



Communication and Collaboration

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Inhaltsverzeichnis

1. Communication	4
1.1 Digital communication	5
1.2 Characteristics of offline communication	7
1.3 Dimensions of communication	9
1.4 Online communication	11
1.5 Netiquette	12
1.6 Social media	15
1.6.1 Influence of social media on our society	15
2. Negative impact of modern communication	17
2.1 Hate Speech	18
2.1.1 Introduction	18
2.1.2 Why people discuss differently on the net	19
2.1.3 How do haters argue?	22
2.1.4 Effects on victims and society	22
2.1.5 Limit of freedom of expression	24
2.2 Cybermobbing	25
2.2.1 Definition: Cyberbullying/Cybermobbing	25
2.2.2 The situation of the victims	27
2.2.3 How can victims defend themselves?	27
2.2.4 Legal situation in different countries	28
2.2.5 Helpful information and links	29
3. Messenger services - WhatsApp & Co	30
3.1 What are "instant messengers"?	31
3.2 Messenger services - A historical review	31
3.3. How do messenger services work?	31
3.4 User figures for messenger apps	32
3.5 Overview of available messenger services	32
3.6 Dealing with the use of messenger services	37
4.0 Content Creation & Collaboration Tools	39
4.1 Content creation	39
4.1.1 History	41
4.1.2 Content Creation Tools	43
4.2 Collaboration Tools – Collaboration Technology	44
4.2.1 History	44
4.2.2 Difference between cooperation and collaboration	45
4.2.3 Collaborative working methods	46
4.2.4 Risks when using collaborative software solutions	47
4.2.5 Collaboration-Tools	49

1. Communication

"You cannot not communicate." (Paul Watzlawick)¹

Communication connects people. The need to communicate is driven above all by the need to pass on information and to obtain information. Disseminating information, ever faster and more effectively, is something people already tried their hand at in antiquity. Already under Emperor Augustus, a system was created with the *cursus publicus* - a state news and transport system - which accelerated the transmission of news.² A quantum leap in communication came with the invention of telegraphy in the 1830s and subsequently with telephony. Telephony had teething problems at the beginning because the sound quality was perceived as poor and many people simply perceived it as impersonal. It was not until the First World War that the telephone became accepted as a medium of communication. However, it was to take decades before it was fully accepted - namely until the 1970s.³

Communication via the internet did not take that long. The Arpanet (1969), the forerunner of the internet, was followed by e-mail applications (1971) and finally the World Wide Web (1989).⁴ While about 677 million people worldwide used the internet in 2002, by 2017 it was already 3.6 billion people.⁵ Relevant for this development was and is that the content of the internet is important for almost all areas of people's lives, whether for personal development or for everyday professional life. The internet enables the most diverse forms of communication within social coexistence. This requires a certain know-how to realise communication processes responsibly



Communication		
He/she understands the basic principles of communication and the differences between online and offline communication as well as verbal and non-verbal communication.		
Knowledge	Skills	Competences
He/She knows <ul style="list-style-type: none"> the basic principles and characteristics of online and offline communication the difference between verbal and non-verbal communication different types of online communication different communication channels in the field of social media 	He/she can <ul style="list-style-type: none"> select an appropriate means of communication based on a specific context communicate appropriately with others 	He/she is able to <ul style="list-style-type: none"> apply strategies to behave correctly when interacting in digital environments and to adapt to a specific audience. decide which digital technologies he/she will use in order to select appropriate digital communication tools for a specific context

and purposefully.⁶ The broad field of digital communication offers various modes of communication, such as synchronous communication (real-time communication) via Skype, video chats, etc., as well as asynchronous communication (real-time communication), as well as asynchronous communication (non-simultaneous communication) via e-mail, forums for sending a message, SMS, etc.⁷ These forward-looking forms of communication not only overcome time and space, but also pose challenges to their users.

1.1 Digital communication

In the future, the implementation of digital communication tools and the necessary user skills for both private and professional use will determine whether or not people can participate in socially relevant topics and in the labour market. This chapter therefore focuses on communication in general, digital communication channels (such as email, chat, forums, tele- and videoconferencing, internet telephony, social media, etc.) and their possibilities, as well as the associated changes in social relationships.⁸ First of all, it can be assumed that communication in the classical sense is not replaced by digital communication, but expanded. Accordingly, the most diverse forms of communication as well as means of communication intertwine and change communication situations (also known as communication settings), which bring advantages but also disadvantages. Time and space barriers can be overcome more easily, making it easier to establish contacts and maintain relationships more intensively. Despite all the positive developments, there are nevertheless "side effects" for users of digital means of communication that need to be taken into account. This raises questions: how do I ensure data protection, how do I protect myself from viruses and other threats from the internet, how do I deal with the social effects, such as the change in language culture (the change in language culture will be discussed in more detail later in the chapter) and the increasing isolation.

