the context of the email can apply.

Suspicious subject —

If the subject of an email already seems suspicious, you should view it with increased caution.

Generalised salutations —

A general form of address, such as "I greet you" or "Good day," in an email addressed directly to you indicates an automatically generated email. This can already be the first sign of a phishing email.

Call for feedback —

Phishing emails often contain a direct or indirect request to report back. Sometimes, personal data is already to be provided. Such emails serve three purposes: 1. attackers, 2. Validate your email address. the attacker's complete data records about you, and 3. the attackers try to engage you in a conversation and achieve their goal with different tricks.

Annexes —

Attachments to e-mails are not part of this game, but they can lead to infection of your computer. This can happen even with documents with typical file extensions such as .xlsm, .docm or .pdf. Therefore, you should look for phishing email characteristics before opening files. As a general rule, only open attachments from trusted sources and always use the protected view if possible.

Spelling errors and grammar —

Many phishing emails either contain spelling and grammar mistakes or are worded unusually. Such conspicuous features can be an indication of a phishing email. These errors occur because the e-mails are translated from a foreign language into German or are written by a non-native speaker.

Psychological pressure —

Attackers often try to put you under pressure with phishing emails. To do this, they use means such as time pressure and direct and indirect threats. This is supposed to encourage impulsive action and limit rational thinking. To prevent this, you should always keep a cool head. Make it a habit to always specifically look for phishing signs, especially for urgent emails such as a termination confirmation.

Links

Links in e-mails can deceive you in two ways. First, the address in the email may not match the actual destination address. This is because links can have a title that the attackers write as different addresses. On the other hand, the target website may be an allegedly genuine fake. Therefore, check the target address in the link preview before clicking on the links. This is displayed when you move the mouse over the link located either at the bottom left or directly next to the link.



How can you protect yourself and your business?

How can you protect yourself and your business?

Identify dangers, develop security strategies, and implement protective measures.

The security of IT systems and competence protect against **data loss, data corruption, and computer and cybercrime**. Companies should therefore develop a [suitable security strategy](#) that covers

against potential dangers. Raising the awareness of employees is an important security factor. ([Austrian Chamber of Commerce](#), 2018)

The following points should be considered when dealing with IT security:

Integrated strategy —

The great danger comes from shared responsibility. If one colleague is responsible for virus scanners and firewalls and the other for cloud computing, problems are inevitable. There has to be a central point from which all initiatives are controlled.

Create awareness —

The most expensive safety systems are useless **if the employees are not sensitized**. Therefore, training and establishing binding rules of conduct are necessary and prescribed by law.

Secure interfaces —

It would all be so simple if we had a completely self-contained computer network. But today, we are further away from that than ever before. Everyone owns several **USB sticks**, and they are often accepted as gifts or exchanged among themselves. These little helpers can hold nasty surprises in store. They can be used to introduce all kinds of malware into the IT network. Whether you lock the sticks out entirely or only allow them into the company's secure storage, you have to find the right solution for your individual needs that can be implemented in the company.

Meanwhile, the risk of WLAN is even greater. Wireless internet offers a lot of conveniences, but the WLAN network is also one of the most vulnerable points of entry for attacks on companies. Therefore, switching off access to particularly sensitive data via WLAN is better. A separate network for external persons is also sensible. Of course, the company WLAN should be set up as securely as possible through appropriate router settings.

Mobile risk —

BYOD - Bring Your Own Device. The nightmare of every security expert, but at the same time unthinkable without it. Employees often use their mobile phones for private and professional purposes, apps are installed uncontrollably, and the device travels far and wide and is constantly on the move in insecure networks. However, there are ways and means **to draw a line between the private and professional worlds**. There is a special software for this and hardware; Blackberry, for example, offers smartphones with just such an integrated dividing line. With smartphones and tablets, the cloud has also reached companies. This can also lead to **considerable risks**, considering that company data is uploaded and downloaded via public networks. **Encryption of all data in the cloud is essential, and care should already be taken when choosing a cloud provider to ensure that it offers the most excellent protection here.**

Always up-to-date —

There is much more installed on a modern computer than an operating system and office package. A **multitude of programs** cavorts on the hard disk. It must be ensured that all **security updates** are installed at all times. If loopholes for attacks become known, updates that eliminate the danger usually appear within a few hours or days. **Anyone who is not always up to date is negligently making himself a target.** In particular, home banking, which is very popular with hackers, should be mentioned. Here, too, make sure that the company uses the latest access method that the bank provides for logging in.

Secure passwords —

It is an often discussed topic. The best encryption and the perfectly secured interfaces are all of no use if the password is "123456". **The more complex - the better.** Upper and lower case, special characters, as many digits as possible, nothing that can be found in a dictionary... There is a lot to keep in mind, and staff members do not particularly appreciate the imperceptible access to data. But there are also possibilities here, e.g., through password managers or tokens, so this core piece of any security strategy is put into practice.

Further tips and tricks can be found in the [Cybersecurity guide for SMEs](#) provided by ENISA (European Union Agency for Cybersecurity).

You can also do a [Quiz on Cybersecurity](#).

When it comes to your company's IT security, you should consider the following keywords:

- **Data backup**

"What a backup should look like, where it should be stored, how often and how extensively it should be made - all this depends on the user's individual needs. A lot of work and trouble can be saved by considering the ideal backup strategy for them and what they have to consider, purchase and set up to get the hard work done as quickly and reliably as possible. There are many things to consider - and several variants for the most stress-free backup possible."

You can find out more about backing up data in [this article](#).

- **Data protection**

"Every day, vast amounts of information, including private and personal data, are transmitted via the internet. It is, therefore, more important than ever to handle data in a trustworthy and legally compliant manner while respecting privacy. In Austria, data protection is anchored in the constitution. To ensure a high level of protection throughout the EU, in 2018, the EU introduced a uniform data protection law - the General Data Protection Regulation (GDPR) - which applies equally throughout the EU." (European Commission)

You can find out more about EU data protection regulations [here](#).

