

CONTENT UNIT 4 DIGITAL COMPETENCES















4 Digital competences

4.1 The introduction

In professional and private life, it has become extremely rare for someone to have absolutely nothing to do with **computers or smartphones**. Most people, therefore, have some **basic understanding of the possibilities and tools** that computers and the internet provide us with. The problem: things are constantly changing, different topics become more important, and others move into the background. A great illustration of this is online meetings, which have become the standard for meetings in many companies as a result of the events that have taken place around Covid-19.

Definition

Digital competence involves the "confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It is defined as a combination of knowledge, skills and attitudes." (Council Recommendation on Key Competences for Life- long Learning, 2018)

Constantly **refreshing and dealing with your digital skills** is very helpful - in your job and also in your private life. In this module, we will look at four topics that will improve digital skills.

We look at **security aspects in the digital space**, how you can protect yourself from hacker attacks and secure your professional and private devices up-to-date and what cybercrime is.

Furthermore, we will deal with the **basics of spreadsheet calculation** with Microsoft Excel and how you can evaluate and present data in it. We will also show you how to use **Zoom** and **Microsoft Teams** correctly. Finally, there will be a brief overview of how to create appealing presentations on the computer and **helpful presentation techniques in** general.

In this unit you will learn:

- You understand the basic characteristics of data security.
- You understand the terms cybercrime and hacking.
- You are able to recognize malicious and unsolicited emails.
- You know measures to physically secure computers and mobile devices.
- You know the important mathematical and statistical functions of Excel.
- You are able to visualise the data adequately.
- You are able to create a pivot table.

- You know filters and data analysis tools.
- You know the most important functions of ZOOM and teams.
- You know the most important manners in the digital space.
- You know basic presentation techniques.
- You know how to design content in an appropriate way.

4.2 Digital security

Data security is a central and overarching theme when it comes to building digital skills. Data and information are valuable currencies for many in our connected world. However, like any form of currency, data can also be stolen. This is as true in a private context as it is in a professional one. For example, if we google the best-Baked Beans recipe and thus out ourselves as a fan of English cuisine, that is one thing. But if we enter our bank account details on a fake website, that's something else entirely.

The issue of data security is now becoming much more serious in the professional context - industrial espionage, hacker attacks and data theft occur again and again and can have serious economic consequences. The chain breaks at the weakest link. That is why every employee must at least understand the basics of data security.

Note

Information is essentially the knowledge or details about things or processes.

Data is standardized or systematic (comparable) information for further processing and storage. They can be sorted, evaluated, and used or saved in different applications. In stored form, for example, you can use address data to create a form letter; with stored numerical data you can perform calculations.

Let us therefore first look at the three most important features of data security:

- Confidentiality
- Integrity
- Availability

Confidentiality means the protection of data from **unauthorized disclosure**. Professional as well as private information is always subject to a certain level of confidentiality. This means that it is only available to a limited or authorized group of people. Only authorised persons may view, process, and transfer confidential data.

Example

Security Intelligence Investigator - Gigafactory Berlin-Brandenburg
Security Intelligence Investigators are responsible for the protection of Tesla's
intellectual property, trade secrets and confidential information. This role will conduct
both proactive and reactive investigations and actively address internal and external

threats to Tesla's proprietary and confidential information. This role will report to the Manager for EMEA Investigations.

Integrity means ensuring that data is unchanged and complete and that all relevant systems function correctly. To guarantee the integrity of data, it must not be possible to change or manipulate it unnoticed - all changes that are made must be traceable and retraceable.

Availability means that data, networks, and software as well as hardware are always available **when they are needed** - for example during office hours. Necessary data must therefore not be able to be blocked by unauthorized persons.

Note

Two other terms are also important: **Authenticity** ensures that the person originating or transmitting data is the person they claim to be. The authenticity of the person must therefore be verifiable.

Bindingness refers to the "non-repudiation" of data changes. This means that data is binding if the creation or modification can be clearly and undoubtedly attributed to a person.

By securing the above-mentioned features, one wants to secure data. Attacking or attempting to circumvent these features are essentially acts of computer crime - or cybercrime in English.

