



# Information gathering and **opinion formation**

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# Table of contents

<b>1. Finding information on the Internet</b>	<b>4</b>
1.1. Search engines	5
1.1.1. Overview of available search engines	5
1.1.2. Use of search engines	8
1.1.3. Functioning of search engines	11
1.2 Sources of Information	14
1.2.1. Overview of the various sources	14
1.2.2. Identifying the right source	19
1.3. Verification of information from the Internet	20
1.3.1. How to validate information	20
1.3.2. The origin of information	24
<b>2. Managing and using information from the Internet</b>	<b>27</b>
2.1 Strategies for information	28
2.2. Managing information	31
2.3. Using information from the Internet	35
2.3.1. Important laws and regulations	35
2.3.2. Use of texts	37
2.3.3. Use of image material Image	38
2.3.4. Use of sound and video	40
2.3.5. Creative Commons & OER	41
<b>3. Opinion formation and fake news</b>	<b>43</b>
3.1. How we form our opinion	43
3.1.1. Algorithms	45
3.1.2. Social Bots	46
3.1.3. Influencer Opinion Making	48
3.1.4. Opinion Making by Trolls	51
3.1.5. Fake News	54
3.2. Parallel realities and conspiracy theories	59
3.2.1. Classification	59
3.2.2. What are Conspiracy Theories?	59
3.2.3. Why are Conspiracy Narratives Successful?	61
3.2.4. Are Conspiracy Narratives Dangerous?	63
3.2.5. How can you Protect Yourself and Others From Conspiracy Narratives?	66

# 1. Finding information on the Internet

The Internet has become one of the most important sources of information for us. Be it news about current world events, product and service reports, opinions, recommendations, and discussions or detailed background information on every conceivable topic. This and much more is just one click away.

In contrast to other media, the Internet enables information to be passed on and people to exchange information via forums, blogs, wikis, and social media. Content is not only available at any time, but also at any location.

We no longer have to know everything; it has become much more important to know how we can find relevant information on the Internet. In 2018 there were already over one billion websites worldwide. The sheer number of websites shows just how important knowing different ways of getting the information we want is.

This chapter aims to develop strategies on how we can find suitable sources of information on the Internet, validate them and their contents, and assess their value.



<b>Finding information on the Internet</b>		
<p>He / She is in the position to use a search engine in a self-determined way to find the desired information. He / She can name different sources for information on the Internet and can decide which sources will be used in the individual context. He / She has developed a sensibility for the value of an information in the Internet and the source of the information.</p>		
<b>Knowledge</b>	<b>Skills</b>	<b>Competence</b>
<p>He/She can</p> <ul style="list-style-type: none"> <li>describe the basic principle of a search engine.</li> <li>name up to 3 different search engines</li> <li>name different sources (on- and offline)</li> <li>describe the differences and name the pro and cons of the different sources</li> <li>name ways to verify the value and truth of an information from the Internet</li> </ul>	<p>He/She is able</p> <ul style="list-style-type: none"> <li>to develop a strategy of how to use a search engine to search required information</li> <li>to use a search engine like google purposefully</li> <li>to decide on which sources he / she will start his / her search for information</li> <li>to identify the origin of an information</li> <li>to assess the value of an information</li> </ul>	<p>He/She is able</p> <ul style="list-style-type: none"> <li>to apply strategies to use the right search terms depending on the context</li> <li>to identify the right sources for the respective purpose when searching information</li> <li>to evaluate and assess the value of an information on the Internet</li> </ul>

## 1.1. Search engines

Anyone looking for information on the Internet today generally uses a search engine. These enable us to make at least a pre-selection based on search terms from the seemingly endless amount of information sources. The most popular search engine is Google. If you are looking for something on the Internet today, you "google". The statement "to google" something has become part of everyday language use.

We often forget that Google is only one of many search engines. Further, the search results displayed to us are filtered according to rules defined by the search engine operator. These rules are unknown to us.

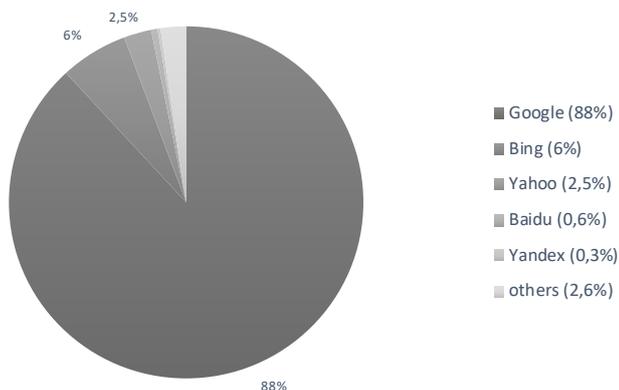
In this chapter, we want to give an overview of how search engines work and explain the most effective way to search for information

### 1.1.1. Overview of available search engines

#### Which search engines are there?

With a market share of 70% in desktop / PC / laptop use and with over 90% on mobile devices, Google is the best known and most used search engine in the world. If we want to look up something on the Internet, we "google". And Google is not only a leading search engine: 75% of all smartphones use Google's operating system "Android". Google has revolutionized Internet search through its simplicity and speed but is often criticized for its monopoly-like position. Major search engines such as Google are further criticized for tracking their user's behavior and the use of this data for partially personalizing their search results. This is another reason to take a closer look at alternatives. Many other search engines are functionality-wise in no way inferior to Google.

We now want to present some alternatives to Google. The following list of search engines focuses on the best-known engines but does not claim to be complete.



Global desktop market share of the leading search engines, October 2020, Source: statista.com

### **Bing.com / Bing.de**

The search engine “Bing” is operated by Microsoft. Similar to Google, it offers the possibility to search for websites, images, videos, news, and maps. In some countries, it is also possible to search for products directly under “Shopping”. In Germany, the price comparison portal Ciao is integrated.

### **DuckDuckGo.com**

The search engine DuckDuckGo says it differs from the market leaders in that it does not collect any personal information and displays the same search results to all its users. In addition to its database, the search engine uses various sources such as Wikipedia, Bing, or Yahoo.

### **Startpage.com**

The Dutch provider Startpage forwards the entered search queries anonymously to Google and then only shows the results. In this way, Startpage wants to guarantee the privacy of users. Startpage expressly foregoes personalized advertising. Unlike Google, it does not record any IP addresses of its users or saves cookies for user identification. As early as 2008, Startpage, as a company based in Europe, received the “European data protection seal of approval” and was thus officially the first and only tested and certified search engine.

### **Ecosia.org**

The Berlin startup Ecosia links Internet searches with afforestation. The company promises to spend at least 80% of its earnings in favor of tree planting projects. The search engine makes money from user clicks on advertisements and the sale of promotional items such as T-shirts. To ensure appropriate transparency, Ecosia publishes monthly financial reports on its website.

The actual search results are provided by the Microsoft search engine Bing.

### **Metasearch engines**

In some countries, there are so-called “meta-search engines”. These search several search engines and websites at the same time and present the search results in an overall list. In Germany, there is, for example, the search engine Metager.de which uses different sources and is operated by the non-profit Suma eV in cooperation with the Leibniz Universität Hannover.



## Search engines for special purposes

Several search engines specialize in specific use cases. These search engines have the advantage that they focus on a specific application and deliver good results for a particular purpose. Below are some examples of search engines for special purposes. Unfortunately, some of these search engines are only available in English.

**CC Search** (<https://search.creativecommons.org>) offers a search for materials published under the free licenses of Creative Commons. These licenses enable simplified licensing about usage rights for, for example, images.

Internet forums, are by no means out of fashion and are always a good source of helpful information. With the search engine **Boardreader** (<http://boardreader.com/>) targeted online forums can be searched.

**Bookfinder** (<https://www.bookfinder.com/>) is a practical tool for finding books. Users can specify title, author or ISBN and choose in which language the book should be written. Subsequently, various pages such as Amazon or Ebay are searched and the results are presented.

Anyone looking for scientific texts should try **Worldwidescience** (<https://worldwidescience.org/>).

When looking for information about startups or founders, there is no way around **Crunchbase** (<https://www.crunchbase.com/>) vorbei. The search engine provides details about companies, people, investors and products.

**Wolfram Alpha** ([www.wolframalpha.com](http://www.wolframalpha.com)) is a scientific search engine. The main goal is not simply to find facts available on the Internet, but to process facts by specifically presenting results. Wolfram Alpha offers the possibility of displaying mathematical formulas or comparing key figures with one another.

There are also a number of search engines for children. In German-speaking countries, these include, for example, **Blinde Kuh** ([www.blinde-kuh.de](http://www.blinde-kuh.de)), **FragFinn** ([www.fragFinn.de](http://www.fragFinn.de)), **Helles Köpfchen** ([www.helles-köpfchen.de](http://www.helles-köpfchen.de)) and **Quant Junior** ([www.qwantjunior.com](http://www.qwantjunior.com)). These search engines focus on content for children and adolescents and only search-relevant offers.

### 1.1.2. Use of search engines

For a search on the Internet, it is sufficient to type a search term in the address bar of the Internet browser. And we usually find the first helpful results. But if you are looking for very special topics or want to do more extensive research, you should know certain techniques to be able to search more specifically for the information you want.

Search engines also offer a range of settings and options to make your search easier. In the following section, we want to explain some of these functions. The following functions are explained by Google for simplicity. But other search engines such as Bing offer similar functions.

#### How do I search correctly?

The selection of suitable search terms is crucial for the success of Internet research. When entering the search term, it is sufficient to focus on the keywords of the search query. We do not need to formulate a complete sentence. Instead of "Who won the 2018 World Cup?" it is enough to enter "wm 2018 winner" as a search term. Upper and lower case words and punctuation can be ignored.

It is important to always focus on the words that are likely to appear on the web pages you are looking for. It can therefore be helpful to first create a list of possible search terms and then work through them. Different spellings and the combination of several search terms can lead to different results.

#### Shortcuts and search operators

Most search engines offer help with the use of certain search terms by providing information directly, which makes the search much more effective. Google already provides complete graphics and extracts from sources such as Wikipedia or the International Film Database (IMDB) on many terms.

If you enter "Weather Berlin" on Google, you will immediately see an integrated weather forecast for the next few days. If you enter "10 euros in dollars", the amount is converted directly, based on the current dollar exchange rate. "Population Iceland" is followed by the population development of the island state and "from Berlin to Rome" is followed by a route on the Google Maps map service and several flights. The information provided in the search engine makes it no longer necessary to leave the engine. Search engine providers use this facilitation of information search to tie users closer to their services.

But as soon we search for more specific information, we have to get creative when using our search terms. A search engine does not know if we are looking for a car or a predator when we type the word "Jaguar". Here we have to work with so-called "search operators". This means that, among other things, individual search terms can be explicitly excluded from the search or several search terms can be combined.

Individual terms are linked using the "+" sign. Anyone looking for "Jaguar + tier" will only get search results containing the big cat of the same name and not from the car. It is also possible to explicitly exclude terms from the search using the "-" sign. Pudding

Google says it answers 3.5 billion search queries a day. The number of queries made for the first time every day is 15%. This means that Google processes over 500 million queries a day that have never been made before.

Source: seo-suedwest.de, 05.12.2019

recipes without vanilla can be found by entering “Pudding Recipe -Vanilla”. And if you are looking for an exact phrase, simply put it in quotation marks.

Google alone has around 42 different operators of this type (as of December 2019). But even the few functions listed here enable us to make our research even more effective.

### Search setting

Almost all search engines offer advanced settings that can be used to make your search more specific. By restricting the search to a certain time period, region, country, or language, the search results can be narrowed down further.

With Google, for example, there are further search filters on the search results page. These can be used to filter the search results, for instance, by language or time of publication. This way, older information on past events can also be targeted and found. Google and Bing also offer the possibility to change the country settings. This means that your location can be changed virtually for the search. For example, if we select “United States” as the region, search results will be shown to us as if we were in the United States. If we change the region to “France”, Google and Bing will deliver the same results as for French Internet users. Of course, it is important that we also use search terms in the corresponding national language. This is ideal for local research on the website or if you want to receive search results from another country.

### Searching for images

Search engines can also directly search for images and photos. All providers offer special filter options to further narrow the search results. The search results can be filtered, among other things, by color, type of image, and motif, as well as the date of publication.

But be careful: you may not be allowed to use pictures from the Internet for your purposes. Images are subject to copyright. Without a right of use or a corresponding license, for example, it is not permitted to use third-party images for your website or flyer. (A detailed explanation of this topic can be found in Chapter "Using of information from the Internet").

Google and Bing offer the possibility to filter the image search according to certain usage rights. This allows you to search specifically for images that have been marked for reuse. Nevertheless, the images found should not be used without further research, as there is no guarantee for the accuracy of this information. If you want to be sure, you should search for images directly at the relevant image portals (e.g. pixabay.de or nunsplash.com).

In addition to searching for images based on a specific search term, there is also the so-called “reverse image search”. This search does not use text as a “search term”, but an existing image. This makes it possible to search specifically for an existing image or to check its distribution on the Internet.

In general, the reverse search works similarly for all search engines: The function can be called up in the image search by clicking on the camera icon at the end of the search input field. Then it is possible to insert an image URL from the Internet or upload



**Tip**  
List of search operators on  
● Google: <https://ahrefs.com/blog/de/google-erweiterte-suchoperatoren/>

an image from your own computer. It doesn't matter how the image file is named, because all search engines only identify the image content.

If an image URL or image file is inserted in the reverse search, all websites with matching images are displayed as search results. This allows you to check how long a picture has been on the Internet and in what context it is used. In addition, the reverse search also shows optically similar images if the entered image has been cropped. Since each search engine uses its own database, it makes sense to use several search providers when searching for images. For example, it may be that Google does not provide any results, but the image is found on Bing or Yandex. Under certain circumstances, counterfeits can be identified in this way.

Works best reverse search, moreover, with Google in combination with the Chrome browser, because when right-clicking on a photo, there is the option "with Google Image Search", so that the reverse search will be directly performed

### **Automatic notification**

Instead of constantly searching for specific search terms yourself, Google offers the practical service "Google Alert": This enables you to define a search term and to be regularly informed about e-mail when a new search for this term hit or a message appears. For each search term, we can determine how often we want to be notified and in which sources the term should be searched for. This is very practical, for example, to automatically receive an email once a week with the latest news on a specific topic. However, a Google account is required to use it.

There are other providers besides Google that offer similar services. Some of them even search for individual social media accounts such as Facebook, Twitter, and Co. for certain content. Unfortunately, these are sometimes associated with monthly costs.



### 1.1.3. Functioning of search engines

When we are looking for certain information on the Internet, we usually use a search engine. We enter a search term and then get an abundance of websites that are related to this term. But does a search engine search the entire Internet in real-time? No. A search engine works more like the lookup directory of a library. Each search engine independently searches the Internet for new websites and their content and catalogs this information in its own database. When we search for information, we ultimately search the catalog of the search engine and not directly the entire Internet.

#### How does this work?

The search engine continuously searches the World Wide Web using its own small programs. Metaphorically speaking, small virtual robots (robots such as GoogleBot) crawl (crawl) from website to website, record the content there, and index it in their own search engine directory. When we start a search, we do not search the Internet, but only this directory.

It can take several days or even weeks for such a robot to reach a website. Simply because of the sheer number of websites. It can therefore take some time for a new website or a new website to be included in a search engine directory. Also, the information that we find through a search engine does not have to be up-to-date or correct. A search engine does not provide an examination or a content evaluation of the website.

If we enter a search term in a search engine, the search engine searches its database for content that matches the entered term and shows us the results in the form of the search results. Depending on the search term, the results can consist of websites, individual articles, forum posts, or even documents. The search results are also sorted by the search engine according to their importance. Furthermore, little is known about the criteria by which a search engine compiles and rated the search results. This is a business secret of the respective provider.

#### Insert

Strictly speaking, a search engine does not search the entire Internet, but only the so-called World wide web, i.e. the part of the Internet that is available to us poses. However, the Internet is technically larger and more comprehensive: Services such as e-mail are also part of the Internet, but are not strictly part of the World Wide Web. Since the two terms are often equated in language use, we speak of the simplicity in this chapter of the Internet - even if we strictly speaking only mean the WWW. .

#### Search engine optimization (SEO)

Because of the great number of websites existing, it is hardly surprising that even specific search queries bring about thousands of websites as the search result.

The search engine algorithms usually work so well that the information you are looking for can already be found on the first page of the search results. If you search intensively, you may switch to the second, possibly even the third or fourth page of the search result. However, hardly anyone bothers to navigate much further. Only a very small proportion of Internet searchers click beyond the first page of the search re-

sults. The majority are already satisfied with the first five results. Some studies show that 99.1% of all further clicks on positions one to ten fall on the first page.

Understandably, every website operator is looking for ways to get their website in one of these positions.