- **Anti-Virus**

"An antivirus program is software that protects devices such as laptops, PCs or smartphones from Trojans, viruses and other malware on the Internet. In addition to comprehensive protection, good antivirus programs come with several additional functions for safe surfing on the Internet. This is because the various manufacturers have to keep up with new security vulnerabilities and bring

improved products to market every year. You can find out which criteria to look for when buying an antivirus program for Windows in the following."

You can find more information and a detailed list of the current **best antivirus programs** on [this website](#).

- **Firewall**

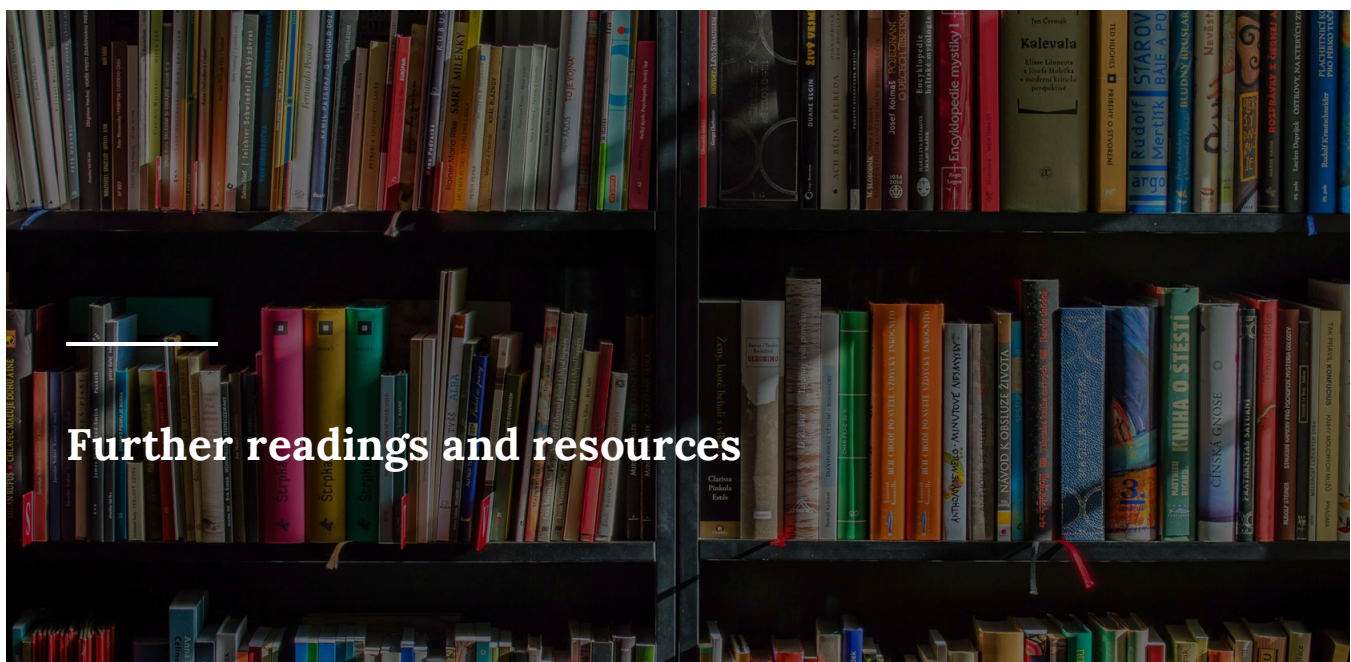
"A firewall not only provides security when surfing and protection against attacks from the Internet or industrial espionage. In addition, your communication channels are monitored with the right firewall, and communication is protected against viruses, spyware, malware, and phishing. An intelligent firewall is a basis for building and protecting IT infrastructure. They protect networks from external attacks and also provide security during network operation. Combined with other tools from security, you achieve the highest possible protection against attacks."

Find out more about Firewall [here](#).

In an emergency (e.g., in the event of a cyberattack or encryption of your data by an extortion Trojan horse), you can get help in Austria from the

Cyber-Security-Hotline at 0800 888 133

free of charge around the clock.





Cybersecurity Guide for SMEs (enisa)

12 steps to securing your business

[READ MORE](#)

Boosting your organisations cyber resilience

ENISA and CERT-EU strongly encourage all public and private sector organisations in the EU to adopt a minimum set of cybersecurity best practices.

[READ MORE](#)

Digital security in SMEs

OECD iLibrary

[READ MORE](#)



Lessons learned

In this chapter, you have gained an insight into the **main dangers** that can lurk in the digital world and how you can protect yourself and your company from them.

In the next chapter, you'll find out more about digitisation and sustainability.

Next chapter

9) Digitisation and sustainability



Suppose we have tried to convince you of digital transformation's inevitable and **positive effects** so far. In that case, it is time to think again about how your company can also sustainably shape the digital future (ecologically, economically, and socially).

Digital culture is essentially shaped by the relationship and connection between two megatrends of our society: **digitalization and sustainability**.



Long discussed in parallel in research and politics, the consensus today is that **without sustainability, digitalisation** can become "an **accelerant**" (WBGU) of those growth patterns "that break through the **planetary guard rails** and undermine **social justice as well as democratic processes**. Digitisation should therefore be systematically put at the **service of global sustainability**".

([Transformation unserer Welt im Digitalen Zeitalter, WBGU](#))

In the [European Post-Pandemic Recovery Fund](#), it is for this reason that these two aspects, in particular, are taken into account and promoted.