Cybercrime is a crime in the sense of the Criminal Code and includes all **criminal offences** committed **with or against information or communication technology.** This includes, for example:

- Computer fraud, i.e., any form of fraud committed via computers or the Internet.
- Spying on or intercepting data and reselling it
- Falsification of data or sabotage of computer systems
- Copyright and trademark infringements

Example

The automotive sector is considered to be the largest sector in Germany, generating over 411 billion euro in revenue. Germany is the largest automobile manufacturing country in Europe, producing 30% of all passenger cars in the EU in 2021. Automotive companies, their employees and users have frequently become targets of cybercriminals aiming to perform various attacks. One of the recent examples is an infostealing campaign that targeted customers of German companies, mainly car dealers, with phishing emails aimed to infect the victims with info-stealing malware.

Another recent cyberattack that occurred in March 2022, targeted a German subsidiary of Denso, a Japanese automotive supplier. The Pandora ransomware group announced that it compromised the network and shared screenshots of purchase orders, automotive technical diagrams, and emails on its blog. Moreover, the gang claimed to have stolen 1.4 TB of data from the company. Following the attack, Denso apologized for any inconvenience caused and confirmed that the German network was illegally accessed.

With more and more vehicles connected to the internet and using many digital functions, major automotive companies are exposing cars to additional malicious activities and increasing the risk of cyberattacks.

Source: https://ke-la.com/resource/german-automotive-sector-cybercrime-threats-landscape-report/

A term that naturally comes to mind about cybercrime is "hacking". The word originally simply meant the identification of a creative solution process around a technical problem. In common parlance, however, hacking has become established in a rather negative sense, namely when someone gains illegal and unauthorized access to computer systems or networks.

Hacking, to classify the term in cybercrime, is therefore a criminal offence. This can affect private individuals whose credit card data or other personal information is stolen from their computers. But it also affects entire companies and even governments. **Industrial espionage** is common in highly competitive industries.



A common hacker attack is **so-called email phishing**. Fake emails are sent in which the receiving person is tricked **into entering personal or professional data** (access data, passwords, etc.) or even clicking on links that then download unwanted software (often unnoticed).

Example

1.The fake invoice scam

Let's start with arguably the most popular phishing template out there - the fake invoice technique. Like many phishing attacks, this scam relies on fear and urgency, pressuring an end user to submit a payment for goods or services they've never even ordered or received.

2. Email account upgrade scam

Faced with having your account expire unless immediate action is taken, the email account upgrade scam can appear to come from trusted email providers like Microsoft and Google, or simply from your company's IT department. A useful tip is to hover over the link itself when being asked to give personal details - as the text itself often doesn't represent the true destination of the link.

3. PayPal scam

These emails often include the PayPal logo, plus a convincing chunk of fine print at the bottom of the email. Again, this scam tries to enforce panic mode into its victims, often with a "There's a problem with your account, please click here to fix it" kind of message. Beware, they also contain legitimate-looking fine print.

Sometimes it is quite difficult to debunk such emails. These tips usually help:

- Disproportionate number of spelling and grammatical errors
- The use of a foreign language
- Impersonal salutation such as "Dear user" (Attention, sometimes phishing hackers can also find out real names, a personal salutation is, therefore, no guarantee for the correctness of an e-mail).
- You are urged to take an action, possibly even under threat (e.g., "enter your account details as soon as possible, otherwise the account will be blocked").
- General requests to enter data, open a file or open any links

Note

If you think you have **received** a **fake email**, report it immediately to your company. Under no circumstances reply to the e-mail, do not call any telephone numbers, and do not click on a link "on a trial basis".

Of course, data can not only be stolen via the internet but **must also be physically secured**. Data loss can also occur when the hardware is destroyed, infected by a virus, deleted by mistake or deliberately, or when a device is simply stolen. There are various **measures to** physically secure devices such as laptops, company and private mobile phones and tablets:

- Always lock unattended rooms with hardware
- Do not let (especially portable) devices out of your sight
- Secure access to hardware rooms with magnetic card systems or passwords.
- Chain devices with safety cables
- Set up audible warnings, for example, if local hardware is moved away from the usual location or if the person using it moves too far away from the unit.
- Attach so-called M-DotDNA microdots (small dots of glue containing individual codes), which are used by the police to identify apprehended stolen property.

Important

Another safeguard is to set up options for remote locking or **deletion**. This means that in the event of theft, the corresponding device can be locked from another device or the data on it can be deleted.

4.3 Basics Microsoft Excel

Now that we can secure our data, let's look at what we can do with it. For example, data can be arranged in tables and thus mathematically or statistically related to each other and presented in diagrams to become smarter from this data. A well-known programme for this (a so-called "spreadsheet programme") is Microsoft Excel.