In principle, the selection of an adequate means of communication alone does not guarantee good communication. Rather, it requires awareness of how communication takes place in an interpersonal conversation and which factors influence communication. In the analogue world, we have learned to interpret verbal and non-verbal communication and also that the non-verbal most determines our reactions in the communication process. According to the iceberg model and the Pareto principle, non-verbal behaviour determines about 80% of our communication. Some scientists suggest that this percentage may be even higher.⁹ Non-verbal communication extends verbal communication with facial expressions, gestures, etc. and can thus be understood as an additional layer of communication that helps to better interpret verbal messages. This addition cannot send messages and information to the receiver to the same extent through digital (asynchronous as well as synchronous) communication, which can consequently lead to problems of understanding. Thus, there is a need to consciously address the issue of communication, especially how communication can be realised without misunderstandings and loss of information.

In addition to all the questions that deal primarily with the topic of communication, it must not be forgotten that digital communication also includes the sharing of infor-

mation such as files (text, images, audio, etc.). This is accompanied by the danger of unauthorised access to data and computer viruses or worms becoming an omnipresent threat. In addition, some means of communication allow more insight into individual lifestyles than some would like. The Corona crisis in particular, starting in 2020, showed how quickly private space became at least open to school or corporate view through the use of video conferencing in homeschooling or home offices. All these factors influence the success of interpersonal communication and should be taken into account when communicating with others. ¹⁰



1.2 Characteristics of offline communication

Basically, the communication process is understood as the mutual exchange of thoughts in speech, writing or images and, in a broader sense, as the mutual transmission of data or signals that influence social interaction on a daily basis. Without communication and the transmission of information, there is no human interaction. Information as an aspect of communication is of enormous importance for a society that is virtually flooded with information. Lack of information, misuse of information, faulty information - all these influence interpersonal communication and can cause conflicts. Thus, the communication process can be described as

„a sending of information by a sender conveying content and the receiver's reaction or response to the information according to the way he/she perceives the content“¹¹

In addition, the communication process is influenced by means of communication between sender and receiver, by body language, facial expressions, gestures, sign language, sounds, signals and certain bodily processes (sweating, blushing, etc.). These are called non-verbal means of communication.

Means of communication:

- Verbal communication
 - Language
 - Font
 - Symbols
- Nonverbal communication
 - Body movement (gestures, facial expressions, posture)
 - Paralingual phenomena (voice quality, pauses in speech, sounds, ...)
 - Olfaction (smell)
 - Haptics (cold hands, blushing, ...)
 - Human products (clothing, haircut, ...)

As already mentioned in the introduction, communication is particularly influenced by body signals, which reveal a lot to the interlocutor about thoughts, fears and the like. Body language is much more honest than the spoken word and is important for the communication process. In this context, people often talk about the 7-38-55 rule, which was established by Albert Mehrabian, a psychologist. Mehrabian found that of all the information a person takes from a conversation, about 7% is taken from the content of the words themselves, 38% is taken from the tone of voice and 55% is conveyed by the body language of the other person. Since his research focused "primarily on negative feelings that are conveyed through content, voice and body language", the results cannot be applied to all forms of communication. However, it can be deduced in any case that the communication process is essentially guided by feelings and not exclusively by factual argumentation.¹² In this context, the literature refers to Sigmund Freud's iceberg model, according to which communication takes place on

the "two levels of communication", the factual/content level and the relationship level. His scientific studies prove that the relationship level dominates the factual level. Communication is thus a very multi-layered process and prone to disruption. Communication disturbances and loss of information can be interpreted as personal attacks on one's own self-image or as a projection of one's own feelings onto others, but can also be caused technically by the occurrence of precisely these disturbances.¹³



1.3 Dimensions of communication

The permanent further development of communicative tools enables ever more diverse ways of realising communication, either direct or indirect, digital or analogue, online or offline, private or public and the like.¹⁴ The fact that definitions of what can be understood by direct or indirect, digital or analogue communication are not always clear can be explained by the fact that the scientific discourse in the field of communication pursues different approaches than the field of information and communication technology.