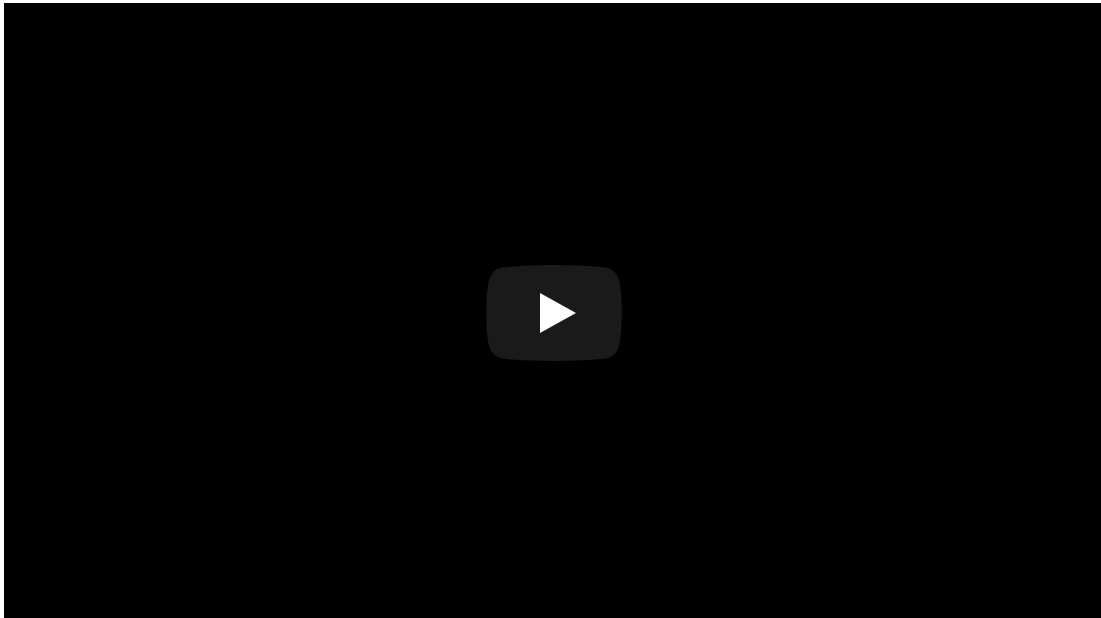
„It is now time to get to work, to make Europe greener, more digital, and more resilient.

In a significant [study](#) by the German Advisory Council on Global Change (WBGU) in 2019, the research strands of these two megatrends are brought together for the first time, and recommendations for action are summarised in a [charter](#).



„Our common digital future“

 YOUTUBE



WBGU Our Common Digital Future

VIEW ON YOUTUBE >

What questions arise in the face of this **digital revolution** "of unprecedented scale"?

Let us sum up:

- Who gives direction and meaning to this revolution?
- What goals does it serve?
- How can we use the new technologies to preserve our natural livelihoods?
- How can we ensure participation and quality of life for all?
- How can we protect privacy, democracy, and human dignity?

We remember the quote by the German philosopher David Richard Precht:

"It is not technology that will decide our lives (...); what is decisive is the question of culture."

(Precht 2018, 12)

Because these questions cannot be answered technologically, we need **cultural answers** to how we want to live on this planet.

- **"Digital technologies are fundamentally changing society** and challenging our understanding of what constitutes our **existence as human beings**. Much is at stake.
- The challenge of a just and democratic society with **people at the center of technological progress** must be met with determination and scientific ingenuity.

- Technological innovation requires **social innovation**, which requires broad social **democratic engagement**."

(Quote: [Vienna Manifesto for Digital Humanism](#))



The "Vienna Manifesto for Digital Humanism" puts it in a nutshell:

"We need to shape technologies according to human values and needs instead of just allowing technologies to shape people."

Our task is not only to curb the disadvantages of information and communication technologies but also to promote **human-centered innovations** from the very beginning.

We call for a **Digital Humanism** that describes, analyses, and, above all, influences the **complex interplay between technology and humanity**, for a **better society** and a **better life** with **full respect for universal human rights**."



What does this mean for the craft sector?



Crafts are part of a tradition in which **human values and needs** are particularly central. For this very reason, it is of great importance in this sector to "shape technologies according to human values and needs" and not vice versa.

In the previous chapters, we have mainly worked out the advantages of digitalization. But, if we now combine these **advantages** with a **sustainable perspective**, what do we need to pay attention to?

Before we come to very concrete implementation and application possibilities, let's briefly review an overview, a holistic perspective on the "transformation to sustainability."

In the WBGU study already cited, **three dynamics** of the Digital Age are distinguished on a time axis:

1. Short term

the first step is to support sustainability digitally:

- a. Respect planetary boundaries (climate, nature, soils, oceans).
- b. Ensure social cohesion (against hunger, poverty, inequality; for access to water, health, education, energy)

2. Medium-term

a "New Humanism" is then to emerge:

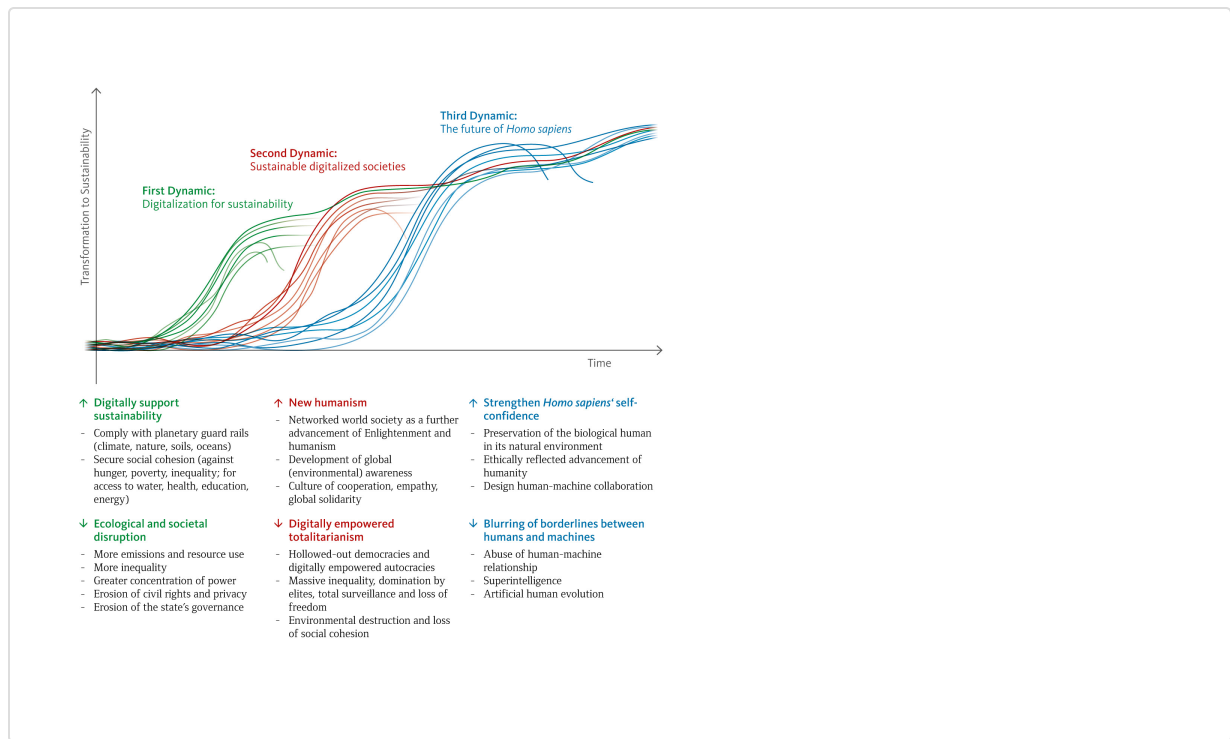
- a. Networked world society as further development of enlightenment and humanism
- b. Development of world (environmental) awareness
- c. Culture of cooperation, empathy, and global solidarity