Note

Excel is a **spreadsheet programme** that provides us with an extensive selection of the most diverse **mathematical and statistical functions for** processing data. These functions are **predefined formulas of function arguments with** which calculations are carried out and are built up according to a basic structure that is always the same ("syntax"). They start with an equal sign (=), followed by the function name and the function arguments, which are separated by a semicolon (;).

Let's look at **some important mathematical functions** as examples:

Function	Description
ROUND	This rounds a number to a certain digit (5 and above is rounded up, and below 5 is rounded down) - for example, 1.44 becomes 1.4 and 1.7 becomes 2.0.
ROUNDDOWN	This rounds a number down to a certain number of digits towards zero.
ROUNDUP	This rounds a number up to a certain number of digits.
SUM	This calculates the sum of a range of selected cells.

In practice, this works as follows, for example. We want to display the number in cell F6 (i.e. column F, row 6) rounded up to two decimal places in cell G6. So we first select cell G6 in the grid and then go through the following steps.

- 1. We click on *Insert Function* in the *Formulas* tab.
- 2. In the window that appears, we now select the category Math & Trig.
- 3. *In the Select a function* list we select our desired function ROUND.

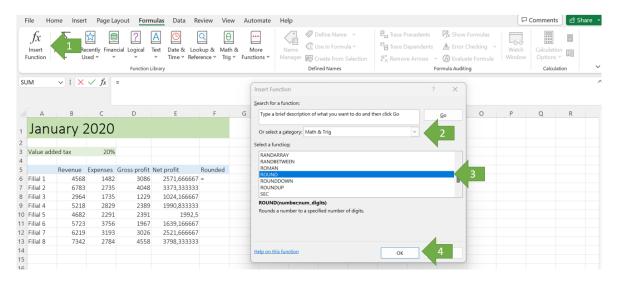


Figure 2
Source: bit.academy https://portal.bitacademy.at/module/368/phase/6369/

- 4. Then we click OK and the dialogue box Function Arguments appears
- 5. Now we select our number in cell E6 as the function argument either by mouse click or simply type *E6*.
- 6. Under Num_digits we enter 2 digits.
- 7. With *OK* we confirm our function.

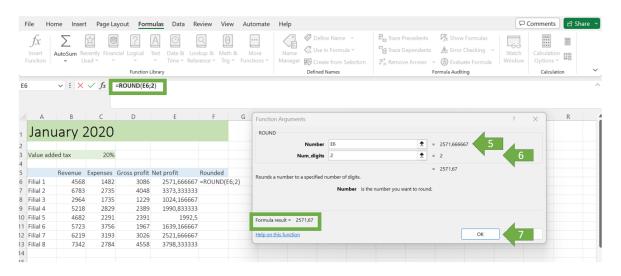


Figure 3
Source bit.academy https://portal.bitacademy.at/module/368/phase/6369/

Note

With this, you know the basic procedure of **most mathematical functions in Excel** - of course, **the options in the dialogue windows** change according to the selected function. Tip: For functions that can affect a whole range of numbers, such as SUM, you can quickly select the relevant range by holding down the mouse button.

Excel also offers us many **functions for statistical calculations**. Here are the most important examples:

Function	Description
COUNT	This determines the number of cells in a certain cell range that contains values.
COUNTIFS	This determines the number of cells in a certain cell range that contains values and meets a certain criterion (for example, containing a certain value).
RANK.EQ	This can be used to determine the rank of the number of a selected cell compared to the numbers of all cells.
COUNTBLANK	This determines the number of empty cells within a cell range.

A **statistical function in Excel** works similarly to a mathematical one:

- 1. In the dialogue window *Insert Function* we select the category *Statistical* and there is the function RANK.EQ
- 2. In the *Number* field we write the relevant cell (in our example E6)
- 3. We select the area of our ranking in the field Ref..
- 4. In the field *Order* we define whether the lowest (enter any value) or the highest number (leave the field blank) gets the rank 1.
- 5. With *OK* we confirm the function.

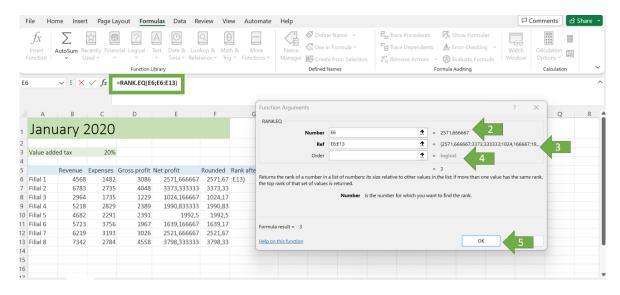


Figure 4
Source: https://portal.bitacademv.at/module/368/phase/6370/

Excel is also wonderfully suitable for displaying **tables graphically** - for example, you can display data sets about each other at a glance.