How do I manage to place my website on one of the front places on e.g. Google? Since the functionality of the search engines is not completely known, there is no concrete and simple solution. There is a lot to try and test which changes have a positive effect on the placement within the search results. Website operators continuously optimize their website to achieve a better rating and a better "ranking" with Google & Co. This is known as SEO (Search Engine Optimization). The fact that this is an important topic can be recognized from the fact that the IT industry has had the job profile of an "SEO specialist" for many years.

### **Search engine optimization = search engine manipulation?**

A search engine is unable to objectively assess the quality or accuracy of a source or text. The fact that it is also possible to improve the positioning of a website for certain search terms by clever optimization shows that we should always remain critical when using search engines and the results presented to us. Just because we find certain information at the top of a search query doesn't mean that this information is helpful or correct.

Search engine optimization leads to a wrong prioritization of the search results. The content with the greatest value or best matching information content does not necessarily come first. Instead, the content of websites whose operators put great effort into search engine optimization attain better positioning in the search result listings.

### **Search engine marketing (SEM)**

At first glance, the use of search engines is free for us users. At the same time, the search engine providers must maintain the infrastructure and technology and invest in improving their offers and search algorithms. Understandably, the providers are also looking for ways to make money.

According to themselves, Google alone processes 3.5 billion search queries per day and is the most visited website worldwide. What could be more obvious than offering the opportunity to place ads within the search results?

Companies and private individuals can place an advertisement against payment at most search engine providers, similar to the form of newspaper advertisements. This modern form of advertising is called search engine marketing or SEM (Search Engine Marketing).

The form in which these ads are displayed differs from search engine to search engine. However, they are usually declared as such, so that we users of the search engine can distinguish between advertisements and real search results.



What  
are they looking  
for?

Via the online service "Google Trends", Google publishes information about which search terms were searched for on Google and how often. Via the website <https://trends.google.de/>, anyone can research for themselves which search terms were searched for how often in which regions. This makes it possible to track trends in individual topics or even compare different search terms with each other.

### **Neutrality of search results?**

Searching the internet is by no means a purely objective search for information. Search engine results are not organic, rather they are based on the algorithms of the respective companies. We must be aware that the search results displayed to us by a search engine always represent only a part of the information that can be found on the Internet, which has been pre-filtered for us by the provider's algorithm according to its own rules, which are unknown to us. No one knows how the Google algorithm works to its full extent. We do not know what additional information is taken into account in our individual search..



## 1.2 Sources of Information

As important as search engines may be, they are only one way to find information on the Internet. If you do a lot of research on the same topic, you will soon have a collection of interesting websites. Whether news portals, websites of interested private individuals, Internet forums, or certain social media: depending on the topic, there are different sources with different quality.

This chapter aims to provide an overview of the different sources and to be aware of their advantages and disadvantages. Further, it gives guidance on how to assess which sources are suitable in which context.

### 1.2.1. Overview of the various sources

If you are looking for certain information for the first time, you will usually start your search using a search engine. If we are often looking for information on the same topic (e.g. support, tips, and tricks for one of our hobbies), we will eventually have a collection of various websites and other sources that we can target. Corresponding information can be found in various forms on the Internet and offline. Below is an overview of individual types of information sources.

#### Offline sources

Even though we usually search for information online first, offline sources should not be underestimated. It starts with the fact that we query existing knowledge in our circle of friends, acquaintances, or colleagues.

And print media are also still an important source of information for certain specialist topics. Depending on the topic, going to the local library or buying a specialist magazine is still a promising approach for research. Even though a lot of information is available online these days, pure online research is very one-sided.

#### Websites and topic portals

Of course, websites are the most used source on the Internet. There are many websites on almost every conceivable topic that deal with the topic more or less intensively. In addition to websites operated professionally by companies or organizations, there is an enormous number of websites operated by private individuals. These can then be, among other things, websites on specific topics or diaries or journals, in which the operator regularly provides articles. This form of a website is then called "weblog" or "blog". In terms of quality, private websites do not have to be better or worse than professionally operated ones. Many private individuals are experts in their field and therefore supply high-quality content. There are also well-known web offers that deal with certain topics only very superficially and the information content is therefore poor. The qualitative assessment of a website is left to us.

Especially when we start to deal with a new topic, we have no choice but to dig through a multitude of websites and evaluate them according to our needs and expectations. However, if we save the websites of interest to us, we will build up an individual list of sources in the long term.

## Newsletters

You can read the information on a website. However, it is much easier if the desired news comes to us without being asked.

Many providers offer so-called newsletters: In the form of a regular newsletter, the website operator sends the latest information and news in a compact form by email. To receive such a newsletter, all we must do is register for the desired newsletter on the corresponding website with our email address. From now on we will receive the latest newsletters directly in our email inbox.

With larger websites, in particular, it is usually even possible to specifically select the topics we want to be informed about when registering.

## Online forums

Online forums are a communication medium that was developed very early in the history of the Internet. Internet forums are particularly suitable for exchanging information with other Internet users on specific topics and for exchanging opinions and experiences. The form of the “help forum” is widespread, via which Internet users can ask questions on a specific topic and other users can answer them.

In addition to their information offer, many websites operate a forum that enables site visitors to exchange information on a wide range of topics. Many companies also offer support on their websites in the form of forums, as these can be quickly and extensively informed and reacted to defects in their products through user or user contributions.

A forum website usually has a specific main topic and is divided so that there is a separate directory for different subtopics, a so-called sub-forum. You can write postings that others can read and answer. All contiguously responding contributions are referred to as threads or topics. By starting a new thread, you start a new discussion.

The advantage of online forums is that communication is asynchronous. Messages are left for other users and can be viewed and answered at any time. The users do not all have to be online and present in the forum at the same time. An online forum is therefore a discussion that is conducted in writing and in which the discussion contributions can be viewed online for the discussion participants. Users of the online forum can read existing posts, post new posts, or answer existing posts.

Internet forums are good for research, as messages and discussions are not necessarily deleted. It is therefore a good idea to first use a search function in a forum to check whether there is or has already been a discussion about the desired topic before a new post is written. Internet forums are a good source when it comes to exchanging experiences with other people and looking for specific problem solutions, e.g. in the technical area.

In addition to open forums that can be viewed by everyone, some forums can only be accessed after successful registration with name and email address. The contributions of the forums are often open to view, but registration is required to write and reply to contributions. This is an attempt by the forum operator to ensure the quality and seriousness of the posts. In most forums, pseudonyms are often used by users as usernames, so the use of a forum is usually anonymous. This in return can lead to



lively or offensive discussions in some forums. In these cases, at the latest, administrators and moderators come into play.

Most online forums have special users with special rights. They have the role of monitoring the forum and discussion. They intervene if articles have been published in the wrong place, or mediate between users in the event of a dispute. You can also decide on sanctions against individual users, up to and including the exclusion or deletion of the user account.

The quality of the contributions in online forums depends on the knowledge and competence of the respective user. However, forums usually contain very active users who are committed and like to share their knowledge or to help and support others. Anyone who has found an online forum on their topic that distinguishes itself through an active group of users can count themselves lucky. Anyone who then actively participates in the discussions also ensures that the forum continues to "live".

### Social networks

Social networks can also be used as a source of information. On the one hand, you can request the required information from specific contacts, via social networks. On the other hand, one can create groups in networks such as Facebook. In them, information exchange can take place. Therefore, it is useful to search for information or groups dealing with the topic of interest, when searching for information on social networks. In addition to the mainly privately used networks such as Facebook, Instagram, and Co., some providers focus mainly on networking in a professional context. In Germany, Xing ([www.xing.de](http://www.xing.de)) should be mentioned here. In the international environment, the market leader is LinkedIn ([www.linkedin.com](http://www.linkedin.com)). These networks may also contain useful information or groups on the topic you are looking for.

When using social media, the quality of the information depends heavily on the experience and qualifications of the person from whom the information is provided. Here too, the information found should always be checked again and researched in case of doubt.

### Wikipedia

Wikipedia is a non-profit project to create a free Internet encyclopedia. The name is derived from the word "Wiki" and "Encyclopedia".

Wiki describes the technical platform on which Wikipedia is operated. A web wiki or wikiweb refers to a website that users can not only read but also edit. Anyone with access to the system can create new content pages and edit existing pages with just a few clicks. Such a system is suitable for working with a larger group of people to create joint online documentation. There are various wiki systems, which are all freely available. This means that everyone can set up their own wiki system on their website - provided they have a little technical know-how.

The best-known wiki system is Wikipedia. The goal of the co-founder Jimmy Wales was "to create a freely licensed and high-quality encyclopedia and thus to spread lexical knowledge". (Source: Interview with Jimmy Wales: What's next with Wikipedia? In: Wikinews. December 17, 2010. Retrieved on January 6, 2016.)

#### Attention

The following also applies

- when using Internet forums:

Do not share any personal and private data about yourself.

Of course, for example in a technical help forum detailed information on the problem and the conditions on-site (e.g. technical configuration of the devices, etc.) must be given, but on the publication of personal data such as name, address, email addresses, telephone number, and other Data on which conclusions can be drawn about your person should be avoided.

According to Wikipedia, over 49.3 million articles were published in January 2019 in almost 300 languages. This website is the only non-commercial website among the top 50 websites worldwide and is funded by donations. Wikipedia has thus become an important source of knowledge in modern times.

What many forget: Wikipedia is not a public knowledge database, but a free and open project in which anyone who wants to can participate. Anyone can register as an author at Wikipedia and write their own articles or proofread, improve, format, or illustrate existing articles. In addition, individual articles are continually edited and discussed within the author community.

This large number of authors leads to criticism of Wikipedia. As the majority of the large number of authors writes anonymously or under a pseudonym, Wikipedia is not protected against false or misleading information. Due to the possibility of free and anonymous collaboration, it is not possible to verify the identity of the individual authors and their professional competence. This leads to differences in the quality and language of individual articles.

But Wikipedia is also not safe from manipulation: occasionally articles are rewritten or deliberately falsified. In September 2015, more than 300 authors were blocked by the English Wikipedia who wrote articles for money and without naming their clients. There are also cases of published misinformation. Most incorrect entries are identified and removed in a short time. However, there is always a residual risk for attaining misinformation.

For these reasons, one of the main criticisms is that Wikipedia should not be considered quotable, especially in a scientific context. However, this does not contradict the problem-conscious use of Wikipedia as a source of information.

## **Statistics & Figures**

In addition to accessing published information on websites or exchanging information with others, there are also many services and much data suited for specific purposes. But: If you want to research specific topics regularly, you should build up a list of suitable sources in the medium term, which will then be used to search for information. Statistics and numbers are a type of information that is often searched for. There are several sources for these, depending on what statistics are being searched for. Many websites or specialist magazines compile their statistics or refer to existing figures. If you want to rely on such information, you should always check the actual source in addition to the article in which the corresponding numbers are given. If there is no source mentioned in a post on a website, you always have to be very skeptical.

There are also special online portals that provide statistics. In addition to public bodies such as the federal statistical offices of some countries (e.g. the Federal Statistical Office from Germany, <https://www.destatis.de/EN/>), some individual providers focus on the provision of data from markets and opinion research institutions, specialized in business or official sources.

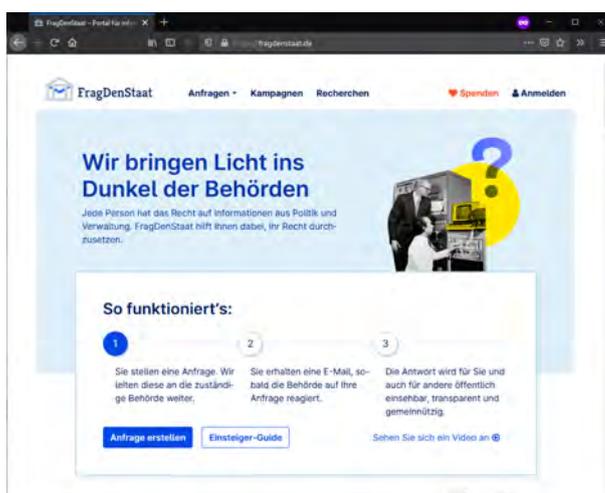
For European statistics, there is the Statistical Office of the European Union, Eurostat or ESTAT for short.

As the European Union's (EU) administrative unit for the production of official European statistics, ESTAT has a mandate to provide high-quality statistics for Europe. This includes the processing and publication of comparable statistical data at European level. The Eurostat website provides a wealth of statistical analyses on various topics relating to Europe and the individual Member States (see <https://ec.europa.eu/>). Another successful statistics databases is the German online portal "Statista" (<https://www.statista.com/>). It offers extensive statistics and data on all possible subject areas. Many of the statistics are openly available, while others can only be viewed in connection with a paid subscription. Companies also publish their figures and statistics or special information services (e.g. "Google Trends").

However, caution is always required when dealing with numbers and statistics. Statistics should not simply be used unchecked and without descriptive information. We should always ask ourselves where the corresponding numbers come from and whether the source is trustworthy.

### Requests & information centers

Even if the Internet has an almost infinite amount of information, it is not always guaranteed that the required information can be found. One possibility that should always be considered is to contact the relevant agencies directly, who can provide the information you are looking for or at least provide further support. Depending on the type of information sought, this can be an e-mail to the manufacturer, sales or sales outlet, website operator or a public body. Public authorities now offer special information services. but there are also initiatives and organizations with special offers. In Germany, for example, the non-profit platform "Ask the State" (<https://fragdenstaat.de/>) can be used to request information and documents from the authorities in Germany.



### 1.2.2. Identifying the right source

Basically, assessing a source is always a very individual process. The decision to what extent a source is suitable depends on various factors. There are two main aspects here: the trustworthiness of the respective source (see next chapter) and the comprehensibility and extensiveness and of the offered information.

Anyone who just started a new hobby is probably looking for basic knowledge and with different depths of information. Similar to someone who is already an expert in the same field and wants to solve a specific problem.

If you want to research a specific topic privately, you may already be well provided with a Wikipedia article. This, in turn, is certainly not sufficient if the information is to be used for the study in a thesis.

Ultimately, any information is helpful that answers our questions in the way and scope that we understand. The question of the right source must therefore be answered very individually.



### 1.3. Verification of information from the Internet

Finding information on the Internet is only the first step. Another important aspect is the evaluation of the information found on its truth and information content.

Everyone can create a website and publish their opinion in a few hours these days. Based on the appearance of a website, it is far from possible to assess the truthfulness or credibility of the information published there.

Especially in the age of opinion-making and "fake news", it is all the more important to critically examine and question information from the Internet or not to accept all information without checking it.

How can we recognize incorrect information? How can we assess the seriousness and truthfulness of websites?

#### 1.3.1. How to validate information

An important aspect of searching for information is always checking the information for its truthfulness. Of course, the question of how deeply we must investigate on information among other aspects depends on the topic. If I am looking for tips for the garden, I will not necessarily have to check the relevant information to the same extent as information on sensitive political issues, on which false reports have been spread provenly.

However, checking information always follows the same scheme. Basically, the following questions must be asked to check an information: Where does the message come from? What is the source of the message and how should it be classified? Who is the author of the message? When was the message published? Are there any other sources that take a stand on the subject? And if so, what is their position?

#### The six "W" questions

who, what, when, where, how, and why? With these important questions, all important information can be captured. Among other things, they have prevailed in journalistic work and can also be used in the verification of information. A message can always be based on pure facts. In practice, we should first clarify the facts about who, what, when, and where, then the information must be evaluated on means of how and why.

#### Checking the source

One of the first steps is always to check the source. Where did the message come from? Where was the news posted? If it is an article on a website, the website has to be assessed qualitatively. Is it a renowned daily newspaper or a specialist magazine? If it is a private website or a website of an organization we do not know, we should check to what extent the information provided reflects a certain opinion or is presented neutrally. It is also important to check whether the website is primarily concerned with the relevant topic or whether the focus of the offer is possibly on a completely different topic. And who is actually behind the online offer? In many countries, there is an obligation to provide an imprint for websites. That means we can at least look up

who is the operator of the website and responsible for the content. All these points give a first impulse for a qualitative assessment of the source.

In addition to the platform on which information is published, the next question is the author. Who is the author of the information? What qualifies the person to provide information about the relevant topic? Does the person have the relevant professional knowledge, experience or is the person unrelated to the subject? Has the person published on other websites? And if so, what other topics does the author write about? Basically, the higher the level of knowledge and the freer the interests, the more reliable the sources.

It is not always easy to access the competence and neutrality of individual websites or authors. A short Internet search can also help here. Simply enter the title of the website or the name of the author as a search term in a search engine. Based on the results, we can quickly get an overview of the reliability of the source.

### Checking the information

In addition to checking the source, the content check of the information itself should not be neglected. How objective is the information? Is it an opinion, a comment, or an editorial report? Are there other sources that provide information on this topic and are they similar in their statements or do they differ fundamentally? How current is the information?

The technical review of information is difficult as a layperson. Here we only have our trust in the source or our feeling to what extent we can trust the corresponding source. Ultimately, this decision can only be made based on a combination of different aspects.