3. Long term

is about strengthening the self-confidence of homo sapiens:

- a. Preservation of the biological human being in its natural environment
- b. Ethically reflected further development of the human being
- c. Shaping human-machine collaboration

These positive dynamics are complemented by the respective risks (bottom row) in the chart below:



Without going into detail on the individual points here (you can find further references in our eLibrary), we need to understand two basic assumptions in particular in this complex process:

1

Digitisation urgently needs shaping and

2

Sustainability is a vision of global, long-term well-being.

How can sustainability be supported digitally?



Respect planetary guard rails (climate, nature, soils, oceans)

☐

Support digitally empowered autocracies

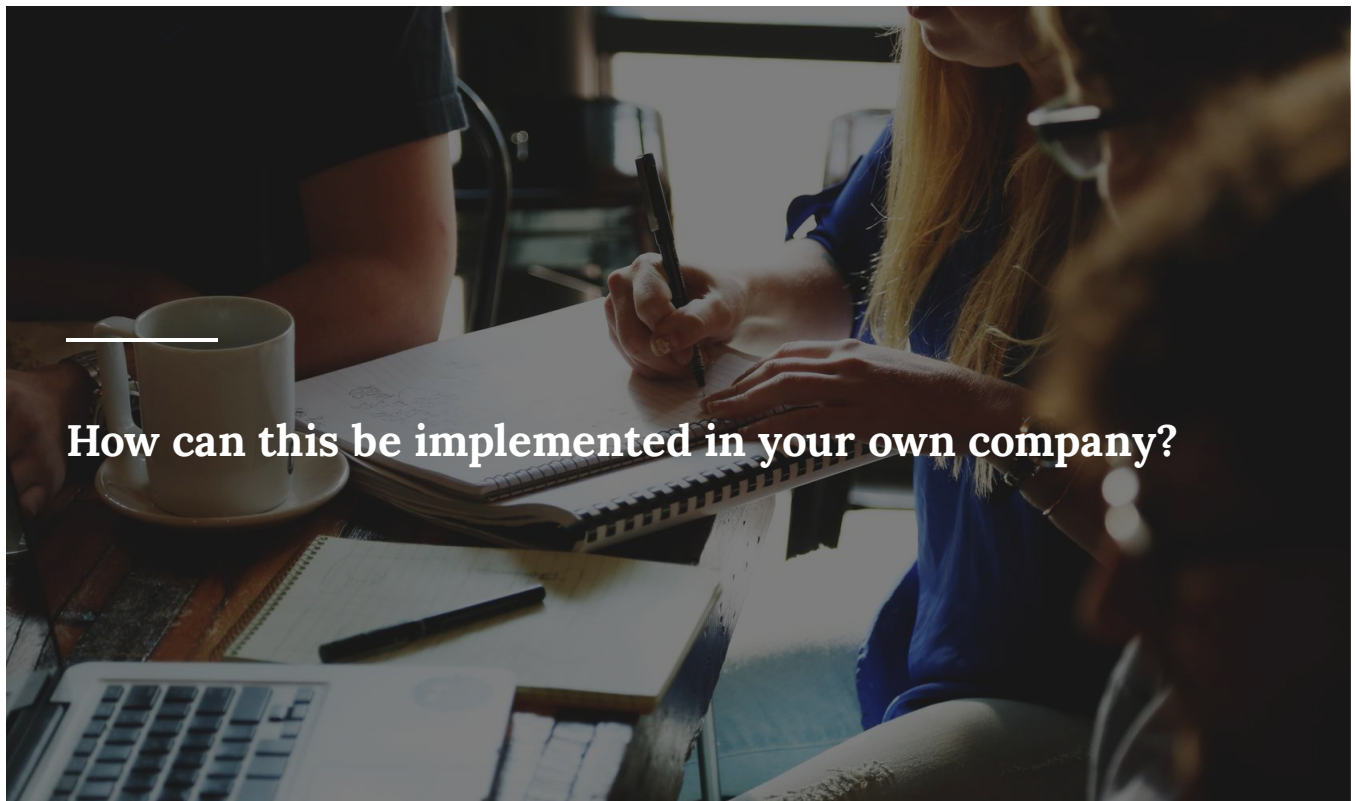
☐

Promote elite rule

☐

Ensure social cohesion (against hunger, poverty, inequality, for access to water, health, education, energy)