There are **columns**, **rings**, **pies**, **bars**, **and many other chart types** in two or three dimensions. The example in Figure 5 is a column chart.

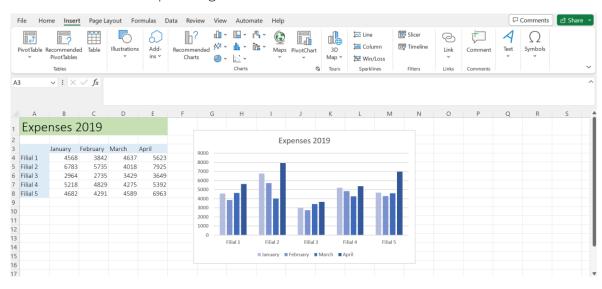


Figure 5
Source: https://portal.bitacademy.at/module/368/phase/6392/

To create a chart in Excel:

- 1. We first select all the values in a table that we want to include in the chart.
- 2. In the *Insert* tab we then select *Charts* and the desired diagram type.
- 3. The diagram is now created automatically. We can add or remove data at any time by changing the selected cell range, but we can also adjust the desired design or display form by clicking on the plus symbol or the brush.

Important

One of the most powerful tools in Excel is the ability to create and work with **pivot** tables. Pivot tables can be used to structure, analyse and evaluate even very large amounts of data.

Various **filters and data analysis tools are** used for this purpose, for example, to have an otherwise too large number of data summarised or reduced to what is necessary.

Let's look at an **example of using a pivot table.** We have a small coffee company and want to analyze our coffee sales. For this we have the following table as a basis:

	Α	В	C	D		Е	F	G
1	Nr	Month	Manufactu	Product	Price	9	Seller	Costumer
2	1	January	Lavazza	Lungo	€	565,00	Wolf	Gastro Konzept
3	2	January	Lavazza	Decaffeina	€	941,00	Wolf	Gastro Konzept
4	3	January	Lavazza	Lungo	€	764,00	Kofler	Zweig GmbH
5	4	January	Segafredo	Espresso	€	871,00	Kofler	Zweig GmbH
6	5	January	Lavazza	Decaffeina	€	981,00	Kofler	Maier Kaffee
7	6	January	Lavazza	Lungo	€	682,00	Kofler	Maier Kaffee
8	7	January	Segafredo	Lungo	€	141,00	Kofler	De Cafe
9	8	January	Lavazza	Lungo	€	634,00	Kofler	Maier Kaffee
10	9	January	Lavazza	Espresso	€ 1	686,00	Wolf	Horner KG
11	10	January	Segafredo	Espresso	€	561,00	Wolf	De Cafe
12	11	January	Segafredo	Lungo	€	581,00	Kofler	Horner KG
13	12	January	Segafredo	Lungo	€	933,00	Kofler	Horner KG
14	13	January	Lavazza	Decaffeina	€	634,00	Wolf	Horner KG
15	14	January	Lavazza	Lungo	€	771,00	Wolf	Horner KG
16								

Figure 6
Source: https://portal.bitacademy.at/module/368/phase/6413/

We now want to use a pivot table to find out what sales we made with Lavazza coffee compared to the other manufacturers, what the sales were in February and what the total sales were in the first quarter.

- 1. To do this, we first click on any cell in the table and then on *PivotTable in* the *Insert* tab. Now a corresponding dialogue window is displayed.
- 2. In this, the cell range of our table is usually recognised automatically we can check this using the coloured border.
- 3. We now have the option of inserting the pivot table in a new worksheet or the existing one. We confirm the selection with *OK*. Now a new task area opens.

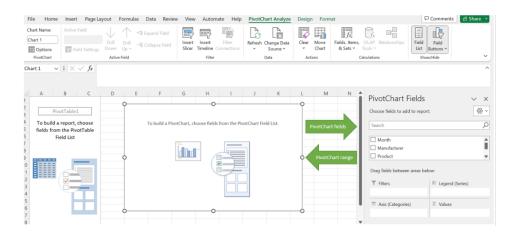


Figure 7
Source: https://portal.bitacademy.at/module/368/phase/6413/

- 4. Using drag & drop, we can now drag from a list of recognized fields (e.g. manufacturer) into the Filter, Columns, Rows or Values areas.
- 5. For our purposes, the **manufacturing companies** should be displayed as rows (to be able to compare the respective turnovers). The **months are** displayed as columns. The turnover figures result from the price field we drag this into the value area. There, the SUM of the values is determined by default, but this can be changed if necessary.