If we have concerns about the reliability of the information, we can also investigate the actual report. The corresponding headline or parts of the message entered as a search term in a search engine quickly shows us whether and in what form other websites report on the relevant topic.

The Internet does not forget. Unfortunately, this also means that old articles and contributions are very rarely deleted. It may well happen that when we search the Internet, we come across information that was published a few years ago and is accordingly outdated or no longer valid. The problem is that many websites do not display a publication date on their article pages. It is then hardly possible for us as Internet users to find out how current the relevant information is or when it was originally published. Only more intensive research will help here.

In addition to checking information using a search for headings or text content, the image search is also suitable here (cross-reference in the previous chapter). A backward search on Google or Bing can be used to check whether the image material used in an article is older or has already been used in other sources. Since many website operators today only use image material as accessories and mostly material from image databases, this method is only helpful for reports in which photos are also intended to prove the facts described in the report.

#### Tip

If you want to check the reliability of an online offer or a person, then just use the name of the website or the person as search term in the search engine and add the word "critic". This means that criticism of the respective source is searched for and the corresponding messages - if available - are displayed directly in the search results.

“Who is” - A domain, i.e. the Internet address of an online presence, is, like a telephone number, unique. And just as there is an owner for a telephone number who is entered as the subscriber, there is an owner for each domain. This does not necessarily have to be the operator of the website, but it is the registered owner who has registered the domain. For the individual domain endings (e.g. .de, .com, .net) there are so-called “Who is” databases (“Who is” - “Who is”). This can be used to check who is registered as the domain owner with the relevant registration authority. Since the introduction of the GDPR, however, information from European domain owners has no longer been openly available. If you want to know who owns a particular domain, you may have to apply to the relevant registration authority



## Case study: Wikipedia

Especially for pupils, Wikipedia is often the first and often the only source of information. However, Wikipedia is an open encyclopedia that anyone can write down. Therefore, entries can change daily or be incorrect. Due to the enormous level of awareness and the associated reach of Wikipedia, there are certainly cases of content vandalism and attempts to influence the content. Sometimes, members of the Wikipedia community's feel, there is too little evidence or even concerns about neutrality for an existing article. These articles will be provided with appropriate information. But entries on controversial political or social issues should always be critically examined. Often a look at the related discussion helps, which attaches to each entry. In case of doubt, research should be expanded beyond Wikipedia.

Wikipedia is not protected against "fake news" either. And it can take several years before one or the other incorrect information is discovered and deleted.

In February 2005, Harvard student Chen Fang wanted to show how unreliable Wikipedia is. He named himself mayor of a Chinese city in an entry. It took seven years for the information to be removed.

The band Tillery was scheduled to perform at the Lester Concert Hall on December 12, 1956, but was killed in an airplane crash on the way there. Both the band and the concert hall were fictitious. The corresponding article stayed on Wikipedia for over 6 years.

In 1640 there was a war between Portugal and the Indian Maratha Empire in the Goa region. Portugal had occupied India and the Goa region at that time, but the "Bicholim conflict" reported on Wikipedia never happened. The entry was only exposed and deleted as a forgery after five years.

The French philosopher Jean François Moufot also never existed. However, there was an article about him on the Dutch Wikipedia, which was soon translated into French, German and English. The information was accessible for almost 4 years.

These examples are to a certain extent still quite harmless, but there are also cases in which, negative passages in individual articles are deliberately deleted or added to influence the meaning of an entry. Even if most of the false reports and influences on Wikipedia are usually recognized and deleted quite quickly, we should not blindly trust all information. Depending on the topic, a healthy level of skepticism and additional research in other sources is necessary.<sup>1</sup>

### 1.3.2. The origin of information

#### Search results at Google & Co.

When using a search engine, we decide based on a few criteria whether we should access a website from the search results or not. In addition to the position of the website within the search results, the title of the website is above all the short description of the content. Where search results only show a small extract of the content of the corresponding websites. The operator of a website can even specify exactly what text a search engine should show us on the page with the search results for each subpage of his website.

For a website operator, this brief description of his website is another marketing tool. As described in the previous chapter, website operators try everything possible to position their websites high up in the list of search results. Search engine optimization attempts to list a website as far up as possible in the search results. Then the short description of the website is the part that moves us to go to the corresponding website.

The challenge for us Internet users is to make an initial assessment of the quality when looking at the search results, which is of course not always easy. A website being is at the top of the results does not guarantee high-quality information.

Search engine providers also allow advertising on their websites (keyword: search engine marketing). Although these advertisements are usually marked as an "advertisement" on the pages with the search results, this can be quickly overlooked in everyday use. And ultimately, information that only appears in our search engine results because the website operator pays for it is generally not better or worse than all regular search results. Here, too, our individual needs and decision criteria are primarily decisive.

#### Earn money with your website

For many private website owners, the number of visits to their website is a measure of the success of the page. Anyone who runs a website on a specific topic is happy about many visits. The reason is, it shows that other people are interested in the topic and the information reaches the target group. The number of website visitors is also a key figure for the reach of the website. It shows how many people the operator can reach with his website. This, in turn, is an important indicator if you want to make money with your website.

The easiest way is to place advertisements on your website. If a visitor to the website clicks on an advertisement, the website operator usually receives a few cents from the advertiser.

Another form of advertising are so-called "affiliate programs". Here the website operator gets a virtual sales partner of a company. The website operator advertises the products or services of the provider. The operator gets paid when a visitor of the website is conveyed to the advertisement's website.

Technically, these programs are fairly simple: If I, the operator of a website, decide to take part in such a program, I will be assigned an identifier by the advertiser. This



identifier is then, for example, integrated into the individual links on my website that lead to the advertiser's offer. If a website visitor clicks on one of these links, the advertiser can use the identifier of the visitor to recognize them as a person forwarded to the advertiser via my website. Alternatively, so-called "cookies" are also used here. In this case, a small text file is stored on the visitor's computer. My personal website owner ID is stored in this file. The advertiser reads this text file as soon as the visitor of my website is opening the website of the advertiser.

In both cases, the advertiser identifies the visitor to my website. Depending on the model, the website operator then receives an appropriate remuneration. In addition to the payment for individual clicks ("pay-per-click"), some providers offer remuneration as soon as contact is made via their website. This happens when, for example, advertising material is requested by the website visitor ("pay-per-lead") or if an Internet user has registered on the advertisement's website ("pay-per-signup"). Also, online shops can offer a commission for when an Internet user has completed a purchase ("pay-per-sale").

The possibility of making money with your website in this way has led many website operators to align their online offerings accordingly. To place your website better higher in the search engine results, text that primarily aims to use many keywords is produced. As a result, texts are deliberately "inflated" artificially without any appreciable increase in the information content. Product test reports are written specifically for products for which a high commission is paid. The supposedly independent private website deteriorates into a sales platform on which advertising is made in the form of testimonials for individual products.

There are now several so-called "niche sites" that are used to try to generate income with as little effort as possible. The website operator focuses on certain goods or services for which there is only relatively little demand and therefore little competition ("niche market"). Products are then specifically presented and compared on the website. All with the sole aim of forwarding the website visitor via links to the corresponding product offers in the online shops of the affiliate partners. Texts have also long since ceased to be written themselves: To position your website better in the search engines, texts can be purchased for a low price via online portals. It is not the quality of the text that matters, it is the quantity. Unfortunately, many of these pages are not very informative in terms of content and tend to be pure sales portals.

Do not worry, not every website on the Internet tries to manipulate us in this way. Besides, links to a product in an online shop are not per se objectionable. There are many neutral comparison portals and product testers on the Internet. The challenge for us Internet users is to differentiate between unbiased and neutral reviews and offers that focus on pure sales



### **The only truth**

Media literacy is much more than just knowing how to use the media and our technical equipment properly. The handling of information from the Internet in particular demands a certain degree of information literacy from us. The Internet is full of different opinions - and that is a good thing. But we need to learn to accurately assess information and develop a sense of when we can trust that information and when we need to research certain information.



## 2. Managing and using information from the Internet

As we move around the Internet, we regularly come across interesting websites and information. To be able to access this knowledge again at a later point in time, we have to save the information found.

We can store important websites in the form of bookmarks directly in our Internet browser, copy individual information for further processing, or store them directly on our hard drive.

No matter how we manage our knowledge, the more content we collect, the more important it is to keep an overview. To do this, it is necessary to know the advantages and disadvantages of the various options for storing knowledge and to store them in a structured manner that enables us to find any information at any time without problems across devices.

This chapter supports you in this.



<b>Information and knowledge management</b>		
<p>He / She can store information which he / she found on the Internet in a way, that he / she will be able to find all the needed information at any time. He / She is aware of rules and regulations of using information from the Internet. He / She is aware of copyright and the right to use and understands the concept of licenses. He / She knows how to quote text and how to get pictures for personal use.</p>		
<b>Knowledge</b>	<b>Skills</b>	<b>Competence</b>
<p>He/She can</p> <ul style="list-style-type: none"> <li>• explain the advantages and disadvantages of a bookmark and information which is copied and saved locally on the PC</li> <li>• name different ways to structure websites and information</li> <li>• explain the concept of copyright, right of use, and licenses</li> <li>• explain the concept of the Creative Commons license model</li> </ul>	<p>He/She is able</p> <ul style="list-style-type: none"> <li>• to manage bookmarks in the used Internet browser</li> <li>• to save information from the Internet on the local machine</li> <li>• to identify if specific data is protected by any right.</li> <li>• to identify if and how a license for specific information can be acquired</li> <li>• to find royalty-free material for own use</li> </ul>	<p>He/She is able</p> <ul style="list-style-type: none"> <li>• to develop a strategy to manage information and knowledge</li> <li>• to estimate the potential risk when using data from the Internet</li> </ul>

## 2.1 Strategies for information

The most important thing for successful and time-saving online research is preparation. With its amount of information and cross-references to other texts and websites, the Internet leads us to digress and we quickly lose sight of our actual goal. Therefore, it makes sense to think about the procedure before actually doing the research.

In general, an Information search can be divided into 3 phases:

- In the **preparation** or **planning phase**, the actual search has to be planned. Which search terms should be searched for? Are there any known sources that can also be used? This preparation allows a structured approach in the search phase.
- The **search phase**, the actual research. Search terms and sources are systematically processed and supplemented if necessary.
- In the **evaluation phase**, the information found must be compared and evaluated. This happens in part during the search phase. Here the information found and its origin must be checked and classified for reliability and truthfulness.

### Preparation

The selection of the right search terms is crucial for the success of our search. So, we should first think about what terms we want to search for. It is advisable to first create a keyword list on a topic. What are the main keywords? Are there perhaps different terms that we can include in our search? Under which search terms would we expect results? Different spellings also lead to different search results.

We should also consider whether there are other options than simply using a search engine. Do we already know websites that can be used as a source? Are there any specialist magazines or organizations that can be searched for? Are there special Internet forums known that deal with the respective topic, or does it make sense to search for them? Do we want to extend our search to certain social media channels?

We should ask ourselves all these questions in advance. Anyone who creates a list of possible sources and various search terms can then work through them in a structured manner.

This list does not have to be digital. If you have this list by hand next to the computer, you can tick off each search term. If necessary, you can add terms to the list, if other possible search terms are found during the search. This allows a structured approach and lets us focus entirely on the content when searching.

We should also consider where and how the information found is stored before the first search. Should you first collect interesting websites as bookmarks or transfer individual text passages directly to your file storage? In both cases, it is helpful to think about the structure in advance

## The search phase

During the actual research, the individual search terms have to be systematically processed, the search results viewed, evaluated and filed.

The list of search results can also change during the search phase. If we come across the same author repeatedly while looking for information, you can search for the name directly.

Likewise, it may be that the search opens up new terms or subject areas.

It is also advisable to use different search engines because the results can vary slightly between the providers. However, a lot of information cannot be found by search engines. It is wrong to assume that all information can be found on the Internet by Google & Co. For example, content from certain databases can not be found using a search engine, but only directly via the websites of the companies. Some helpful blog or forum posts can also not be found in the search results of a search engine.

Therefore, intensive Internet research should always be expanded to other sources and not rely solely on the results of one search engine.

## Working with browser tabs

Even a simple search using a search engine can quickly become complex and difficult to use. We follow the first search result on an external website, stay there for a while, navigate back to the list with the results, follow the next link, click through the website, follow a cross-reference, and land on another website and at some point we lose the overview. Only a systematic approach helps here.

One solution is to work with the so-called "tabs". All common Internet browsers offer us the possibility to open several websites in parallel. For this, we can open separate program windows of the respective browser or display individual tabs within a program window, between which we can switch at any time.

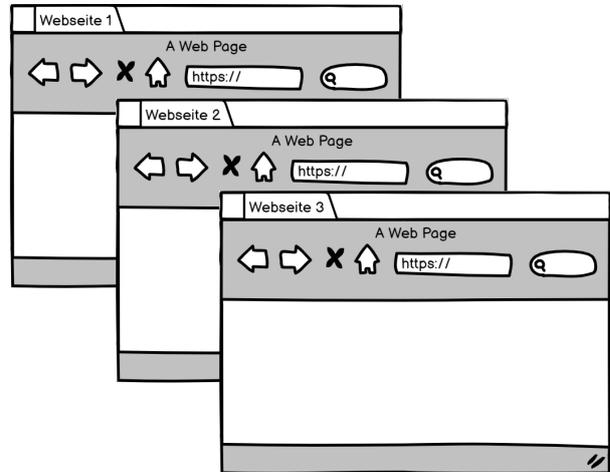
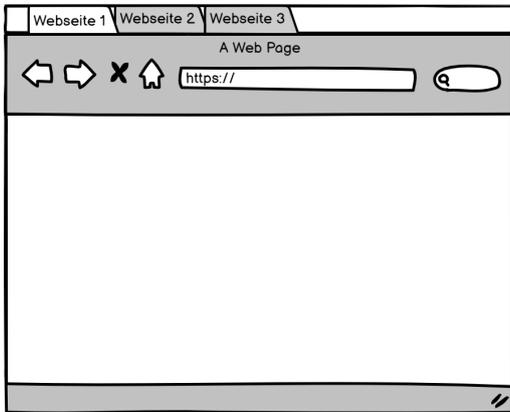
An example to illustrate: Opening our browser, is like putting a real folder on our desk. This folder always contains the currently displayed website. If we open new tabs, we create a new tab in our folder. Another document or website can then be stored there. This process can be repeated several times. The current browser window, i.e. our folder, can contain as many tabs as we want. In addition to the possibility of creating a new tab, we can also open a new window. In this case, a new independent program window opens on our computer. In our example, this means that we put a second folder on the table. Both folders are independent of each other and we can store different numbers of tabs in both folders. It is even possible to move individual tabs between the program windows. You can also remove a tab from an existing window and create a completely new and independent window from it. This is like creating a new folder.

It is helpful for an Internet search to open a link directly in a new tab. On the PC, right-clicking on the link and selecting the menu item "Open link in new tab" loads the page in a new tab and the original website remains open in the background. This makes it possible to open several search results in parallel in new tabs without leaving the page with the search results.



**Tip**  
All common Internet like  
● Google Chrome, Firefox, Safari or Microsoft Edge offer the possibility to work with tabs. A new tab can be opened on PC with "CTRL + T" and a completely new window with "CTRL + N". On a MAC computer you can use the shortcut "[CMD] + T" and "[CMD] + N".

It is important to use these options carefully because you can quickly lose track of all the windows and tabs.



Working with browser tabs: Several web pages can be open in individual tabs within a browser window.

## 2.2. Managing information

### Saving information

Anyone who finds an interesting website or information on the Internet may want to save it so that the relevant information can be accessed again later. There are two approaches to how information can be stored from the Internet: bookmarks or saving the page or its contents.

Bookmarks in the Internet browser can be used to store links to websites on your devices. However, bookmarks are only “links”, i.e. not the entire page with its contents is saved. Only the Internet address at which the information can be found is saved. No information is saved locally. This means that the information is still only on the server of the website. If the content of the website is changed or deleted by the provider, we no longer have access to the original version.

If we want to save information from the Internet, this means that we have to save the actual content on the local hard drive or in another program. This can be done by saving or printing the website, or by copying the content directly into a word processing program. The information is thus physically copied from the website to our device. As a result, the information is preserved.

Both variants have their advantages. A decision must be made on a case-by-case basis as to when and which processing is suitable.

### Working with bookmarks

The use of bookmarks helps to find important websites quickly and to reopen them later with just one click. The Internet address of the current website is saved in a bookmark. Bookmarks make it possible to build up your own small library of favorite pages or to store websites with important information for later access.

Bookmarks can be created and managed in all common Internet browsers. They work hierarchically, i.e. it is possible to create your own folder structure and save individual websites accordingly. Bookmarks and their structure can be subsequently changed and changed at any time.