SUBMIT

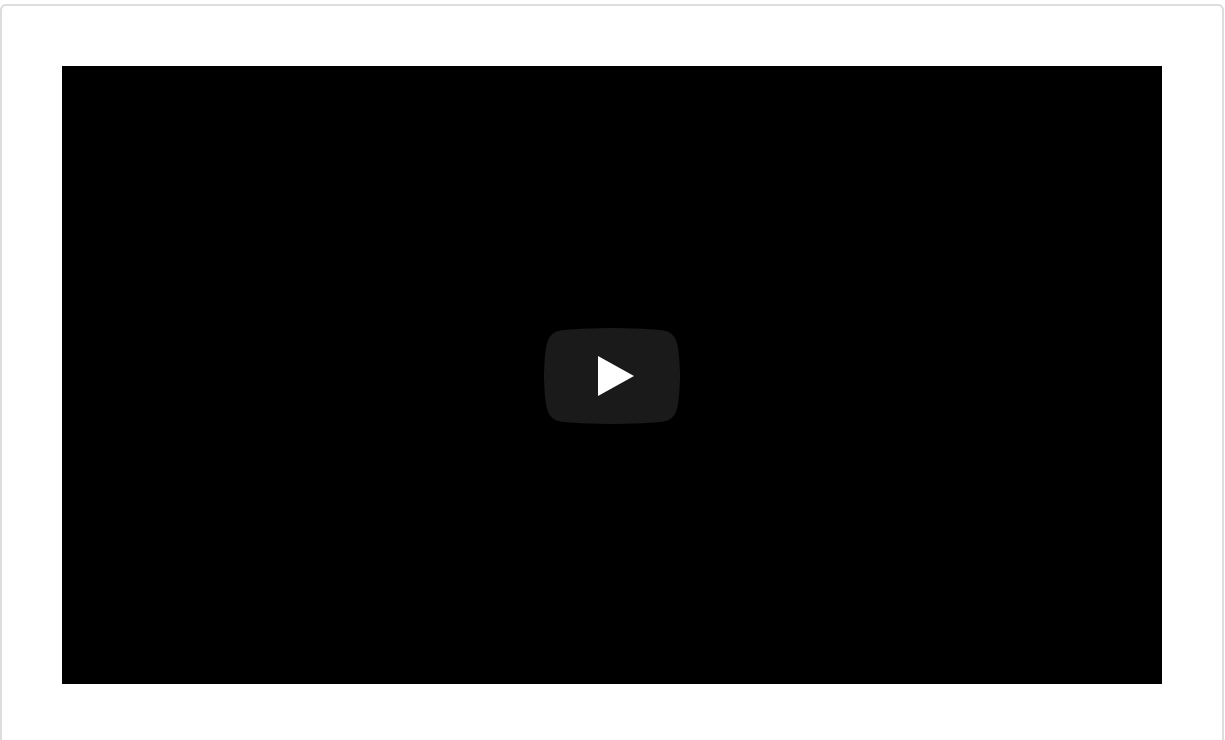


How can this be implemented in your own company?

1. Choose a strategy and a business model that takes sustainable perspectives into account.

Economic models that **measure growth qualitatively rather than quantitatively** have a holistic view of our society and apply to SMEs that already exist ([economy for the common good](#), [doughnut economy](#), [post-growth economy](#), etc.).

We would like to briefly introduce you to an example of a sustainable economic model in the following video: The **Economy for the Common Good**.



2. Use digitalisation to achieve the sustainability goals

Digital applications should be rapidly used to achieve the UN Sustainable Development Goals.

By:

- Digital maturity
 - Digital sustainability society
 - Digitally empowered people
 - Digital pluralism
 - Inclusive digital society
 - Extensive use of renewable energies,
 - Circular economy as complete as possible
 - [Dematerialization](#) with the long-term protection of biodiversity and ecosystems
-

3. Shape your business digitally and sustainably

What potential do digital innovations have concerning climate protection?

"Digital technologies have certainly been the most powerful tool in the hands of mankind in recent decades to achieve **energy savings, energy efficiency - in other words, "more for less"** - in countless contexts:

In transport, in industry and logistics, in housing, in communication networks, in trade, in the agricultural sector, or in energy production itself.

And let's not forget that digital technologies, e.g., environmental sensors, satellites, or computationally intensive weather and climate models, are the basis for understanding climate change in its complexity in the first place. We call this **tech-for-green or IT-for-green.**" ([Michael Wiesmüller, 2020](#))



"Green IT (more rarely also Green ICT) refers to efforts to make the use of information and communication technology (ICT) environmentally and resource-friendly throughout its entire life cycle. This includes **optimizing the consumption of resources** during the production, operation, and disposal of the devices (Green in IT).

Another aspect of Green IT is the **saving of resources** through the use of information technology (IT), for example, when business trips are replaced by video conferences (Green by IT)."

"Digital technologies, however, and this is the **flip side**, are **also energy consumers themselves**, with **a considerably increasing demand**.

- Much, but not all, of this hunger can be mitigated by sound **engineering or efficient algorithms**.
- **Datacenter capacity**, for example, has **tripled** globally in the last seven years, but energy consumption has only increased by three percent, according to the International Energy Agency.
- In recent years, there has also been a lot of research into making digital systems that play a role in the Internet of Things completely energy self-sufficient by **harvesting energy from the environment**. This is called **Green IT**.

Digitalization curbs energy and resource consumption "but also **contributes to the increased generation of "e-waste."**

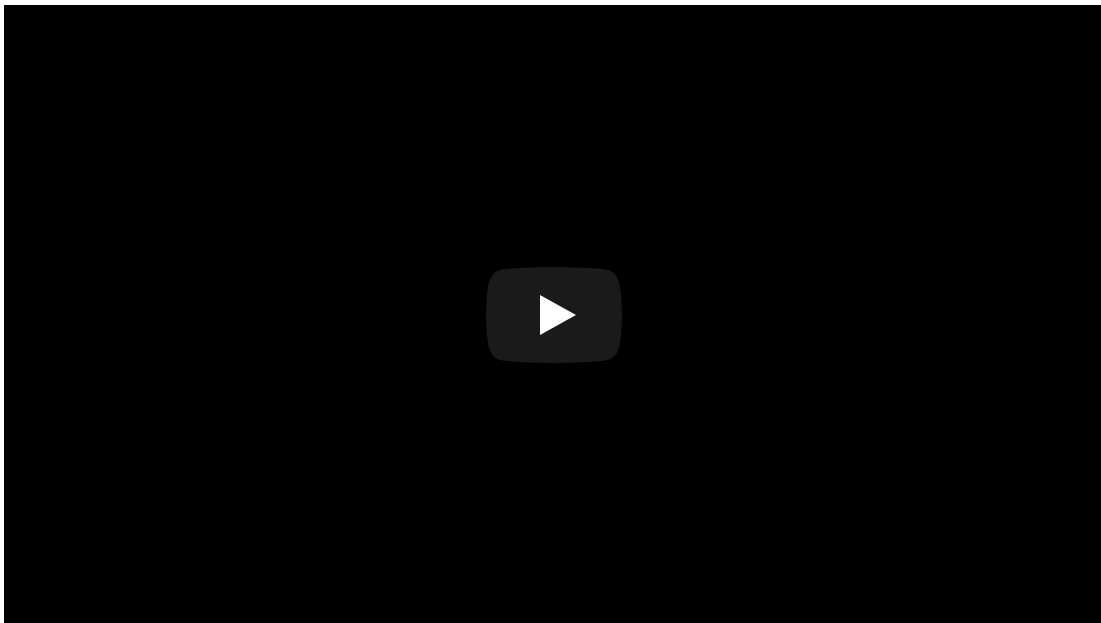
Economic effects and reactions could reduce the **positive environmental impact** (rebounds, e.g., increase in demand due to lower prices, economic growth)".