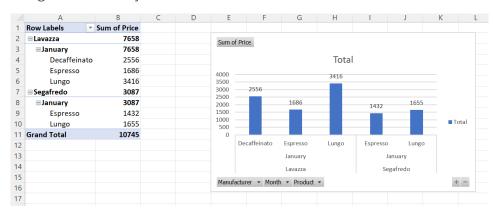


Figure 8
Source: https://portal.bitacademy.at/mo.dule/368/phase/6413/

The result is a pivot table as in Figure 8. We see the sales we make of Lavazza coffee compared to the other producers, the total sales in February and all the total sales in the first quarter.

Important

A pivot table can only capture the data of the source table automatically and correctly if it has **no empty rows or columns**.

4.4 Digital Tools

Many professional meetings are currently taking place in the digital space - we are of course talking about **online meetings** or online conferences. There are different software that is used in the professional context. Let's take a look at two important ones - **Zoom** and **Microsoft Teams** - for a better understanding.

In principle, of course, they are similar. Both are programmes with which you can communicate with each other online in groups or pairs via image and sound. You need an account and an e-mail address and can either create meetings yourself or take part in them. During the meeting, different functions can be used. One's screen can be shared or certain documents, and there are chats in which one can share links or other messages or tools such as whiteboards on which one can work together.



Microsoft Teams, as part of Office 356, is embedded in the Microsoft universe and accordingly well integrated with other Microsoft products. Zoom, on the other hand, is a stand-alone, cloud-based video conferencing platform. Both are available in limited free versions and in various paid versions, which have a different range of functions.

Hint

The WBL_GOES_VIRTUAL Toolbox provides a collection of 25 digital tools that are suitable for virtualising work-based learning processes. The tools cover various areas of WBL processes such as the management of the learning, tutorial creation, virtual communication and more. https://www.wbl-goes-virtual.eu/toolbox/

In general, it can be said that Microsoft Teams is used more by large companies. This is mainly because it is used as part of a whole software package - so if you need more than just video conferencing in the work environment. Zoom, on the other hand, is more accessible to smaller groups of people (especially if it is only about video conferencing), even if, for example, participants from outside the company need to be involved.

Let's take a look at the respective advantages and disadvantages in comparison:

	Microsoft Teams	Zoom	
Advantages	Part of a comprehensive Microsoft software package High data protection The time limit for meetings in the free version: is 60 minutes Paid versions are somewhat cheaper	Very easy to use. Over 1,000 additional functions and integrations with third-party software Very good audio & video quality	
Disadvantages	Paid versions are payable annually. Integration with and of non-Microsoft software is severely limited	Paid versions are more expensive. The time limit for meetings in the free version: is 40 minutes In the past, there have been problems with data protection	

By the way: Just as in the analogue workplace, such as the office, there are **manners** that you should observe in the **digital space**. Here are some important facts:

- In the home office, the **private sphere** should **not be too publicly** visible a background that is as neutral as possible without any glimpses of the private living environment ensures professionalism and is not distracting during the conversation. Staying in the picture during the meeting and not cooking or doing other private things on the side goes without saying.
- Impeccable internet reception, a high-quality headset and an appropriate webcam ensure that you are well-understood and that your counterpart also understands you well. Every meeting suffers from poor video or audio quality.
- Social media (such as LinkedIn or Facebook) should **not mix personal and professional**. Avoid contact requests to managers or clientele and do not disclose professional or confidential details on social media.
- When forwarding emails, make sure that you **remove unnecessary previous email traffic in** them this provides more clarity for the receiving person.
- Also, schedule **online meetings only during regular office hours**, for example between 9 am and 5 pm (and not during lunch time).

Note

If you behave as you would in the office, you can't go wrong in principle. Keep in mind that **the digital space** is **also a public space** where politeness and professionalism are just as important as in the normal work environment.

Let's say you have prepared and analyzed your data using a pivot table - now of course you want (or need) to **present** the results attractively. That's why we'll conclude by looking at some basics of digital presentation techniques.