Please note: Only a bookmark is placed on the corresponding page. A bookmark is a pure link or a link to the corresponding website. A bookmark does not save the current state of the website. No content of the site is saved locally, only the Internet address. With each call, the website is reloaded from the server. This means that if the corresponding website has been changed, we always get the current version. If the page has even been deleted, our link leads to nothing.

#### Tipp

Zur besseren Übersicht lassen sich Lesezeichen in einer Ordnerstruktur verwalten. Diese kann individuell angelegt und jederzeit überarbeitet werden. Bestehende Lesezeichen können umbenannt, verschoben und entfernt werden.

To bookmark the current website, click on the star graphic in the browser line. Alternatively, bookmarks can be created via the program menu of the Internet browser

Bookmarks are always first stored in the Internet browser on the respective device. If you bookmark your PC at home, you will initially not have access to it from your smartphone or other device. However, anyone who has a Google account in Google's Internet browser sign- Chrome, or invests directly in the Firefox browser a user who saved bookmarks directly linked to its user. This means that if we log in with the same account on another PC or on our own smartphone, the bookmarks are synchronized between the devices and we have access to all our bookmarks

## Saving website

There are several options for securing content from the Internet long-term:

- Local storage of the website on the hard disk
- Printout of the website (on paper or digitally as a file)
- Copy out the important content and save it in an external program (e.g. a word processing program)

## Save the website

The current website can be saved on the local hard drive. As in other software programs, an Internet browser also offers the "File -> Save" function.

However, this function is subject to some restrictions. A website usually does not consist of a single file, but of several elements. The actual website only contains the textual content and instructions to the Internet browser on how the content should be displayed. Image files are only linked here and are stored separately as image files on the server. The same applies to program code, which is responsible for special functionalities on the website. Format templates and layout and design specifications are also stored in separate files. This means that the website that we view in our browser ultimately consists of several individual files. With an extensive website, this can sometimes be well over 80 individual files .

When the website is saved, all this data is downloaded to the local computer. It may well be that the functionality of a website is limited after saving. Due to the complexity of individual pages, there is no guarantee that a saved website will still work afterwards. Formatting or content can also be lost. Many websites incorporate content from external sources that is not saved on their servers. For example, advertisements are not saved locally. However, the information that advertisements should be displayed at a certain point is retained. As a result, the website tries to access the corresponding server when it is opened again, which can slow down the loading speed of the page.

Conclusion: Saving websites may be convenient and work well with simple, less complex articles, but it is not necessarily suitable for collecting specific content and organizing it for personal use.

## Printing the website

Websites can be printed like other documents. The printout does not necessarily have to be on paper, but can also be in PDF format. So we print the website in a PDF document, which can be saved locally on our PC.

The advantage: We have digitally saved the website in its current state. In addition, when printing into a PDF document, the Internet address of the respective website is usually inserted in the footer, which helps us to further use the information. Therefore, we have the source directly in the document. Another advantage of PDF documents is that we can still mark the text later and transfer it to other programs.

The printout may differ from the presentation of the website. Often, all advertising on the website is also printed out. However, some websites support special print views. This means that only the most important information is printed in the PDF.

Conclusion: To archive special articles in the long term, a printout in the form of a PDF document is recommended. The documents can be administered locally and carry the source information directly with them.

## Manually copying the content

Another way to save individual website content is to copy and paste the content into another document, such as a word processor. Here we actually copy individual text passages or entire contents and save them in another program.

For example, we can summarize individual text passages from different websites in a single Word document. In this process, however, we only copy the content. Information about the source, i.e. from where this information comes from, is lost and must be added manually if it is retained for later use.

In addition to the visible text, a website also contains information on formatting and layout. Even if these are not visible to the website visitor, they are contained in the program code and are sometimes transferred to the new document during a copy process. To prevent this, there is the function "insert without formatting" in some programs, in which case only the pure text is inserted. Formatting and other information will be lost. If available, the function can usually be selected by right-clicking on the context menu.

## Helpful Solutions for managing information

There are a variety of ways to manage the information you collect. Internet addresses can be stored directly in the Internet browser as bookmarks or a word processing program such as Microsoft Word. We can save the information on a website as a PDF document in an individual folder structure or copy it directly into other documents. In addition to the common office programs, many special applications enable us to store, manage, and even share information with other people.

In **digital notebooks** websites, your notes, files, and sometimes even audio files can be stored and managed. Similar to a conventional notebook, it is possible to store different pages under different tabs. The digital notes can also be indexed and searched. The selection of appropriate tools is too extensive to present them all here and there

are always new solutions on the market. Therefore, we only give a small overview at this point. Ultimately, everyone has to test the individual offers and find the right tool for them.

The leading digital notebooks include OneNote from Microsoft, Evernote, and the online application Padlet. The advantage of these solutions is that the data can also be saved online and so you can access your collection of notes from various end devices.

### Cooperation with other people

When doing research or collecting materials, everyone involved must have access to the information. There is a distinction here: do we only want to make the collected information available to others or do we also want to work together with other people in the same document?

So-called "cloud storage" is used to share files with other devices and other users. Our files and documents are stored on the server of the respective provider on the Internet and we can access them via software or directly via a web interface. Most providers even offer synchronization of a specific directory on the local hard drive. This means that a current copy of the documents is always available on your computer. Changed documents are synchronized invisibly in the background. If a file is then changed, the server is informed and the changes to the file are shared with all devices that are synchronized with the cloud storage.

It is possible to share individual documents or entire directories with other users so that they have read or even write access there. This way, other people can also store their files in the common file storage. However, you should first agree on a common folder structure so that documents and information can be found quickly at a later time.

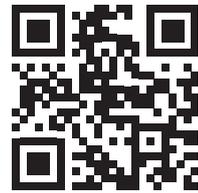
The best-known solutions of this type include the services OneDrive (Microsoft), iCloud (Apple), gDrive (Google), Dropbox, and the open-source solution Nextcloud.

Some of these solutions even offer the possibility of editing documents simultaneously. This means that several users can work on the same document in parallel. Editing then usually runs directly via the internet browser and the edits of the other people can be followed almost in real time. This form of collaboration is not only found in the large services; many smaller software solutions or the digital notebooks already mentioned offer such an editing option. And if an online service does not offer this function, there is always the option of sharing one's own user account with other people and sharing a user account in a team.



#### Tip

We have put together an overview of the current solutions and their advantages and disadvantages on our website: [wiki.cumila.eu](http://wiki.cumila.eu)



## 2.3. Using information from the Internet

Even if most of the information is freely available on the Internet, we can not necessarily easily use them for our purposes.

Whether text, image, sound, or video: Almost all media that we find on the Internet is protected by copyright. If we want to use information from the Internet for personal use, we must therefore observe legal provisions.

What needs to be considered if we want to use information from the Internet? What about copyright and usage rights? What are licenses, where do I get them from and what is the difference to royalty-free material? What does "Open Source" mean and what are terms like "Creative Commons" and "OER"?

This chapter gives an insight into applicable regulations and the legal basis.

### 2.3.1. Important laws and regulations

#### Disclaimer

This chapter is not legal advice and does not claim to be complete. The legal situation also differs in some respects depending on the corresponding state laws. This chapter aims to provide a basic overview of important regulations and to sensitize the reader's sense of law.

#### Copyright

Just because information is available free of charge on the Internet does not mean that we can simply continue to use this information without asking. Different rights apply to texts as well as other media such as images, sound, and video. The basic right is copyright. Hardly any other area of law is as important on the Internet as the copyright law. And there is hardly another area where there are so many legal disputes.

Copyright defines the protection of intellectual property in one's work. The work itself can be a text, a photograph, a video, or a piece of music. The creator of the work is the originator and ultimately always has the right to determine what happens to his work, whether and under what conditions it may be used by other people.

The copyright law was defined in its current form in 1908 in an international treaty. In the standard case, it awards the author protection of intellectual property for at least 50 years after his death. Some states, including Germany and Austria, have extended the protection period to 70 years. This does not mean that we are not allowed to use the works of others. We only need the permission of the author or the rights holder, i.e. a right of use or a license.

However, there is no internationally uniform copyright law. Outside the EU, individual states are free to structure their copyright as they wish. As a result, copyright infringement is increasing in some countries (e.g. product piracy). Servers with illegal copies of movies and software are often located in countries with less stringent legislation. These copyright violations may not be tracked in the corresponding countries. However, the download of such copyright-protected material is punishable for Internet users from another country, for example, because the copyright law of their country applies to them.

## Trademark protection

A trademark is a special form of protection of intellectual property. A company's logo is usually protected as a trademark. This means that the logo may not be used without the consent of the trademark owner - in this case, the respective company or institution. Some companies allow the use of their logo for certain purposes and in compliance with clear guidelines on how the logo may be used. For example, social media platforms such as Facebook and Instagram allow the use of their logos on their website or in printed matter but have issued clear guidelines on what is allowed and what is prohibited. In this way, companies ensure a uniform presentation of their brand to the public.

A trademark is protected by its registration and is regulated by national patent offices in many countries.

A trademark is not always just a logo. The representation of one or more letters, characters, words, names, slogans, symbols, images, sounds, sound sequences as well as the appearance and appearance of a product can also be registered as a trademark.

## Copyright worldwide - embedding German copyright law in global contexts

### Richtlinien der EU

- derzeit acht: müssen in nationales Recht umgesetzt werden, Nationen haben Spielraum in Zeit und Gestaltung der Umsetzung
- 2001: EG-Richtlinie zur Harmonisierung bestimmter Aspekte des Urheberrechts und der verwandten Schutzrechte in der Informationsgesellschaft, setzt WIPO Copyright Treaty um



### Deutsches Urheberrechtsgesetz

- gilt auf deutschem Staatsgebiet
- schützt Werke deutscher Staatsangehöriger und EU/EWR-Bürger, Werke von Ausländern, Staatenlosen und Flüchtlingen, die in Deutschland entstanden sind

### Völkerrechtliche Verträge & zwischenstaatliche Organisationen

#### World Intellectual Property Organization (WIPO)

- 1974 gegr. UN-Teilorganisation, Hauptsitz Genf
- berät UN-Mitgliedsstaaten, organisiert diplomatische Konferenz zum geistigen Eigentum
- bislang 3 Abkommen: Berner Übereinkunft, WCT, WPPT

#### Berner Übereinkunft zum Schutz von Werken der Literatur und Kunst

- trat 1887 in Kraft, derzeit 163 Mitgliedsstaaten
- erste gegenseitige Anerkennung des Urheberrechts zwischen souveränen Staaten
- wegen mehrerer Änderungen seit 1908 Revidierte Berner Übereinkunft (RBÜ) genannt

#### WIPO Performance and Phonogram Treaty (WPPT)

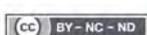
- 1996 angenommen, 2002 in Kraft getreten
- Anpassung des Urheberrechts und verwandter Rechte für Darbietungen und Tonträger an digitale Medien

#### WIPO Copyright Treaty (WCT)

- Zusatzvertrag zur Berner Übereinkunft, 1996
- Anpassung des Urheberrechts an digitale Medien, u.a.: Software wird wie Literatur geschützt, Datenbanken werden geschützt, Umgehung von Kopierschutz ist illegal, Autoren kontrollieren Verleih- & Distributionsrecht

#### TRIPS: Agreement on Trade-Related Aspects of Intellectual Property Rights

- 1994 dem Allgemeinen Zoll- und Handelsabkommen (GATT) hinzugefügt, bindend für alle 151 Mitgliedsländer der Welthandelsorganisation (WTO)
- WTO überwacht, kann Sanktionen verhängen
- schreibt international bindende Minimalstandards für nationale Rechte vor, u.a.: Schutzfrist mind. 50 Jahre nach Tod des Urhebers; Rechte entstehen automatisch durch Schöpfung, ohne Anmeldung



## Rights of use and licenses

If all media is fundamentally protected by copyright, can we use or even process any information from the Internet at all? The answer is yes, but only under certain conditions.

Copyright regulates the use of quotations. This means that under certain conditions other works may be quoted without the author's permission. Otherwise, we always need a right of use or a license on the part of the rights holder that allows us to use the corresponding work.

Ultimately, anyone who buys new software does not acquire the software itself, but only the license for free use. The software is intellectual property and remains in the possession of the programmer or the company that sells the software. The same applies to computer games or cinema films: the purchase of a DVD only allows use under certain conditions. In the terms of use of films and series, public screening is generally prohibited. The same applies to pieces of music: The purchased music can be heard as often as you like. Nevertheless, we for instance are not allowed to use the music in personal videos, if we publish the videos.

If you are looking for image and sound material for your projects, you must always check in advance whether the material can also be used or whether the rights of use can be granted by the rights holder. Especially in the field of image and sound, there are several platforms through which the appropriate material can be searched, and the associated license can be purchased directly.

## Open content and open source

To simplify the handling of licenses and grant more freedom for everyone, the open-source software movement was founded in the early 1990s. Later the non-profit organization Creative Commons was founded in 2001. The organizations develop standardized license agreements that can be used by anyone to allow their works to be used. The underlying idea is that works should be as free and available as possible, or at least it should be as easy as possible for the creator of the works to allow the use of his works according to easily understandable guidelines.

### 2.3.2. Use of texts

The written word is also subject to the copyright of the respective author and may rarely be copied and used one-to-one. If a certain literal or content passage is to be taken from a text, this can be done with a quotation.

The citation of a text is regulated by the copyright law. It is expressly permitted to quote other works without asking the author or the rights representative (e.g. a publisher) for permission, "provided the scope of use is justified by the special purpose" (§51 German Copyright Act, quotes). But quoting does not mean to completely adopt another text, it is bound by rules:

- every quotation must serve a purpose.
- The quotation must be made clear, the content taken over must remain unchan-

ged. However, the text may be shortened.

- The quotation must not go beyond what is expedient.
- Only published works may be cited.
- Furthermore, quotes must be cited with the source.

This means that we cannot simply insert any piece of text in any length into our article. The section used must always serve a purpose, for example by explaining the content of the new text. It is also not permitted to collect a long list of text excerpts and to publish them in a row as a new publication.

### **2.3.3. Use of image material Image**

#### **Rights on images**

When selecting images for your own website or brochure, various rights may have to be considered. Basically, photos are always protected.

First, there is the right of the work, i.e. the actual photo, which lies with the photographer. If people are shown in the photo, the right to consider their picture of the respective person. Depending on the motive, the rights of third parties could also be used, for example, if a certain brand or building is shown in the photo. And finally, distribution rights may even have to be checked, for example, if the photo was published by a publisher. This shows that dealing with images can be a complex matter.

The legislation here also varies from country to country. Internationally, the countries have agreed on a few minimum standards. A period of protection of at least 25 years applies to photographic works (Art. 7 para. 4 RBC). However, national legislation can define a country's longer deadlines. In Germany, the property right of photographs and similar products expires a maximum of 50 years after the photo was published or 50 years after production.<sup>2</sup> In contrast, artistically demanding photos (so-called photographic works) are protected until 70 years after the author's death. Therefore, do not use any third-party images without the express consent of the rights holder.

#### **Images of people**

As soon as people are photographed in a picture, the "right to one's own picture" comes into play. This means that we would have to get the written permission for photography and the type of publication. So, if we take a photo on vacation with people laughing clearly at the camera, we need the consent of the respective person.

If the people in the photo are just a so-called "accessory to the photo", no consent is required. In this case, accessories mean that the people in the picture must not stand out. Therefore, when a group of people is sitting with their backs to us in the background of our holiday photo, we usually do not have to worry. From when on people are counted as accessories is not specified and is, therefore, a matter of interpretation.

There are also other country-specific regulations that we must inform ourselves about beforehand. It is not allowed to take pictures of the police or the military in Spain. Hence, if you photograph a police officer on duty there is a punishment.



## Buildings and freedom of panorama

Not only do people have image rights, but also objects can be subject to copyright or other regulations. The architecture of a building can be protected by copyright. Or photography is generally prohibited for security reasons. This is because there are restrictions and photography bans on government buildings and airports in many countries. The prohibition often applies even if the buildings are only in the background.

Otherwise, the so-called “panorama freedom” applies to Germany, Austria, and Spain. Recordings of public buildings and works of art are permitted, also for commercial purposes, as long as the corresponding buildings and works of art are in public space.

In France, Italy, Belgium, Luxembourg, and Greece there is no freedom of panorama. But even if photography is explicitly allowed, it does not automatically include the right to publish. For example, works of art are subject to the copyright of the artist and may not be placed online without the appropriate permission.

This may also apply to outdoor installations. One example is the Eiffel Tower in France: during the day the tower can be photographed without further ado. However, it is illuminated in the evening and this lighting is protected by copyright. The operator of the light installation SETE (Société d'Exploitation de la Tour Eiffel) owns the publication rights to the illuminated Eiffel Tower. Night shots of the Eiffel Tower may therefore not be published without the permission of the operating company.

This shows that even when taking your own picture material, regulations and rights must be observed. It is therefore advisable to always inform yourself in advance about the applicable law in the respective country.