([Mathias Kirchner](#))



What can a digital transformation look like that does not harm the environment?

To watch the following video with **English subtitles**, please activate the auto-translation option in the settings of this YouTube video. For detailed instructions, please watch this [tutorial](#).



Check list

IT-for-Green: Where can I use and save energy better with digital technologies?

Infrastructure (building insulation, heating, appliances ...): Digital sensors and measuring devices for energy optimization

Production —

More efficient processes, less waste

Supply chain and distribution —

Shortest possible distances, e-mobility, public transport

Open-Source Products —

Open source can help companies make good progress on the road to green IT. The software has a considerable influence on the energy requirements of the computer system.

Use refurbished IT equipment —

Offer old IT equipment for refurbishment (refurbished IT) or consider refurbished products when buying new.

Communication —

- More online meetings, less business travel
- Green search engines ([examples](#))
- Green website
- Green web host

International Standards —

The **Institute of Electrical and Electronics Engineers** (www.ieee.org), with the motto **Advancing Technology for Humanity**, is working on **criteria** to ensure the responsible development of digital systems.

The goal is an **Ethically Aligned Design**, which – based on Aristotle's Eudaimonia – should first and foremost ensure **that technology improves individual and holistic societal well-being**. Here, you will find standards, certifications, regulations, and legislation for designing, manufacturing, and using digital systems. ([Ethically Aligned Design](#))

EU Taxonomy: The EU Taxonomy offers the possibility of defining minimum requirements for sustainable investments and measuring climate expenditures. ([What is the EU Taxonomy?](#))



Best Practice: [X-NET](#)

Looking for solid partners: Best Practice: [X-NET](#) combines digitalization with sustainability and the Economy of the Common Good.

"X-Net sees one of its tasks in using its knowledge to reinforce sovereignty and European values ... reinforce and educate as many people and companies as possible and equip them with the necessary knowledge to become autonomous and independent."

"We want to provide opportunities for companies to align themselves with long-term global goals (SDGs) and represent their touch groups (customer, supplier, partner, government, and banks/investors) 'on-demand.'"

- Nikolaus Dürk, CEO X-NET

Digitalization reduces the consumption of resources. So which of the three answers is correct?

☐

correct

☐

false

☐

Digitalisation can optimise resource consumption, but it also consumes a lot of energy itself.

SUBMIT

Further readings and resources





Carbon Footprinting for SMEs

A Green Business Fund Webinar by Sarah Laidler and Imogen Catterall

[WATCH THE VIDEO](#)

Digital transformation as a strategy to reach sustainability

Article by Ana Maria Gomez-Trujillo and Maria Alejandra Gonzalez-Perez

[READ MORE](#)

Towards Digital Transformation and Sustainability of SMEs

Article by Magdalena Marczewska and Marzenna Anna Weresa

[READ MORE](#)

Sustainability In The Digital Age

Dirk Messner / TEDxBonn

[WATCH THE VIDEO](#)

Towards our Common Digital Future

WBGU

[READ MORE](#)



Was konntest du in diesem Kapitel lernen?

Lessons learned

You have become aware that digitalization can contribute significantly to **sustainable development**, to "**humane and valuable progress**" (Sarah Spiekermann, 2019). Still, it can also be an accelerant of planetary destruction without reflection.

You will be able to understand and interpret sustainable digitalization, select from a checklist for implementation, and deepen your knowledge with the resources provided.

In the next chapter, you'll learn more about the practical example of Bookbindery Fuchs.



Next chapter

10) Practical example Bookbindery Fuchs and outlook

Digital transformation is not a one-off event but a **process that is always open**.

An excellent example of this is the [Fuchs bookbindery](#). Founded as a family business, **when more and more smaller printers could not keep up with technological developments** and had to give up, the craft formed the **basis for the new company**.

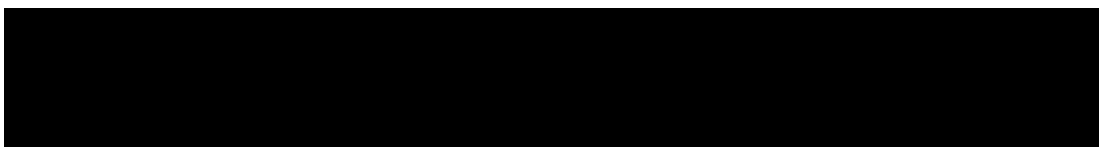
In **recent years** the digitalization push presented the business with **significant challenges**.