When presenting, you have to deal with two aspects: on the one hand, the **technical tools** you use and, on the other hand, your associated **appearance** (i.e. voice, body language and external appearance) as well as the **design of your content**.

When we think of technical tools, we naturally immediately think of **Microsoft PowerPoint**, as the best-known presentation software. But there is other software that you can usefully employ and with which you should concern yourself:

- Presentation software: Besides PowerPoint, there are, for example, Pages (from Apple) and Google Slides (especially important if a company works internally with Google's services), but also free software such as LibreOffice and Apache OpenOffice.
- Interactive software: With programmes like Miro, you can bring content "live" to your audience via digital whiteboards. Collaboration tools such as Google Docs or Slido can be used to involve the audience in activities such as brainstorming or live to-vote.

Important

In online presentations, you will usually "share" your screen with all participants - this means that what you see on your screen is what everyone else sees. This makes it very easy to use presentation and interactive software - sometimes this is even already integrated (for example, a whiteboard function). However, make sure that you only have content open that belongs in the presentation.

For the presentation itself, two factors are very important: a **self-confident and confident appearance** and an **appealing design of your content**. After all, your audience wants to receive reliable and understandable information. For a professional appearance, the following tips will help you:

- Body language: Always turn towards your audience and make sure you maintain pleasant eye contact with everyone involved. Use your hands and adopt an upright posture. Avoid clasping your hands or putting them in your trouser pockets.
- **Voice**: Always speak clearly and at a comfortable pace. This is especially true for presentations given in the course of an online meeting. Good intonation of the most important content will help to make your presentation more lively.
- Preparation and appearance: Always prepare for your presentation and any questions that may arise this will help you to be able to give a comprehensible presentation in case of unforeseen problems (for example, if your presentation tool does not work). Make sure you are dressed appropriately (rather a little too smart than too casual) and have a well-groomed appearance even if you are giving a presentation in your home office.
- Respond to your audience: If you notice that your audience does not understand something, ask and involve them in your presentation. This will help you to keep their attention. In long presentations, you can also include small breaks if necessary.

Note

Your appearance determines the impact of the presentation. **Presentation software is merely a tool to** convey content more vividly. But here, too, there are some things you should keep in mind:

Keep the design and layout of your slides consistent and avoid clutter. Follow the KISS rule (Keep It Straight And Simple) - keep your slides simple, reduced and short. Avoid redundancy and think of your slides more as an extension - matching images or graphics can make a big impact when combined with what you are saying. If you use text on your slides, make sure the text is of an appropriate size, especially if the presentations are shared across computer screens in an online meeting.

4.5 Summary

Save knowledge

In our networked world, data and information are valuable currency for many, and they want to be protected from industrial espionage, hacker attacks or data theft. The most important aspects of digital data security are confidentiality, integrity and availability as well as authenticity and bindingness. Data is secure when the characteristics just mentioned are also ensured.

Attempts to circumvent these features are called **cybercrime**. This can attempt to defraud, intercept or spy on data, but also sabotage computer systems. An important keyword here is "hacking". This is the attempt to gain **illegal and unauthorized access to computer systems or networks**. This also includes so-called e-mail phishing, in which fake e-mails are sent to trick the recipient into **entering personal or professional data** (access data or passwords, etc.).

Data can not only be stolen via the internet but must also be **physically secured against unauthorized access or theft**. There are different methods to do this, such as passwords, locked hardware rooms, setting up acoustic warning signals or even M-DotDNA microdots attached to mobile devices.

To process, analyze and present data, Excel, the best-known **spreadsheet programme**, provides us with an extensive range of functions. **Mathematical** as well as **statistical functions** help us to connect data. **Diagrams** enable us to graphically display the interrelationships of data. With **pivot tables**, even very large amounts of data can be structured, analyzed and evaluated with the help of filters and other data analysis tools.

Anyone who holds online meetings must be able to handle the corresponding software - two important representatives of this are Microsoft Teams and Zoom. Microsoft Teams, as part of a comprehensive software package, is particularly suitable for larger companies in the context of comprehensive online collaboration. Zoom is more accessible and thus well suited for external appointments, for example. The digital space is a public space, which is why some important manners must be observed here as well.

When giving presentations, it is important on the one hand to maintain a professional appearance (also in the course of an online meeting) - this is helped by appropriate (physical) language, preparation and a suitable appearance. On the other hand, tools such as presentation and interactive software help you to design and convey your content appealingly. Make sure that you use your technical aids in a sensible complementary way and always be prepared to be able to present without them in case of technical problems.

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