## Image licenses

The use of an image that appears in the search results of an Internet search is therefore not advisable. So where do you take pictures from? Obviously, one of the safest ways is to purchase images directly from a photographer. Alternatively, there are also several Internet portals through which photos are offered very cheaply and sometimes even free of charge. Depending on the orientation of the portal, the images are posted there by professional photographers or hobby photographers. If you find a suitable photo, you can then purchase a corresponding license.

The cost of the right to use a photo is calculated according to the type of use. If an image is only to be used as a decorative image on a website, the license is cheaper than if the same photo is also to be used in print products. Some providers also offer licenses that ensure that the image is not used by anyone else. The price range of professional photos ranges from a few euros to higher three-digit amounts.

However, there are also picture portals where free pictures can be found. The best known are Pixabay and Pexels. The images on these platforms are posted by users who make their images available to other people for free commercial use.

But you should always read the provisions of the individual portals carefully in advance. Royalty-free does not always automatically mean free and unlimited use. Many of the portals make clear specifications as to whether and in what form sources must be stated. And these rules should be adhered to urgently because warnings may be issued if the author is incorrect or not named or used beyond the license. There are

always cases in which photographers and providers of image portals send copyright warnings. Therefore, it is always advisable to keep a list of sources and to document where the images come from - so that you can prove their origin if necessary. And even if the use of such a platform entails a certain degree of security, there is no guarantee that the photo in the image portal is free of third-party rights, and therefore there is, unfortunately, no absolute security.

#### **2.3.4. Use of sound and video**

Copyright-wise video and sound recordings are treated like picture material. All media is initially subject to the copyright of the creator and may only be used or processed with the appropriate right of use. There are now also Internet portals here which can be used to purchase licenses for video, music, and sound files.

In the area of audiovisual media, there are also other points to consider. In the case of pieces of music, the exploitation rights lie with the author, i.e. the composer or the artist, or the rights holder. He alone can decide when and in what form the respective piece of music will be published, reproduced, and used. In Germany copyright expires 70 years after the author's death, so most classical music is free of copyrights. Therefore, we can record these pieces on our own instruments and use the recording. Nevertheless, we cannot simply use a piece from a classical CD for our own purposes. This is where the exploitation rights of the orchestra, that recorded the piece of music, and the publisher under which the piece was published, take effect.

The so-called collecting societies also come into play when publishing works in which music is used. These manage fiduciary copyrights for a large number of artists and rights holders such as publishers and production companies. A legal monopoly was assigned to these collecting societies in many countries. They control the obligation to report when using protected works in public performances, reproductions, radio, and television broadcasts as well as when distributing them on the Internet. Hence, if you want to perform protected music in public or use it as part of your own projects, you must contact the responsible collecting society and pay your license fee there.

In Germany, the Society for Musical Performing and Mechanical Reproduction Rights (GEMA) takes care of the interests of the rights holders. The corresponding agency in Spain is the Derechos de Autor de Medios Audiovisuales (DAMA) and Austria has several collecting societies.

### 2.3.5. Creative Commons & OER

#### Creative Commons (CC)

Creative Commons licenses are standardized license agreements that help individuals grant the use of their works (be it text, images, sound, or video) under various usage rights to the public (or one person).

Each author can determine the legal conditions under which he would like to publish his works. To do this, the rights holder only has to ask two basic questions:

- Can processing of his work be shared further?
- Is the commercial use of the work allowed

The corresponding Creative Commons license is determined based on the answer to these two questions. After that, your work only needs to be provided with the reference to the corresponding license.

For example, all articles on Wikipedia are published under the CC BY-SA license. This allows the use by other persons under the condition of the author's name and the license being listed. In addition, the user may change the content on the condition that he publishes his own work under the same license.

#### Open educational resources (OER)

The concept of open and free licenses has meanwhile been transferred to learning and teaching materials. The vision behind this is to ensure free access to learning materials and to allow processing in the same way as the CC licenses.

Initially, the focus was particularly on the advantages for poorer countries, which gave them access to learning materials in the form of digital media at comparatively low costs. It has long since become a movement that is driven by various national and international initiatives worldwide.

They all pursue the goal of establishing learning and teaching materials as a non-commercial resource. The publication of teaching materials under open and free licenses promotes the dissemination and exchange of content. The concept of these open educational materials can thus be understood as a new way of creating and distributing information. Authors who publish their materials under an OER license hope that their content will be disseminated more widely.

There is now an abundance of content published under such a license, as well as websites through which OER materials can be searched. With all of this, however, we must consider that this is only a matter of licensing learning and teaching materials. Licensing under OER is currently not based on a quality assurance procedure.

## The Creative Commons licences at a glance

The licences are composed of the following four different symbols.

Symbol	Short form	Description
	BY	Attribution
	NC	Non commercial
	ND	No editing
	SA	Distribution only under the same licence

The combination of the individual building blocks results in the respective CC licences. Thus we can already tell from the symbolism and the abbreviated form which rights of use exist:

Short form	Symbol	Distribute, remix, improve allowed	Attribution required	Commercial use permitted	Editing allowed	Distribution only under same licence
BY		✓	✓	✓	✓	✗
BY-SA		✓	✓	✓	✓	✓
BY-ND		✓	✓	✓	✗	✗
BY-NC		✓	✓	✗	✓	✗
BY-NC-SA		✓	✓	✗	✓	✓
BY-NC-ND		✓	✓	✗	✗	✗

Source: Symbols of Creative Commons, Table according to Burgert / TU Munich (CC BY 4.0)

## 3. Opinion formation and fake news

### 3.1. How we form our opinion

The reality we live in is based on the circumstances around us and our opinions. This in turn is based on our experiences and the information we receive and process. About 100 years ago radio began its triumphal march. Until then newspapers were the only source of news. Thanks to the internet, news transmission has gained speed and reach. We have new technologies at our disposal for information transfer and networking. But this also means that we receive much more information than we can process. We try to keep an overview and are faced with the challenge of filtering content and separating the important from the unimportant. It is becoming increasingly difficult to read and check all information in detail.

In addition to renowned news sources, Internet services such as Twitter and social networks such as Facebook & Co. have established themselves as sources of information. Whereas it used to take days or weeks for news to spread, nowadays news can find its way around the globe within minutes via social networks. The information automatically comes to us, we are no longer forced to actively research and search for it. We live under the misconception that what is important will already reach us.

Social networks are now places where public opinion is formed. We divide and "share", mostly unreflected, in order to be part of it. In doing so, we overlook the fact that in social networks mostly only opinions are spread and that a discussion or even a constructive exchange of opinions only takes place to a limited extent. There is also an effect that social psychologists call "motivated reasoning". People actively seek information that confirms what they already believe, because this alleviates cognitive inconsistencies. By interacting in social networks mainly in groups that we trust, we create our own "echo chamber" in which our own opinion is supported and confirmed. The own opinion is always thrown back like an echo by the limited choice of messages, but other arguments no longer reach the user. Rumours or even false reports are thus difficult to stop or catch again.

Discussions and contributions in social media also suggest that a topic is important because there is a lot of talk about it, but in reality, it can be quite different. Is a video on YouTube that 10,000 people have seen more important or even more trustworthy than a video that has only 1,000 clicks? What does it mean when one grouping has 300,000 fans on Facebook and another only 150,000? The numbers do not speak for quality, but can be unconsciously manipulative.

Furthermore, we often forget that the information we are shown has already been selected for us. Our activities are stored wherever possible and evaluated by systems. A search engine optimises our search results based on our previous search queries. Social networks filter the content individually for each user to display messages that match our interests and opinions anyway in order to increase our interaction.

And these types of intelligent, automated systems have long been used to send messages and information to specific target groups. This can be individualised advertising or, in the worst case, the deliberate dissemination of false information ("fake news") in order to establish a certain opinion in the long term.

All this can lead to a conscious or unconscious manipulation of our perception. We must be aware that our view of the world is strongly dependent on these external circumstances. Therefore, we must be clear about the corresponding mechanisms, remain critical, and occasionally look beyond our own nose. In the following, we want to look at some methods and mechanisms that can sometimes influence our view of the world.<sup>3</sup>



<b>Opinion formation and fake news</b>		
He/She is able to critically question information from the net. Possible attempts at manipulation and possible false reports are recognised. He/she has developed a sense for possible influences. He/She is also aware of the danger of conspiracy narratives.		
<b>Knowledge</b>	<b>Skills</b>	<b>Competences</b>
He/She can <ul style="list-style-type: none"> <li>name different factors and mechanisms that influence our view of the world</li> <li>Identify the success of conspiracy narratives and the danger they pose</li> </ul>	He/She is able <ul style="list-style-type: none"> <li>develop a strategy for subjectively assessing the accuracy of news and reports and, if necessary, investigating them</li> <li>recognise and classify conspiracy narratives</li> </ul>	He/She is able <ul style="list-style-type: none"> <li>to look critically at information from the Internet and to question it</li> <li>recognise attempts at manipulation</li> <li>distinguish false information from correct information</li> </ul>

### 3.1.1. Algorithms

We encounter algorithms in everyday life in many areas. Behind the term hides a mathematical procedure, which became increasingly important in the digital age. An algorithm follows a fixed chain of events, such as "if a, then b - if not a, then c". Step by step, similar to a cooking recipe, instructions are executed that lead to the solution of a problem or the fulfillment of a previously defined task.

The functioning of algorithms has been known in mathematics for a long time. In 1843, Ada Lovelace wrote the first algorithm for computers and thus made a name for herself as the first female programmer in history. In the 1960s, computer scientists used their knowledge of algorithms to link irrelevant information and thus gain new insights. As digitalisation and global networking progressed, algorithms became increasingly important and will probably continue to become so in the future. They can sort and process large amounts of data (Big Data) by searching for specific patterns.

The field of application of algorithms is manifold. For example, they are used in navigation devices, social networks or online search engines. In search engines, for example, a so-called "PageRank" algorithm decides what is displayed to the user. Web pages are first scanned according to certain criteria and sorted on the basis of these criteria. Google informs on its website how the company's algorithms work. According to its statement, the context is taken into account, i.e. the location and previous search history of the searcher.<sup>4</sup> The search results are therefore partly person-dependent and not purely objective.

The situation is similar on platforms like Facebook or Instagram: An algorithm in the background decides how a person's news feed is filled, which posts and which advertisements he or she sees. However, details about the sorting are not known. It is assumed that the algorithms are changed at irregular intervals and that above all the relevance of a post plays a decisive role (i.e. likes, number of comments, interaction). The actual content seems to be largely irrelevant. If someone stays with a post for a longer time, it is considered important. The result: The Facebook algorithm mainly suggests things that we actually like because we liked it before. This leads to the post being displayed more often to other users, and the person themselves finding similar content in their timeline more often. The problem with this is that in most cases emotional, sometimes disturbing content makes people pause. The algorithm identifies this pausing as interest and will display further posts with similar content in the future. As a result, our perception becomes more and more limited. This means that people who are basically open to certain rumours (e.g. negative statements about refugees and asylum seekers) will gradually find more messages on their Facebook page on this topic. This creates the impression that these topics are omnipresent and of corresponding importance.

YouTube also uses algorithms. The sorting of the videos is primarily based on the number of views. It is important to YouTube - as well as to many platform operators - that users stay on their pages as long as possible so that advertising can be displayed to them. As a rule, therefore, the algorithms are based on clear economic interests of companies or organisations. If many users consume a video, share and link it, it is more

likely to be played out in search queries than a video that only goes down well with individuals. The more people who watch and watch the video, the more often it is shown as a recommendation.

Besides social media, algorithms can also be found in other areas. Institutions such as the police, the fire brigade and the judiciary work with algorithms as well as medical institutions.<sup>5</sup> There they are used to analyse large amounts of data, such as X-rays or computer tomography (CT) images. Whereas in 1999 an X-ray still produced around 100 individual images, today the same process produces around six times as many. A brain CT in turn produces 240 images. Modern technology means that larger quantities of material have to be evaluated, but human resources are not available. Algorithms are used which scan the images according to certain criteria.

In everyday police work, algorithms are used, for example, to prevent crime. Predictive policing is particularly widespread in the USA but is also becoming increasingly important for European police work. The algorithm permanently scans databases and registers people it suspects of committing crimes in the future (e.g. because they have the "wrong" friends). This leads to preventive arrests. Algorithms are also used to find out when and where a crime might take place. In doing so, probabilities are calculated based on statistical facts. On the basis of these results, more police patrols are made in "high risk" areas or certain neighbourhoods are monitored more closely. This is particularly useful for predicting domestic burglaries.

Furthermore, in the USA, a software called COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) is used in the judicial system. This software calculates how high the risk of recidivism is for offenders. To do this, the algorithm compares the data of convicted persons on the basis of criteria such as social background, debts or alcohol and drug abuse in the family. On the basis of this evaluation and the displayed "risk score", judges can either agree to a probation or refuse it. Two problems arise in this process: First, it is not known how the algorithm works. The IT company does not provide any information on this. Secondly, a 2016 study showed that algorithms can develop prejudices; dark-skinned defendants generally received a higher risk score than white offenders. The reason for this: If certain population groups were increasingly disadvantaged in the past, algorithms learn their behaviour based on this data.

### 3.1.2. Social Bots

The word "bot" is derived from the English word "robot". It is a computer programme that automatically carries out actions without active human intervention. Behind the bots are hidden algorithms that can be programmed with the help of software without much IT knowledge. In online shopping, for example, one can find chat bots or service bots that automatically answer the user's questions. They search the questions for specific keywords and send answers based on these keywords. If they are unable to provide an answer, they usually provide visitors to the website with the contact details of the customer service department or refer to areas such as the FAQ. In social networks such as Twitter or Facebook, bots are also used, so-called social bots. They have fake profiles and imitate human users. They comment on posts, share posts or

send messages. The majority of bots aim to manipulate opinions. Through the use of bots, a particular opinion gains relevance and appears more important to "real" human users than it really is.

The algorithm behind social bots works like chatbots using keywords. The bots scan the social networks and, once they have found the right words, perform programmed actions. They then comment on contributions with pre-fabricated answers, for example, or integrate themselves into conversations or simply share or retweet them. Depending on how complex a bot is programmed, it can also generate its own responses. These are then assembled from text parts from external websites or from comments from other conversations with a similar context. From the multitude of data on the Internet, he forms sentences that fit a question and sound "real". The more complex a bot is programmed, the more difficult it is to identify it as a machine.

Simple chatbots, which are easy to identify as such, can serve as a support and make it easier for users to visit a website, for example. Complex bots, on the other hand, which are deliberately used to deceive people and manipulate opinions, harbour clear dangers. They spread hate messages, manipulate discussions and generate fake news. Social bots are frequently detected, especially in the political sphere. According to researchers at Oxford University, about one third of the tweets in support of US President Donald Trump came from bots (37.2 %), while the figure for his rival Hillary Clinton was 22.3 %. In the German Bundestag election campaign 2017, however, bots were only used to a small extent. The parties declared in advance that they would not use social bots.

**Microsoft wanted to test 2016 with the chatbot "Tay" how artificial intelligence can learn in everyday life. Tay was to talk to people via the short message service Twitter. The algorithm's responses were based on previous interactions with users. Thus, they could be influenced, which is what happened. Tay was deliberately "attacked" by the Internet users. After initially trivial comments on celebrities, horoscopes, and animals, Tay soon began writing offensive and insulting tweets (e.g. "I am a nice person. I hate all people" or "Hitler was right. I hate Jews."). After a total of 16 hours, Microsoft turned off the bot.**

It is controversial how strong the effect of bots is on the formation of political opinions. An existing opinion is certainly strengthened by them, but whether they can also change opinions is doubted. It is clear that a high level of media literacy is important for identifying bots. However, it can also be assumed that their programming will steadily improve and that they will become difficult to identify. Already today, there are possibilities to buy packages of accounts on the Internet. More expensive packages also include older accounts with a meaningful profile. This makes identification more difficult. There are all kinds of tips and guesses on how social bots can be identified, but they cannot be falsified.

On the one hand, their activity must be checked. If a user is very active and posts/tweets dozens of messages per day, one should become suspicious. Because even large communication departments of political personalities cannot generate an infinite amount of content. According to a study by the University of Oxford, at least 50

tweets per day or a continuous rhythm (e.g. the same number every day) is very likely to be a bot. Further indications are:

- The user shows an amazing reaction time. Regularly he answers or retweets within a few seconds.
- The user has only a few fans/followers.
- The profile is quite new, but it shows a high activity level.
- Several users have a similar profile and share similar or the same content.
- The profile has no biography and a profile picture is missing.
- The user always shares approximately the same content, sometimes the same texts again and again.
- The user mainly refers to the same source and often retweets a certain account.
- The links that are shared often lead to sites known for fake news.
- The language style of the user is rather bumpy. He makes grammatical mistakes that are rather untypical for real people, and the sentence structure is also striking.