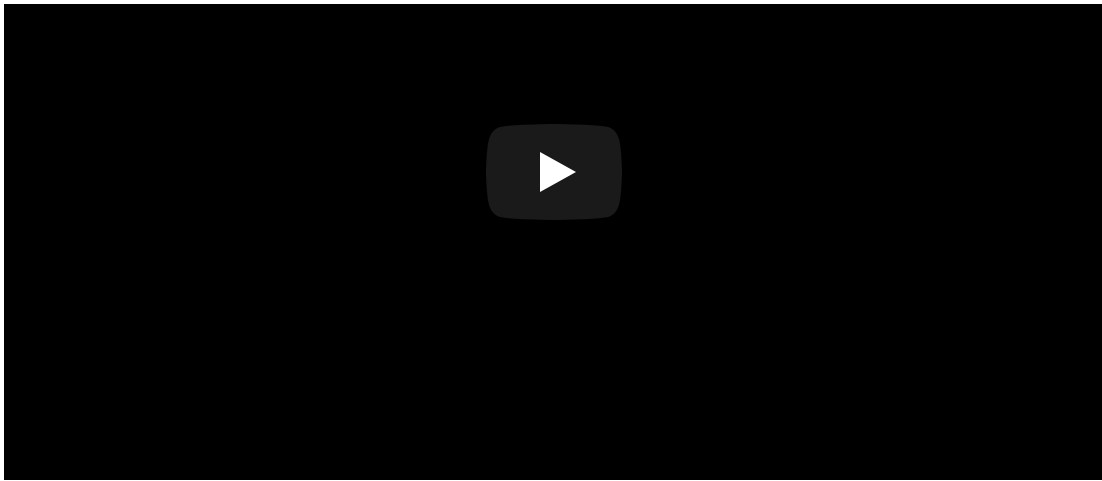
Father and son Hans and Christian, **both trained bookbinders** and **passionate craftsmen** saw the **need for digitalization** but faced it with **great skepticism**. Their **approach took place in small steps**.

Although there is a lot of talk about disruption, in most traditional businesses, the **transformation** is more **evolutionary** (which does not exclude radical rethinking) or in **agile processes** (see chapter 6).

We introduce: The Fuchs bookbindery in a video (2014)

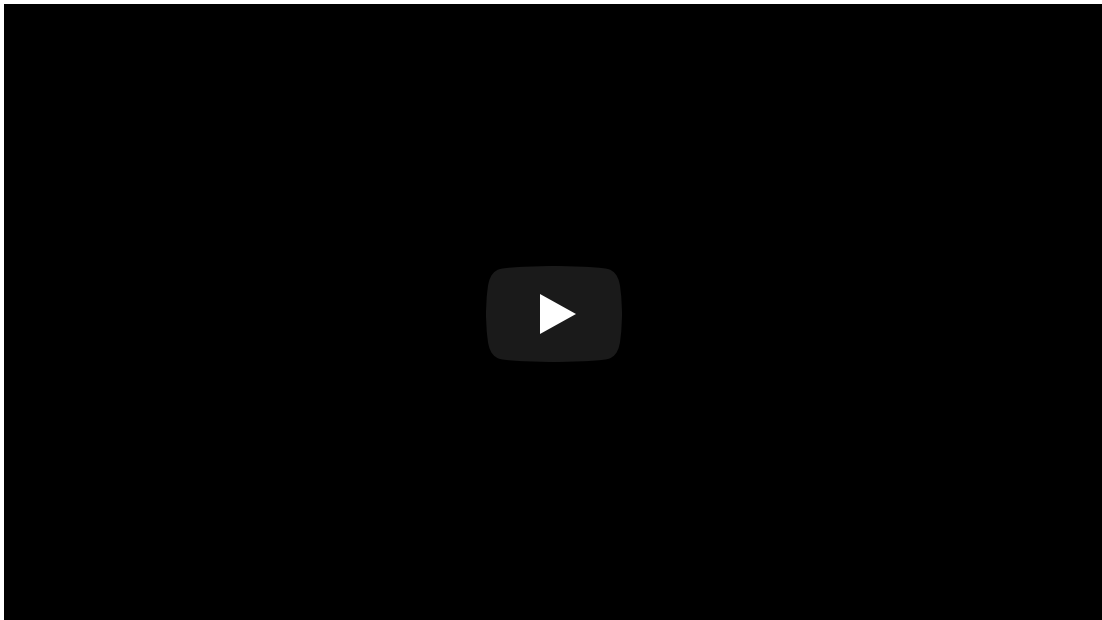
To watch the video with **English subtitles**, please activate the auto-translation option in the settings of this YouTube video. For detailed instructions, please watch this [tutorial](#).





DigiCulTS eTalk: A bindery in the midst of digital transformation

A few years have already passed since the ServusTV video (2014), so we are pleased to welcome CEO Christian Fuchs in person for a **DigiCulTS eTalk**.



Steps of the Digital Transformation

As with many craftsmen, the process of digital transformation initially began with the gradual...

Implementation of digital hardware and software (graphics) —

- It all started about 30 years ago with the switch from index cards to EDP and our own network administrator.
- When the analog offset printing press had become obsolete, setting up a digital graphics workshop was the next logical step: the first Mac was purchased. With each new generation of software programs, the company grew with it.
- Graphics programs and digital printing technology soon became indispensable.
- Even though the collection and use of old printing machines and techniques and the hand-making of paper went on in parallel.

Personalisation and in-house transparency: menu configurator —

- The craft business finally achieved a **paradigm shift**, the transition from digitalization to **digital transformation**, with the order to develop a configurator for the product in which Buchbinderei Fuchs is the market leader: the individually designed menu.
- Now the customers could be involved even more interactively, and the use of the diverse materials could be visualized more quickly.
- With the digital competence of a new employee, the configurator gradually took on additional tasks and became the basis for all communication and process planning. As a result, employees' pricing, deadlines, and evaluations of individual areas are transparently available.

Online consultation with video demonstration (menu showroom) —

- The next step was taken at the beginning of the COVID-19 pandemic: a camera was installed in the showroom and connected to a video conferencing system. Online consultations have since supplemented the on-site consultations.

Combining linen and digital printing - dye-sublimation printing —

- Technical innovations such as the combination of digital printing and linen expanded the portfolio (fully printed, individualized card covers) with long durability and sustainable, unbeatable quality.



3D printer —

- The versatile applicability of 3D technology opens up hybrid solutions of a completely unique kind for creative craftsmen: For example, digital printing forms are printed again in analog and processed further.

iPadCase —

- This invention even inspired Placido Domingo: an iPad in an analog envelope as a wine list! The covers are as individual as their clients: made of wood, straw, felt, or leather...