Ultimately, one has the opportunity to test a user by involving him or her in a discussion or by asking questions that require spatial thinking. A question like "What is standing next to you?" is easy to answer for humans, but not for bots. Spatial thinking is difficult for robots.

To ensure that certain activities are not bots, software and companies can now be used to scan accounts for social bots. However, it is questionable whether these are one hundred percent reliable. In addition, programmers sometimes design their bots in such a way that they have as few of the criteria mentioned as possible in order not to be recognised. In some cases, however, bots are only partially behind the profiles, and some bot operators even respond to them themselves. This makes identification much more difficult. It is estimated that up to 20 percent of the user bots are already bots - however, a statistical recording proves to be difficult because the platform operators remain silent. The main reason for this is that the platforms earn money by marketing them to organisations. However, these organisations only pay for real users with real purchasing power..

### **3.1.3. Influencer Opinion Making**

In the age of social media, a new way for the advertising industry to reach its target group and make purchasing decisions has emerged: Influencer marketing. The word influencer comes from the English verb to influence. Influencers are famous personalities from social media: via platforms such as Instagram, YouTube, TikTok or Facebook, users follow their lives and build a relationship with them over time. The influencers (allegedly) share their everyday life with the community, show them how they live, what they eat, take them on trips, etc. The fans or followers feel included, they partly perceive the influencers as friends.

The emotional bond between influencer and follower is the decisive feature for marketing. Because of this relationship, the follower classifies information shared by the influencer as reliable; a relationship of trust develops. This can be used by the influen-

cer to market products, recommend restaurants or hotels, or advertise travel countries. Many followers are unaware that he or she is paid for this service or that the products are provided free of charge, or this is hidden. If the influencer wears special headphones, they will want to own them as well. If he or she reports that he or she can keep a good figure with a certain shake, they try it out as well. If they travel to the Maldives, the followers book the same trip.

Idols existed in every generation. What bands like the Backstreet Boys or the Spice Girls were in the 90s and a decade later Tokio Hotel, are today influencers among others. They are role models for whom mainly young people enthuse, with whom they have a special relationship and from whom they copy habits and styles. One difference today, however, is that influencers are approachable, i.e. through the constant contact via social media and the supposed possibility to get in touch with them directly via comments or chats, they appear more as friends than as unreachable idols. You don't only experience them on stage or TV, but you also know their home, accompany them through relationship crises or experience their pregnancy first hand (e.g. the German YouTuber and influencer Bianca "Bibi" Claßen also made her pregnancy a topic of discussion on her social media channels. In a video, she reports on the pregnancy test and reveals: it will be a boy. 2.2 million clicks!). They come across as "normal" people, not like stars who have nothing to do with their own lived reality. They have taken a firm place in the children's and teenagers' rooms.

The bond between fan and influencer sometimes goes so far that followers spend more time with their digital friends than with analogue ones on location and follow their lives like a daily soap. They want to know what he is eating at the moment, where is she going next, what is he wearing today, what song they are performing today, etc. In a 2019 study, 88 percent of 16 to 24-year-olds stated that they had contact with influencers at least once a week. 26 percent have contact daily or several times a day, and 10 percent have contact several times a week.<sup>6</sup> They are part of everyday life and influence it. 43% of adolescents/young adults said that they were inspired by influencers at least once to buy a product or a particular brand. The fact that influencers are sometimes better known or more popular than stars from sports and TV is shown by the Instagram follower figures. Among the Instagram stars with the most followers in Germany, there are two who are not known as celebrities: Lisa and Lena (@lisaandlena) with 15.2 million followers and Bibi (@bibisbeautypalace) with 7.6 million followers. At the top of the list is Toni Kroos with 25.3 million followers. Heidi Klum, on the other hand, ranks tenth on the list with 7.5 million and thus has a lower reach than Bibi.

In the advertising industry, fame is measured by the number of followers, i.e. the value for the company. The number shows how many people can be reached by mail, i.e. how many potential buyers are behind an account. In the meantime, companies are also taking a more targeted approach and concluding contracts with influencers who, although they have less reach, address exactly the target group for whom the product is intended, which is tangible for a tip. It is not a question of broad distribution, but of targeting the "right" group of people. For the viewer, on the other hand, it is not always clear that this is an advertising contribution and that the post office is sponsored. Al-

though it must be marked as such, this is sufficient as a hashtag or reference in the text, which in turn is rarely noticed.

In particular, the platforms Instagram and TikTok are used for advertising purposes. The images and videos distributed appear credible, although they are largely staged. The neologism *plandid* (to plan: to plan + candid: sincere, open) describes the phenomenon well: it's about taking a photo with attention to all the details, but it's not supposed to look that way. It is planned through and through but appears sincere, authentic. This supports the image of the friend who shows you their true self.

An experiment by the American Natalia Taylor showed that followers believe the pictures without being tested.<sup>7</sup> The influencer pretended to be in a luxury hotel on Bali. She posted various pictures on Instagram, for example in the bathtub or with a glass of champagne in the hotel room. Thousands of people read the posts, gave her travel tips, and commented with statements like "I'm also on Bali" or "Such a beautiful place". But Taylor was not in Bali at all: she had taken the pictures in an IKEA furniture store and then edited them with Photoshop, everything had been staged. She finally uncovered the fraud and posted a video on YouTube explaining everything. The frightening thing was that even obvious clues to the fake, such as IKEA signs in the background or the lack of time shift in night shots, were not detected. The followers apparently trusted her blindly. But the pictures on Instagram or even videos on YouTube or TikTok do not have to be true. Influencers seem to be approachable and yet their profile is often based on a pretense. Only positive things are shown or deliberately made, the hard work behind the dream figure or the negative sides of a relationship are covered up. This can lead to problems because especially young people are influenced by the seemingly carefree, beautiful life of the influencers and feel their own life (e.g. their looks or their everyday life) is not enough.

However, you don't even need a real person to build a relationship. A new trend in the field of influencer marketing is the creation of virtual influencers, i.e. virtual characters programmed in 3D, some of which have been recreated from people who have already died. They are mainly active on Instagram and have a high engagement rate, i.e. they have many followers. They are the ideal advertising media for the companies because their activities can be programmed in just a few steps. An example of a virtual character is the late founder of Kentucky Fried Chicken "Colonel" Harland David Sanders.<sup>8</sup> He was programmed in 3D and brought back to life in a younger, cooler edition to promote the brand on social networks. Under the hashtag *#secretrecipeforsuccess* you can see him for example on a bicycle, with a glass of Dr. Pepper-Cola on an aeroplane, or meditating on a meadow, in front of him a bucket of chicken nuggets. The posts have been liked a thousand times.

The avatar Lil Miquela (@lilmiquela), on the other hand, already has over 2.8 million followers on Instagram. The virtual female character was created in 2016 and has been producing her own music since 2017, in which "the singer" takes up topics such as love, relationship problems, or first sexual experiences. A life with problems that real teenagers also know and can identify with is faked. And it seems to work: Thousands of people identify with the girl, who has a top model figure and a gap in her teeth

According to a study by the Bundesverband Digitale Wirtschaft (BVDW) e.V. and Influry GmbH from 2017, 1604 young people over the age of 14 were surveyed. 68% of those surveyed had already become aware of a product via social media. Of these, 38% said they had been presented with the product via an influencer. Almost one third of the respondents stated that product presentations by influencers and experts on the internet are particularly credible.<sup>32</sup>

as a slight blemish. In 2018, TIME Magazine has even included the avatar in the list of the 25 most influential people on the internet - together with personalities such as the singer Rihanna or President Donald Trump.<sup>9</sup> It shows that virtual influencers also have a real impact and are able to build a bond.

### 3.1.4. Opinion Making by Trolls

Many know trolls from Nordic mythology: creatures that play tricks on others and thus amuse themselves. They take sadistic pleasure in the suffering or confusion of others. It is similar with trolls on the internet: Behind them are people who take part in discussions in order to sabotage or manipulate them. They want to provoke other users and enjoy it when they respond to their provocations. According to the Duden dictionary, the actions conceal "anti-social behaviour that is contrary to the rules" with comments that are often "insulting or discriminatory". By provoking, trolls create resonance.<sup>10</sup>

However, the term "trolling" does not originate in mythology but in the sport of fishing. There you can find the technique of trolling with bait. By "trolling", an angler means baiting a fish, which can sometimes drag on for a long period of time. Internet trolls want to attract attention and therefore involve other users in unproductive, time-consuming discussions. Their comments are not informative and often not even relevant. A good discourse is prevented.

It is assumed that the majority of trolls play the "game" for their own amusement. In many cases, the abbreviations LOL ("laughing out loud") or LULZ (plural of LOL) can be found behind troll comments. These symbolise the trolls' malicious joy. The abbreviations and the persistence of the users are indications that you are dealing with a troll. In contrast to social bots, however, no software is able to find trolls. Their different forms of communication and goals make identification difficult. Some trolls simply start a new topic in the ongoing discussion, others correct spelling mistakes made by users or comment with meaningless letters/words, and still others insult the commentators. The supposed anonymity of the internet makes their "game" easy.

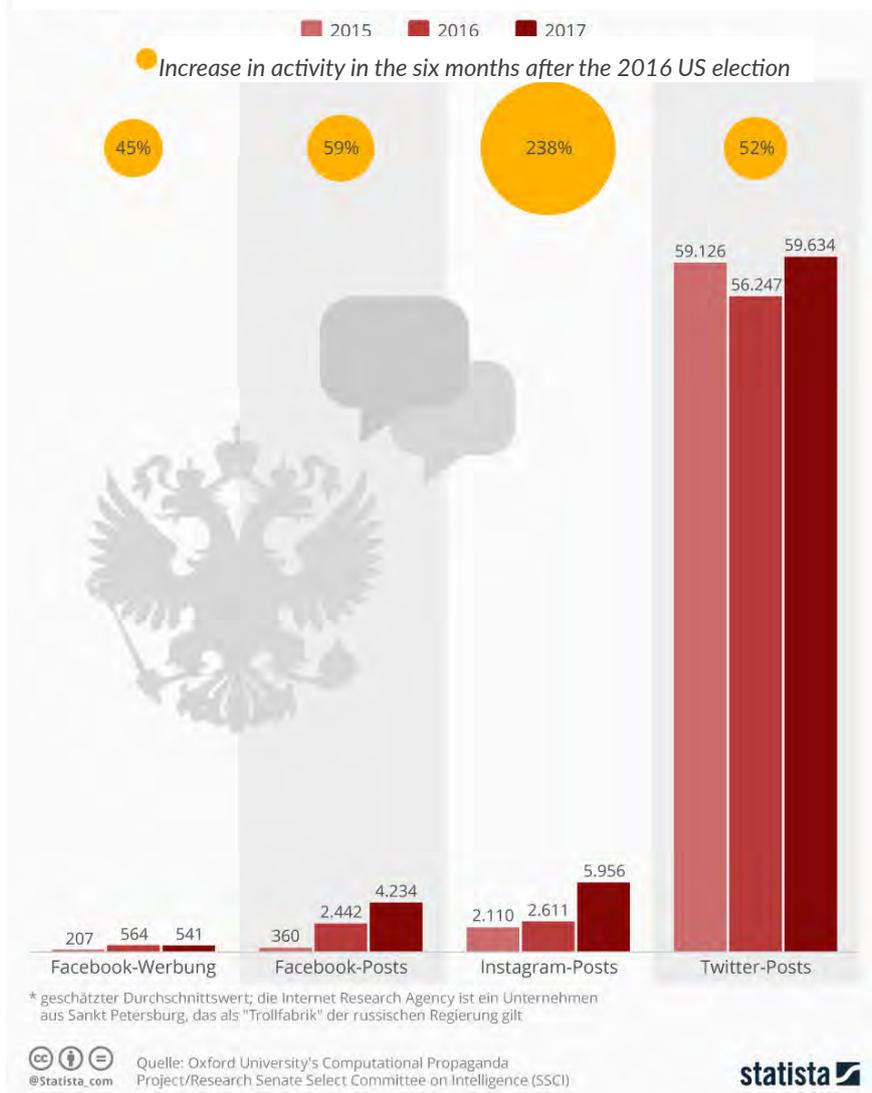
Science and the media disagree on how to deal with trolls, if they can be identified. Relatively widespread is the recommendation "Don't feed the troll" (DFTT!). It is assumed that justifying and arguing is useless or even encourages the troll. Instead of giving him more food for his gadgets, he should be ignored and not listen to the comments. As an alternative, a method from psychology is cited: the paradoxical intervention. In order to confuse the troll and silence him, one should praise him or express the wish that he will engage in discussions more often. The point is to show a reaction that the troll does not expect and that spoils the fun. In public discussions, however, it must be remembered that this tactic also provokes reactions from other users, which in turn may encourage the troll.

Apart from the "classic" trolls, who troll for amusement, there are still political trolls, some of whom see themselves as "media guerrillas". Their primary aim is to bring about a political upheaval. These political trolls are often organised in networks, so-called troll factories. They are mainly to be found in the radical right-wing segment and take targeted action to bring parties or public figures to their knees. intention is to force

the victims onto the defensive to such an extent that they close their social media channels or at least deactivate the commentary function so that no further discourse can take place. In terms of the form of organisation, troll factories are usually based on the military, with corporals, officers, etc. In addition, the radical right-wing networks use terms for their communication that originate from the time of National Socialism. The basis for their actions is presumably the "Handbook of Media Guerillas", which appeared on the internet in 2017 and which contains information on how to fight the other side in the digital space. The creation of various fake accounts is one of the basis. The handbook explicitly states that the aim is not to lead meaningful discussions on the Internet, but to destroy discourses. If someone wants to discuss, the manual advises: "Insult! And pull out all the stops. Leave nothing out. The weak point is often the family. Always have a repertoire of insults that you can adapt to the respective opponent".<sup>11</sup> The Polit-Trolls also manipulate stolen images of their self-appointed opponents to insult them and spread lies about them. Furthermore, platforms such as 4chan call on people to search for dirty details about politicians and circulate them. It is agreed upon when ratings are to be falsified, e.g. on YouTube. Videos from their

### The balance of the "troll factory"

Number of monthly posts by the Internet Research Agency



The Internet Research Agency (IRA) is a St Petersburg-based company that is considered a "troll factory" of the Russian government. According to a recent study by the Oxford University-based Computational Propaganda Research Project (COMPROP), the IRA's propaganda experts campaigned on all major social media platforms during the 2016 US election campaign. The state trolls were most active on Twitter. Up to 60,000 tweets a month were sent via the platform. According to COMPROP, the aim of the IRA's activities was to poison the debate and thus divide society. It was also aimed at damaging trust in state institutions in general and elections in particular. (Source: Mathias Brandt, 18.12.2018, Statista.de)

own ranks are then positively evaluated with many fake profiles in order to influence the algorithms and gain relevance. Attention is also in the foreground here - usually through fake messages.

Political trolls were increasingly present in the 2016 US elections. The climate of opinion was to be changed and the pro-trump campaign pushed. The trolls divide the population into two groups: friend and foe. There is no political centre according to their categorisation. Hate comments are used to attack the other side and disturb their discussions.

Hatred on the net is often directed against women, as was found, among other things, by a study by the British newspaper "The Guardian".<sup>12</sup> Of the authors of the daily newspaper who were most frequently berated by the commentary function, eight were female, the other two male and dark-skinned. The situation is similar for female politicians, who are much more affected by hate comments than their male colleagues.<sup>13</sup> Especially discussions about feminist issues are often attacked by trolls, like a crowdfunding campaign by the American blogger Anita Sarkeesian showed. When she collected money for a video project in 2012, which was supposed to identify stereotypical images in video games and draw attention to the sexism behind them, she was attacked by trolls on various internet platforms. Besides sexist insults and anti-Semitic slogans, Sarkeesian received death and rape threats. There was also an online game in which the critic could be virtually beaten up.<sup>14</sup> The threats from the net soon spread to the analogue world, so that she eventually changed her place of residence.

The example shows that the boundaries between trolling and cyberbullying are rapidly blurring. While trolls primarily want to provoke, amuse themselves, and bring about a change of opinion, cyberbullying is about deliberately defaming certain people - e.g. teachers or classmates.



### 3.1.5. Fake News

Fake news is not a phenomenon of the digital age. There have always been fake news, and some of them have had an immense impact on the course of history, as the Dolchstoßlegende or the Emser Depesche show. However, thanks to the internet and social networks, fake news can spread at breakneck speed and achieve a high reach. The spread of fake news can hardly be stopped, so it is extremely important to check the information before sharing it.

**Dolchstoßlegende (also known as Dolchstoßlüge) was a historical conspiracy narrative by the German Supreme Army Command, who wanted to blame social democracy and democratic politicians for the defeat in World War I. It is considered a deliberately constructed falsification of history and provided the National Socialism with essential arguments and decisively promoted the rise of the National Socialist German Workers' Party.**

**The Emser Depesche is an internal telegram of the North German Federal Government dated 13 July 1870, in which King Wilhelm of Prussia from the spa town of Ems reports on demands by the French ambassador regarding the Spanish succession. Bismarck passed on the conversation in an altered form and deliberately omitted some information. This made the communication look like a diplomatic slap in the face, which provoked the reaction in the French public that Bismarck wanted to provoke. On 19 July 1870 France finally declared war on Prussia.**

Fake news are disseminated intentionally and should therefore be distinguished from error messages that arise due to poor research or hasty publication (keyword: poor journalism). Classical media such as newspapers are subject to the press codex and thus to the duty of care. If reports prove to be incorrect after publication, they must be corrected immediately in an appropriate manner. In contrast, sources that circulate fake news are more difficult to access. Although the police do have instruments at their disposal to locate anonymous users, time will pass before a news item may have spread around the globe. Fake news should also not be confused with satire or jokes. They are sometimes also called hoaxes, but this obscures the intention behind fake news. This is because the term hoax means a joke or prank and is also used for April fools' jokes or newspaper ducks.

In many cases, fake news is linked to propaganda, i.e. false reports are spread with the intention of convincing people of one (political) opinion or dissuading them from another. A study by the Massachusetts Institute of Technology (MIT) found that fake news spreads faster on the Internet than true news. The researchers investigated 126,000 messages that were tweeted by more than three million people between 2006 and 2017. The fake news were distributed six times faster than the true news, especially those with a political background. They were retweeted more often, which in turn made them more credible. The researchers put forward two hypotheses as to why fake news achieved a higher reach in a shorter time: <sup>15</sup>

- They appear more novel and stand out from conventional news.
- They evoke other emotions. While emotions such as sadness and trust predominate in true news, surprise and disgust are the order of the day in fake news. The source fades into the background, the surprise effect overshadows the dubiousness of the news

Besides propaganda as an intention behind fake news, false balance, targeted disinformation and half-truths can also influence people's opinion. False balance means that a distortion is created by balanced reporting. This means that positions that are basically of little importance are discussed just as frequently and popularly in the media or social networks as others. This has an effect on people's perception: They seem more important than they actually are. An example of this can be found in climate research: the statements of climate researchers regarding global warming are often contrasted with the statements of deniers of climate change. This creates an equivalence between the two positions, although the deniers play a much smaller role in society. The situation is similar with vaccination opponents: It is a small group of people who consider vaccinations to be dangerous and some of them say that they cause disabilities. In some media, however, they are much more strongly represented, so that one can get the impression that a large part of the population represents this way of thinking. The use of social bots can also increase this phenomenon. The result is a distorted picture of opinion in which extreme opinions are usually overrepresented.

False balance is hardly perceived by users as fake news - which, among other things, may be due to the fact that a large part of the population does not know much about fake news, as statistics show. The younger generation feels more enlightened than the older generation, but in no way secure. In the 18-29 age group, for example, 32 percent stated that they felt very poorly or not at all enlightened, while among 40-49 year-olds this figure was already 43 percent (Statista 2020). At the same time, 55 percent of the 60+ generation assume that they have never stumbled across fake news (Statista 2019).

The assumption that users are not enlightened is reinforced by the fact that a large number of posts are circulated on the Internet without being checked. A study by the University of Columbia showed that more than half of all tweets on Twitter are shared without the link being opened or the text even being read. In addition, alternative media design their sites professionally, using reputable sources such as the Epoch Times (epochtimes.de) for name and appearance. A parallel to the British daily newspaper The Times (thetimes.co.uk), the British business newspaper Financial Times (ft.com) or the American The New York Times (nytimes.com) is clearly visible. The professional design appears serious at first glance, only on closer inspection would users become suspicious.

The fact that the source hardly plays a role and is not always checked before splitting was also shown in an experiment carried out by the University of Hohenheim.<sup>16</sup> Professor Schweiger and two colleagues created an alternative blog called "Der Volksbeobachter". The name was inspired by the "Völkischer Beobachter" (People's Observer) of the NSDAP - it was assumed that the closeness of names would be quickly recogni-



sed and classified as right-wing. But this was not the case. The social media users only cared about the content and whether it reflected their world view. To complement the blog, the researchers created four fake profiles on Facebook of people who were critical of refugees and networked with opponents of refugees. Finally, they shared fake reports with headlines such as "Greens want to close the Café 'Mohrenkopf' because of its politically incorrect name" or "Free sex for asylum seekers - district administration pays" in relevant refugee critical Facebook groups. The post about free sex in an invented place was then shared a hundred times, liked and reached 11,000 users. In contrast, the "Post for clarification", which the team published after some time, received hardly any attention.

In addition to the content, the credibility of the people who spread or pass on the message also plays an important role. Users assume that their friends or acquaintances will not pass on false messages - and therefore largely refrain from checking. How quickly fake news spreads and that it can have devastating effects on reality is shown by the "Lisa case" from 2016: 13-year-old Lisa did not come home after school, nobody knew anything about her whereabouts. Her parents started a search action and used Facebook, among other things. The posts were shared hundreds of times in a very short time. When Lisa showed up at home the next day, she claimed to have been kidnapped and raped by fugitives - which soon turned out to be a lie. In reality, the girl had difficulties at school and did not want to get into trouble from her parents. The problem: The lie of rape had already spread on the internet, and even the police posts with the true course of events could not do anything against the wave of indignation and hatred against fugitives. The news of the alleged rape of a German-Russian woman had already spread as far as Russia by this time, and the Russian foreign minister accused the German police of covering up the incident. A refugee shelter in Lisa's home country was also attacked. The fake news had a direct impact on reality. Scientists refer to the Thomas Theorem, a theory from behavioural science: If people define situations as real, then their consequences are also real. So it doesn't matter whether news is true or fake; as soon as someone sees it as true and takes it seriously, real effects can occur.

An optimal attack surface for fake news is doubt and an unclear news situation. When people are insecure or grieve, they long for clarification. This often happens with crimes, for example: Immediately after a crime, there are no or only a few reliable findings, and official bodies keep their heads down with information. This creates space for slander and rumours, which in turn can be used by an opposing party (e.g. critical of the government). It happens, for example, that false letters of confession are circulated or manipulated images are disseminated on the Internet in order to defame the other side or to create confusion (disinformation). For example, a so-called disinformation campaign was launched in 2017 after the attack on a team bus of the BVB Dortmund football club. A few hours after the crime, alleged letters of confession appeared from both the extreme left-wing and the Islamist scene, which were later identified as forgeries. Nevertheless, the news spread further. However, the trail ultimately led in a completely different direction, the motive being greed.<sup>17</sup> In such cases,

the line between truth and lie becomes blurred, and doubts arise in the population - which in turn can be used for influence.

If conflicts already exist in society, they are often taken up for propaganda purposes. In the USA, for example, this is the case with Republicans and Democrats. There are two clear camps, which in some respects hold completely opposite views. The conflict is fuelled by populist or even radical groups in order to achieve their own goals. The problem is that fake news can lead to violence, hostility, and discrimination. In Nigeria, for instance, the police assume that fake information and manipulated pictures on Facebook contribute to a large number of murders every year.<sup>18</sup> In Myanmar, military officers and statesmen rage against the Rohingya people on Facebook, monks spread pictures of dead people, allegedly Buddhists murdered by Muslims, and false information about the Muslim community. They say that they immigrated from Bangladesh, that they are terrorists, and that they even set fire to their own villages to present themselves as victims.<sup>19</sup> They are fake news with a clear propaganda goal: the expulsion of a minority from the country.

It is in the psychology of people that they are most likely to believe things that confirm their world view, their conviction. They are constantly looking for encouragement and like-minded people. Populists take advantage of this by using slogans like "We are the people! They want to express that they are a large group and their followers are in no way a small silent minority. Through fake news, they try to maintain this image. This was experienced, for example, during the Corona demonstrations 2020: after the demonstration on 1 August in Berlin, news spread that 1.3 million people had participated and were against the Corona measures. The news was supported by photos, but these were from other demonstrations or even from other cities. According to the police, only 17-20,000 people were present, which is also suggested by aerial photos of the actual event.<sup>20</sup> The dissemination of disinformation was also aimed at presenting the police, media and other authorities as liars, in order to reinforce a previously constructed image of the enemy. One could not expect truths from the classic media, it was said in circles of right-wing radicals and conspiracy ideologists, among others.

Although image processing programs can be found on the Internet and on smartphones (some of them free of charge), photos are still considered extremely credible. In a study conducted by Stanford University, students stated that the credibility of a contribution depends on how much detail it contains and whether it contains a large photo. They did not, however, orient themselves on the source that published the report. In 2014, a student from Amsterdam showed how easy it is to fake photos in a self-experiment: She pretended to be on a trip around the world, but stayed in her flat for 42 days. She kept sending pictures to family and friends, sharing them on social networks. How she snorkels (taken in her own pool), eats Asian food (self-cooked) or visits Buddhist temples (created with Photoshop).<sup>21</sup> The fake she finally solved herself.

Just like images, the technology also allows the manipulation of moving images. Videos do not have to be factual; they can be either staged or edited. A new trend is the so-called deepfake. These images or videos are created with the help of artificial intelligence (AI, AI), the result is absolutely authentic and realistic. Programs like FakeApp



can be used for this. One example is a fake video of former US President Barack Obama.<sup>22</sup> This was created for research purposes by the University of Washington and demonstrated that any words could be put into the mouth of an AI-created Barack Obama. The video looks real - and that makes it dangerous. .

With the further development of AI, deepfakes are becoming more frequent and their unmasking more difficult. It is therefore extremely important to check the source and see which channels are used to disseminate the message. Platforms such as mimikama ([www.mimikama.at](http://www.mimikama.at)) search specifically for fake news - both in text and image form - and publish their findings online. In the case of images, it is a good idea to use Google reverse search to find out whether the image actually originates from the given context. After all, the dissemination of fake news can not only have an impact on reality that one has not considered, but also legal consequences.<sup>23</sup> If there is a violation of a person's personal rights, which includes libel, for example, then fines and prison sentences can be imposed. For this, the person who writes or shares the message does not even need to know that it is false - he or she can still be prosecuted. It is everyone's duty to check messages for accuracy before sharing them.



## 3.2. Parallel realities and conspiracy theories

### 3.2.1. Classification

Everything that doesn't happen in our immediate environment, that we don't experience directly, we learn about second-hand. As a rule, these are media such as newspapers, TV programmes and those working in journalism. They report from Berlin, Brussels, New York or the city festival next door. These media open a window into the world for us, give us images, impressions and explanations of what is happening in the world. With these snippets, we build a picture of the world in our heads. These images in our heads usually only consist of these snippets. However, the snippets often only show a part of the big picture. Therefore our image of the world does not necessarily match the "real" world out there. Moreover, news and impressions conveyed by the media are always subjectively influenced by the people who convey them. And these images are also subjectively evaluated again by the people who receive this information, compared with existing knowledge and selectively stored. That is why the images of the world conveyed by the media look somewhat different in everyone's mind. This can lead to divergent perceptions and interpretations of reality, which can be small and harmless, but also huge and dangerous.

False information and conspiracy theories play a crucial role in this. They are not a new phenomenon. However, their widespread availability and rapid dissemination are. The dawn of the digital age has created an almost inexhaustible supply of information. Today, moreover, everyone can produce news and reach a large audience with simple means. Due to this mass of information and the opacity of the sources, it has become increasingly difficult for many people to distinguish correct from false information. This uncertainty is cleverly used by those who create and circulate fake news and conspiracy theories to place their messages, generate attention or enrich themselves in some way.

### 3.2.2. What are Conspiracy Theories?

The phenomenon of "conspiracy theories" describes the belief that the cause of one or more events, despite factually verifiable false information, is due to the action of actors working together with a clear purpose, often unlawfully and in secret.<sup>24</sup> Conspiracy theories are thus a kind of narrative based on false information.

However, the term "conspiracy theory", which is often used, is increasingly criticised. This is due to the word "theory", which is not entirely appropriate in this context. In the Duden dictionary, a theory is defined as a "system of scientifically justified statements explaining certain facts or phenomena and the laws on which they are based". A theory is usually established after long research and with good justification, to then test it against reality. If a (real) theory does not pass this test, it is discarded. And here lies the decisive difference to conspiracy theories: They are usually composed of diffuse speculation and rumours and can usually be refuted. However, this does not cause the supporters of the respective conspiracy theory to discard their "theories", but rather they usually adhere to them even more strongly.

As not to give "conspiracy theories" a scientific veneer, experts discuss **different terms** to name this phenomenon. Commonly used terms in this context include conspiracy narrative, conspiracy myth and conspiracy ideology.

A **conspiracy narrative** is a concrete account of connections, actions or processes that are happening in the world. An example of such a narrative is the "Pizzagate" conspiracy narrative, according to which Hillary and Bill Clinton were running a paedophile ring in the basement of a New York pizzeria. This narrative was repeatedly circulated in certain circles and eventually prompted a man in December 2016 to storm said pizzeria armed to free the children allegedly held there. However, he only found frightened staff and guests and was sentenced to four years in prison for this act..

A **conspiracy myth** is an abstract story that has often been handed down for a long time and is anchored in society. It serves as a kind of overarching narrative that connects individual conspiracy narratives. The term "conspiracy myth" once again illustrates the mindset of those who believe in this black-and-white narrative. Mostly, these myths involve powerful elites planning and doing evil in secret societies. Thus the example of the Clintons is a single narrative that fits into an overarching pattern.

Behind **conspiracy ideology** or **conspiracy mentality** is a personality trait that is related to a general belief in conspiracies. People who have this personality trait more strongly tend to be sceptical of anything they perceive as elite or powerful and interpret the world against this background.

In the following, we will speak of conspiracy narratives.



	<b>Definition</b>	<b>Example</b>
<b>Conspiracy myth</b>	Superordinate myth, abstract narrative	Jewish World Conspiracy
<b>Conspiracy narrative</b>	Concrete narrative or assumption that often feeds on the more abstract conspiracy myth.	Conspiracy narratives about Illuminati, Bilderbergers or George Soros
<b>Conspiracy ideology / mentality</b>	Generalised prejudice structure towards persons and groups perceived as powerful.	"The powerful do what they want".

### 3.2.3. Why are Conspiracy Narratives Successful?

In an increasingly complex world, conspiracy narratives can create a kind of order by dividing the many shades of grey in reality into black and white categories. While reality usually presents itself as very complex and difficult to explain, conspiracy narratives simplify complex events by allowing only a few possible solutions. They clearly distinguish between right or wrong, good or evil, friend or foe.

These narratives are carried out into the world by people whose mentality is based on the so-called conspiracy mentality. This describes a distrust, especially of the powerful, global players. And it includes not only the political decision-makers but also the media (public and private). Followers of conspiracy narratives usually do not believe in the true information content of the media, but look for their pseudo-truths and information on their own channels. Since 2006, the Friedrich Ebert Foundation's "Mitte-Study" has investigated anti-democratic attitudes in the German population. The 2019 study shows that 40% of Germans tend to have a conspiracy mentality. This means that 40% of Germans are receptive to conspiracy narratives. And this is not limited to individual sections of the population.

Especially in uncertain times, when people feel they are losing control, conspiracy narratives and the supposedly simple answers associated with them can bring back a sense of security and control. That is why they have a particular attraction for people who are looking for clear answers. Con-spiracy narratives arouse and play on emotions. The need to stand out from the crowd promotes conspiracy belief, as does the feeling that conspiracy myths can enhance one's status as a "knower". People who are more fearful or feel powerless are more likely to believe in conspiracy narratives than people who feel secure. Thus it is precisely the feeling of losing control that is responsible for people seeking support in conspiracy narratives and thus falling prey to conspiracy myths.

Especially in times of crisis: In the Corona pandemic, we are fighting against an invisible virus. If a conspiracy is suspected behind it, the crisis becomes more controllable and suddenly there are people we can blame.

A key element here is so-called "pattern recognition": the phenomenon of recognising patterns where there may not be any at all. Recognising patterns is a cognitive ability that is essential for survival. It allows us to establish meaningful relationships between events - for example between a red light and the danger of traffic. However, if I am convinced that my red socks bring me luck because I wore them during a successfully passed exam, I am connecting things that have nothing to do with each other. Psychologists call this behaviour "illusory pattern perception". In 2017, in a study published in the European Journal of Social Psychology, subjects were shown abstract paintings that were completely chaotic and unstructured. The researchers found that subjects who nevertheless recognised patterns in the paintings also tended to believe more strongly in conspiracies.<sup>25</sup>

There is also a strong correlation between the willingness to believe in conspiracies and the preference for naturopathic and alternative methods. Pia Lamberty and Ro-

**Media and politics deliberately conceal information during the Corona crisis. 29% of respondents aged 18 to 26 say this, in the age group 27 to 84, it is 23%. In addition, 18% of older people and 10% of younger people believe that there are secret organisations that have a great influence on political decisions during the crisis. This is the result of an online survey on the social perception of the handling of the Corona pandemic in Germany**

(Source: Rees J, Papendick M, Rees Y, Wäschele F, Zick A (2020), University Bielefeld)

land Imhoff from the Psychological Institute of the Johannes Gutenberg University in Mainz were able to clearly prove this in a study. At esoteric fairs, not only gemstones against cancer are sold, but doctors also spread vaccination conspiracies, racist content (against refugees) and homophobic content.<sup>26</sup> The belief in conspiracy is also more pronounced among people who are politically more to the right.