Linocut with a print template from the internet —

- Another combination of analog and digital technology has developed in Christian Fuchs' "Living Museum" from old printing presses: To find a suitable template for their linocut, students were allowed to search for a template on their mobile phones. They were delighted to be able to turn this analog expression into a handicraft and forgot about their mobile phones for a few hours.s.

Reproduction of out-of-print, antiquarian books —

- There is a special offer for book lovers: old, partly incomplete books are scanned, and missing text passages from internet sources such as the [Gutenberg project](#) are completed and newly produced by hand (printing and binding).

Website —

- A "Virtual Tour" leads through the colorful workshop

Social media marketing —

- Instagram and Facebook are the most important means of communication and have recently been used intensively.

Economy for the common good and crowd-funding —

- Christian Fuchs is one of the pioneers of the Economy for the Common Good with his company.

You would now like to initiate the digital transformation in your company but don't know where to start?

For you and your craft enterprise, the first steps could now be to carry out a **status quo** and **potential analysis** ([Praxisleitfaden KMU](#)):

- Which digital technologies do we already use in the company, and which technologies are already available to us?

- In which operational areas could the technologies be applied? What is the situation with our team? What digital skills do we have? Feel free to use our [DigiCulTS Quick-Check!](#)
- Analysis of competitors: How are our competitors doing it? Which technologies are they already using? Does my company already need to catch up in comparison?

Once you have considered these points, you can start to work out a **digitalization strategy** for your company:

- What goals do we set?
- What technical infrastructure do we need in addition? Which may already be in place?
- What costs will this incur?
- How can we finance this?
- What subsidies are available?
- Which external partners can we involve/help?
- What activities do we set up?
- How will responsibilities be divided, and which staff members are responsible for what?
- Timetable: When do we want to set which activities or start with the implementation?

When you are satisfied with your digitization strategy, you can start implementing it.

Advice centers can provide you with tips on developing and implementing your strategy!

As you have learned in this course, Digital Transformation is, above all, also a cultural one, with all its social, ecological, and economic facets. What this digital culture will look like in the future: That is now also up to you and your company.

We hope you were able to take something away from this course for your business and wish you good luck in the digital world!

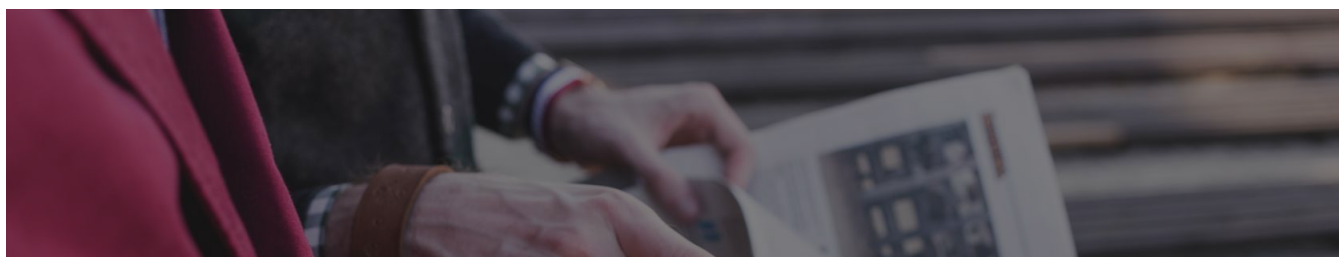


Next steps

Do you want to learn more? - More courses are available for you free of charge!

- Promoting digital transformation
- Online credibility & trust
- Your social media strategy

Learn more in the [DigiCulTS Academy!](#)



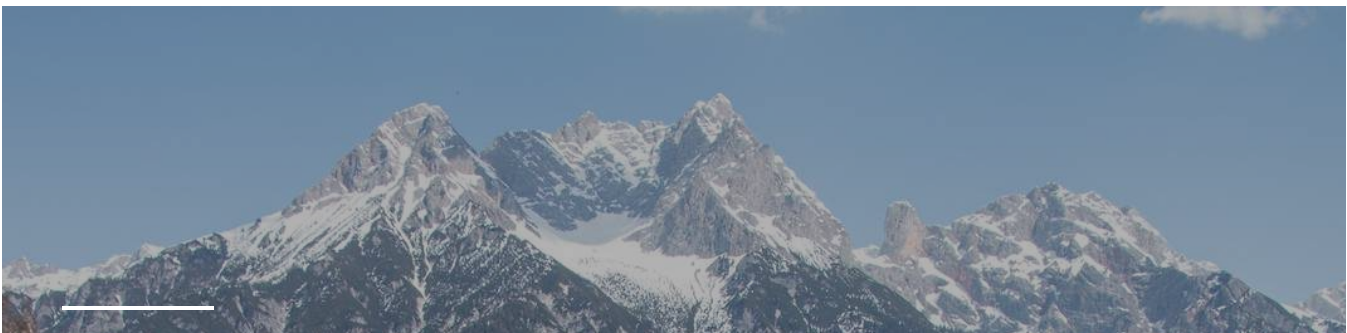
A close-up photograph of a person's hands holding a black smartphone. The person is wearing a red jacket with a blue and white striped cuff. The background is blurred, showing what appears to be a laptop keyboard and some papers.

What do you think about this course?

We hope you enjoyed the "How much digital does my craft need?" course!

We would love to receive your feedback in our [feedback padlet](#)! It helps us further develop the courses for SMEs from all over Europe. Thank you very much!

i You haven't used Padlet yet? It's pretty user-friendly and intuitive. You don't need to log in to use it. If you want to learn more about how to use it, here is a short [YouTube tutorial](#).



About this course.
Disclaimer.



My name is [Wolfgang Schäffner](#) and I am the managing partner of the [Study and Management Centre Saalfelden](#). I am glad that you attended the DigiCulTS course and hope that you can take one or two tips into practice.

Contact information

This course was developed by the [Study and Management Centre Saalfelden](#) for the project DigiCulTS - Digital Culture for SMEs. We look forward to hearing from you!

You will find us on:

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