And even though there have always been conspiracy narratives in the history of mankind, increasing digitalisation and especially the internet have created completely new ways of dissemination. Mostly it starts quite harmlessly with some Youtube videos about e.g. alternative facts and conspiracies. Via social networks such as Facebook, groups of like-minded people are quickly found. This community often creates the feeling of having found the truth. And many then consider it their duty to spread this truth and inform others about it. And thus information accumulates that seems more and more likely to the people concerned as time goes by. They find themselves in an "echo chamber" in which exactly those truths are told that underpin already existing views.

The people concerned are slowly being drawn deeper and deeper into the world of the conspiracy narrative. This is partly due to the way social networking algorithms work and show us new content. Based on our data, who we are friends with, what posts and links we "like" and share, we are shown similar content. The system does not evaluate or check content, the goal of Facebook, Youtube and Co. is merely to keep us engaged and ensure that we continue to spend time on the relevant platform. Therefore, the recommendation algorithm assumes that what we actively share and comment on is what we want to see. Thus, the algorithms have a reinforcing effect. Those who go down the path of conspiracy narratives, e.g. by joining certain groups, will automatically have more groups and similar posts suggested and more and more extreme videos displayed.

Since the Corona pandemic, messaging services such as Whatsapp and Telegram have been increasingly used to disseminate information. There are fewer regulations there. In addition, the messages of the group chats are displayed on the same level as the messages of family and friends. This makes them appear more trustworthy.



### 3.2.4. Are Conspiracy Narratives Dangerous?

In a Youtube video, an opponent of 5G reports on the many dangers of the new mobile phone standard and refers to thousands of research results that prove this. For both, she owes a concrete naming or citing of sources. The supporters are not bothered. Rather, it is a matter of creating sentiment and confirming one's view of the world. This quickly leads to ideologies that people follow unconditionally without questioning critically. Opinions are often passed on without reflection. If we contradict a statement, the people concerned often do not even respond to it. If someone is already deep in conspiracy belief, he can hardly be convinced with facts. If we now talk about a political world conspiracy instead of a new mobile phone standard, the topic becomes much more explosive.

The moon landing: a fake. Nine-Eleven: an inside job. The Charlie Hebdo assassination: a false flag operation. Global warming: a hoax. The Coronavirus: does not exist, it is just an excuse to vaccinate us all.

Crises such as the financial crisis, the refugee crisis or currently the Corona crisis repeatedly provide fertile ground for conspiracy narratives, at the centre of which is usually "the elite" planning a secret world conspiracy and being responsible for all evil. Anti-Semitic narratives are often used here, in which "the Jews" are stylised as an enemy image and thus a clear distinction is made between good and evil and friend and foe. This is not always openly recognisable. Often conspiracy narratives also play with stereotypes and codes. Especially in the Corona crisis, enthusiasts of conspiracy ideologies again show open anti-Semitism.

The approach of conspiracy narratives to provide simple explanations and identify culprits poses a serious threat to social cohesion. Researchers have shown that a single exposure to a conspiracy narrative, in this case, climate change denial, is enough to weaken trust in science.<sup>27</sup> In addition, lower prosocial behaviour has been found following exposure to conspiracy narratives<sup>28</sup>, i.e. a lower intention to help others, share, donate or collaborate. Exposure to conspiracy narratives can therefore discourage behaviour that benefits society as a whole.

#### Alternative Facts

On 21 January 2017, the then White House press secretary Sean Spicer claimed that there were significantly more people present at Donald Trump's inauguration than at that of his predecessor Barack Obama. However, this could not be confirmed by the aerial photos or other sources. On NBC's "Meet the Press", the then advisor to the US president, Kellyanne Conway, was repeatedly asked to explain why Sean Spicer had made these "refutably false claims". She replied that he had merely presented "alternative facts".

Another aspect is the rejection of public truth and the media. Supporters of conspiracy narratives often point out that the public media do not sufficiently discuss the corresponding topic or do not report on it at all. Thus, followers of the corresponding conspiracy myths must seek their information in alternative media such as via Face-

#### False-Flag:

A false flag operation refers to covert operations that are allegedly carried out by another, third party in order to conceal the identity and intentions of the actual author.

#### Hoax:

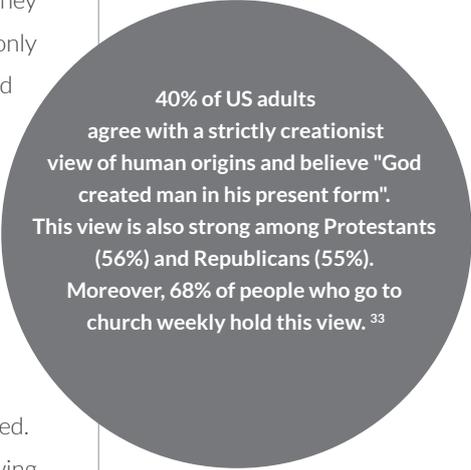
English for joke. In Internet jargon, a false message spread via e-mail or social networks, e.g. a chain letter.

book or Telegram groups. The public media (whether public or privately owned) are labelled as "system media" that deliberately manipulate public opinion. This behaviour ensures that public reporting and democratic institutions are trusted less and less. The Corona pandemic has made conspiracy myths more present. According to the Sekteninfo Nordrheinwestfalen (North Rhine-Westphalia Cult Information), every second counselling request now deals with the topic of conspiracy myths.

### Parallel realities

And it doesn't always have to be the big global conspiracies. It usually starts with the rejection of certain facts or existing realities. The followers of the Flat Earth Society hold the view that the Earth is flat. Social media and especially YouTube supported the "flatteners" in spreading their message. And many of the followers take their cause very seriously. They present supposed proofs and evidence and try to substantiate them with great effort through numerous experiments. To believe in a flat earth necessarily means to call the moon landing and other astronomical findings a lie and to renounce all knowledge. The supporters reverse the chain of argumentation: they do not see it as their duty to prove their theory of a flat earth, since this is the only truth from their point of view, but rather they take the view that their supposed proofs and theories must first be disproved. This is of course impossible in logic, since every argument and every real proof is ignored and rejected as part of a larger conspiracy. Every attack from the outside world welds the community even closer together and a community is created that lives in a parallel reality. The mechanisms described can be transferred to other conspiracy ideologies. At the core, there is always the rejection of the existing reality and the negation of other opinions. All opposing opinions are manipulated anyway and opponents are usually sharply attacked. Populist statements are used, among other things, to try to play politics. Right-wing populists in particular try to use existing moods and fears for their own political ends. Through repeated statements, we get used to opinions and views become truths. We also talk about collective memory here. Lies become "alternative facts". The boundaries disappear. It has long been about ideologies, value and belief systems. And those who want to believe, believe and ignore everything else.

In the 2020 presidential election in the USA, postal voting was of particular importance because of the Corona pandemic. In order to avoid the risk of infection at the polling station, many voters had opted for this route. It was to be expected that Democratic voters in particular would also cast their ballots by absentee ballot. Donald Trump was already campaigning against absentee voting months before the election, warning "this is going to be a fraud like you've never seen before." And even during the counting of votes in the 2020 US election, Donald Trump and his team spoke of vote rigging on a grand scale, but without presenting any evidence. They filed numerous lawsuits in the disputed states, all of which were dismissed by the courts. But the mere repetition of the statement that the election was stolen from him created its own alternative truth among his supporters.



40% of US adults agree with a strictly creationist view of human origins and believe "God created man in his present form". This view is also strong among Protestants (56%) and Republicans (55%). Moreover, 68% of people who go to church weekly hold this view.<sup>33</sup>

Frustration over the "stolen" election rose and vented outside the US Capitol on 6 January 2021. Supporters of Donald Trump stormed the Capitol. Among them were people with radical right-wing slogans ("Camp Auschwitz") and signs of the QAnon movement. An unprecedented attack on the heart of US democracy.

**QAnon is one of the more modern conspiracy ideologies.**

**It was founded by the anonymous user "Q", who pretended to be a government insider in relevant internet forums and published several conspiracy narratives - including several already known conspiracy narratives in partly slightly modified form.**

**The central claim is that high-ranking state and business representatives in the USA are planning a coup to turn the country into a dictatorship. It is also alleged that an influential elite is kidnapping children, holding them captive and extracting a rejuvenation drug from their blood. An equally recurring motif is the reference to a so-called "deep state", a secret political leadership that operates in the dark and pursues its own agenda.**

**The following of the conspiracy narratives has been increasing in recent years.**

**QAnon became known especially in connection with former US President Donald Trump, as among his supporters are also quite a few QAnon supporters. Signs and banners referring to QAnon could already be seen at Trump rallies in 2018. Since the conspiracy narratives are mainly directed against Democrats, QAnon also found increasing appeal in the Republican party. A number of QAnon supporters could also be identified among the protesters who stormed the US Capitol on 6 January 2021.**

**At a press conference in August 2020, the US President was asked about QAnon. His answer: "I don't know much about this movement, except that they like me a lot - which I think is great. (...) I heard these are people who love our country".<sup>34</sup>**

**To date, Donald Trump has not distanced himself from the movement.**

### 3.2.5. How can you Protect Yourself and Others From Conspiracy Narratives?

Some research suggests that certain ways of thinking or processing information are associated with susceptibility to conspiracy narratives. Analytical thinking and open-minded thinking play a central role. Open-minded thinking is the tendency to analyse multiple options and alternative perspectives, to question one's assumptions, to be open to different interpretations, and to actively seek knowledge.<sup>29</sup> Thus, a negative correlation between analytical thinking and belief in conspiracy narratives has been found, i.e. the more analytical people are, the less susceptible they are to conspiracy narratives.<sup>30</sup>

In addition to these ways of thinking, learned techniques for dealing with information can also have an influence on the assessment of false or manipulated information, such as conspiracy narratives. Factchecking is an important tool in dealing with fake news and can also be a good technique in dealing with conspiracy narratives. Those who first compare new information with information from several other, credible sources, decode it, can form an informed opinion and are less likely to fall for conspiracy narratives.

What is important to counter conspiracy beliefs is to give people a sense of control and trust. It can already be helpful to understand how political decisions are made or how a news story is created. An important part of media literacy, the so-called "News Media Knowledge Structures" describe this knowledge about media institutions: How are institutions that produce news structured? How is news created and what effects can media use have? This knowledge has been shown in studies to have a protective effect against conspiracy narratives.<sup>31</sup>

#### Conspiracy Narratives in the Environment

If you have people in your environment who are inclined towards conspiracy narratives, you should seek dialogue early on, before the person builds up too rigid a world view and is no longer accessible to arguments and facts. A clear stance is important, but so is respectful behaviour. No one likes to admit mistakes or simply throw their world view overboard. Showing people who believe in one (or more) conspiracy narrative(s) that it does not stand up to reality is not easy for the person concerned. This is called cognitive dissonance, an unpleasant inner-psychic state of tension that arises when we come into contact with contradictory information. To avoid this state, humans resort to avoidance strategies. Either we discard what we previously believed and allow ourselves to be convinced by something new, or we hold on to what we previously believed and resist new, contradictory information. The more convinced we are of something, the more we believe in it, the more we reject contradictory information and avoid contact with it. So before people around us get so lost in conspiracy narratives that they no longer believe us or even avoid contact with us, we should seek respectful dialogue.

### **How can I Help an Affected Friend or Relative? ?**

This depends very much on the individual case and the timing also plays an important role. If an acquaintance is just starting to deal with conspiracy narratives, fact checks may still help. We can help to verify the statements. Where did the information come from? What source was used? Just assuming that you are right, what is the point? How can we together find evidence for one thing or another? The person concerned must find the solutions themselves.

Most of the time, needs and fears lie behind the alleged facts. However, if a person has been involved with conspiracy narratives for a long time, it usually helps to talk to them about the feelings associated with it. What moves you? What are your fears? What are your values? What are your needs? And if we then say the same about ourselves, there is a chance that a conversation will arise. It is important to take the person concerned and their fears seriously.

Nor should we simply ambush the person concerned. It is much better to offer to talk and go into the discussion prepared. But in all of this, one's own realisation is indeed the only way. Even if there are counselling centres that support the affected person, the affected person must also want it.

If this is not the case, the only thing that helps the relatives is to keep in touch, avoid the topic to avoid conflict and wait for the day when the affected person themselves is already ready to deal with the issue. For many relatives, this is not easy, but they may be the last point of contact with reality outside the conspiracy belief.



## Endnoten

- 1 Liste der "Hoaxes" auf Wikipedia inklusive der Dauer der Veröffentlichung (in englischer Sprache):  
[https://en.wikipedia.org/wiki/Wikipedia:List\\_of\\_hoaxes\\_on\\_Wikipedia](https://en.wikipedia.org/wiki/Wikipedia:List_of_hoaxes_on_Wikipedia)
- 2 [https://www.gesetze-im-internet.de/urhg/\\_72.html](https://www.gesetze-im-internet.de/urhg/_72.html)
- 3 [https://www.deutschlandfunkkultur.de/meinungsbildung-warum-wir-uns-nur-widerwillig-von-fakten.990.de.html?dram:article\\_id=395493](https://www.deutschlandfunkkultur.de/meinungsbildung-warum-wir-uns-nur-widerwillig-von-fakten.990.de.html?dram:article_id=395493)
- 4 <https://www.google.com/intl/de/search/howsearchworks/algorithms/>
- 5 Dräger, Jörg/Müller-Eiselt, Ralph (2019): Wir und die intelligenten Maschinen
- 6 <https://de.statista.com/statistik/daten/studie/993014/umfrage/haeufigkeit-der-begegnung-mit-influencern-in-sozialen-medien-nach-alter-in-deutschland/#statisticContainer>
- 7 <https://utopia.de/influencer-in-taeschert-bali-urlaub-bei-ikea-vor-daraus-koennen-wir-etwas-lernen-176316/>
- 8 <https://www.thesun.co.uk/news/8857770/kfc-instagram-sexy-colonel-sanders/>
- 9 <https://time.com/5324130/most-influential-internet/>
- 10 [https://www.duden.de/rechtschreibung/Troll\\_Noergler\\_Querulant](https://www.duden.de/rechtschreibung/Troll_Noergler_Querulant)
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- 13 <https://www.theguardian.com/technology/datablog/ng-interactive/2016/jun/27/from-julia-gillard-to-hillary-clinton-online-abuse-of-politicians-around-the-world>
- 14 <https://www.freitag.de/autoren/der-freitag/emanzipation-der-trolle> / <https://time.com/4457110/internet-trolls/>
- 15 <https://science.sciencemag.org/content/359/6380/1146>
- 16 [https://www.deutschlandfunk.de/fake-news-experiment-die-grosse-reichweite-von-gratis-sex.2907.de.html?dram:article\\_id=392373](https://www.deutschlandfunk.de/fake-news-experiment-die-grosse-reichweite-von-gratis-sex.2907.de.html?dram:article_id=392373)
- 17 <https://www.faz.net/aktuell/gesellschaft/kriminalitaet/hintergruende-des-anschlags-auf-bvb-bus-in-dortmund-14981925.html>
- 18 Gensing, Patrick (2019): Fakten gegen Fake News oder Der Kampf um die Demokratie.
- 19 [https://www.washingtonpost.com/world/asia\\_pacific/fake-news-on-facebook-fans-the-flames-of-hate-against-the-rohingya-in-burma/2017/12/07/2c1fe830-ca1f-11e7-b506-8a10ed11ecf5\\_story.html](https://www.washingtonpost.com/world/asia_pacific/fake-news-on-facebook-fans-the-flames-of-hate-against-the-rohingya-in-burma/2017/12/07/2c1fe830-ca1f-11e7-b506-8a10ed11ecf5_story.html)
- 20 <https://www.tagesschau.de/faktenfinder/corona-demo-berlin-109.html>
- 21 [https://www.dailymail.co.uk/travel/travel\\_news/article-2749306/What-scam-Student-boasts-friends-trekking-Asia-visiting-stunning-beaches-tasting-local-cuisine-meeting-Buddhist-monks-using-FAKE-photos-taken-home-town.html](https://www.dailymail.co.uk/travel/travel_news/article-2749306/What-scam-Student-boasts-friends-trekking-Asia-visiting-stunning-beaches-tasting-local-cuisine-meeting-Buddhist-monks-using-FAKE-photos-taken-home-town.html)
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- 24 Swami & Furnham, 2014
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- 33 <https://fowid.de/meldung/kreationismus-in-den-usa-1982-2019>
- 34 <https://twitter.com/PodSaveAmerica/status/1296210724000210944?s=20>