In general, direct communication means that the sender and receiver of messages are in the same place at the same time. They can perceive and respond to the communication offer directly with their own senses - without the interposition of a medium - via "the air-filled space that functions as a communication channel".¹⁵ The term "with one's own senses" refers to factors in the area of non-verbal communication, such as smells or physical signals. Situations of direct communication are therefore meetings, interviews, conversations, discussion rounds, debates, gatherings and the like. In indirect, media-mediated communication¹⁶, also called computer-mediated communication, messages are exchanged either not at the same time and/or not at the same place between sender and recipient, such as in correspondence, answering machines/mailboxes, e-mail and e-mail distribution lists with several addressees, SMS, Internet forums, content management systems, social networks, blogs, letters to the editor and the like.¹⁷ According to the channel reduction theory, communication mediated by computers is reduced by many non-verbal elements. This can lead to important information being lost in the transmission of messages. Rolling eyes or raised corners of the mouth then give a spoken sentence a completely different meaning or negate statements.

This often leaves only the word, i.e. digital communication. In 1969, communication scientist Paul Watzlawick defined digital communication as talking to each other, and analogue communication as all aspects of non-verbal communication. Accordingly, digital communication can be compared to the binary system of a computer, according to which everything can be derived from zeros and ones, and applied to communication, a word can only be understood as a semantic description. Thus, there is not much that is human about a human being, but the word human being is both word and object. In contrast, analogue communication tries to convey these words through an expression such as gestures, facial expressions, signs, etc.

However, the transmission of messages/information can also take place through texts or images. In communication science, the term online communication is introduced in this context. The text is attributed to the digital form of communication and the image to the analogue form of communication.¹⁸

These definitions of communication science diverge considerably from those of information and communication technology (ICT). In ICT, we speak of online communication when users communicate with each other simultaneously (chatting) in forums, for example, and of offline communication when not all recipients are present

when messages are sent, as in e-mail communication. The terms digital and analogue communication are also defined differently. Consequently, digital communication is understood as computer-mediated communication (asynchronous as well as synchronous) such as websites, newsgroups, video-on-demand, chats, online games, television, telephony, mass media, video, etc. and analogue communication as letters and conversations.¹⁹ According to communication scientists, whether communication is subsequently classified as private or public communication cannot be concluded by looking at the spatial perspective alone. Even a closed system like a private communication can discuss topics of public interest and vice versa, very private/intimate topics can be taken up in a public communication. According to Ronneberger, a communication scientist, the only criterion for determining whether a communication is public or private is whether messages are addressed to unspecified (television, radio, etc.) or specific recipients (relatives, acquaintances, etc.).²⁰ In ICT, the question of whether it is a public or private space is justified pragmatically rather than philosophically.

The discourse within the individual sciences alone illustrates the dimensions of the most diverse forms of communication and how diversely communication can be mapped. Digital progress has made it increasingly easy for people to communicate with each other and to access numerous communication services with a wide variety of communication applications.



1.4 Online communication

Primarily, a distinction can be made between publicly accessible communication services and internal company services.²¹ Technical innovations on the telecommunications market not only evoked a complete reorientation of telecommunications, but also changed the market as a whole - from a monopoly to a polypole. No longer did one network operator set the tone, but many providers in the wake of the forces of the free market. In addition to the internet, the further development of the mobile phone into the smartphone was the final breakthrough and decisive factor for changes in customer behaviour with regard to communication. With the smartphone, every user now always had a computer at hand with which data, information and messages could be called up and shared synchronously or asynchronously, regardless of location and time. Numerous communication options such as SMS, social network functions, WhatsApp, Skype, Instagram and others are available for this purpose. By means of buttons, these functions can be called up very easily on the smartphone.²² Despite the strong increase in the number of users of communication services, traditional telephone services are still in demand, but have an impact on communication behaviour. For example, according to a study by the Federal Network Agency 2020 in Germany, more than half of all respondents said that they communicate more than before due to the emergence of the new communication services. In particular, the proportion of those users who use video and audio services,²³ use services such as WhatsApp, Facebook Messenger, Instagram, Skype and Snapchat.²⁴

A wide variety of communication application tools enable online discussion groups to be set up or provide spaces for people to socialise and exchange information. Generated content can also be shared and stored on electronic devices (PC, smartphone or tablet). For communication via the Internet, discussion forums, short message services (Twitter, SMS), e-mail (discussion lists) and answering machines can be used for time-delayed communication. Internet telephony as well as video conferencing enable simultaneous (synchronous) communication. In this context, the question arises as to which factors, apart from the proper functioning of the necessary equipment, determine good communication.

1.5 Netiquette

Good communication depends on many factors, besides the setting, above all on the behaviour of the communication partners. With the internet and electronic communication services, forms of communication and communication behaviour have changed. In the shadow of anonymity, people tend to behave in ways that are unthinkable in real life. This is also visible in the figures of the cyberbullying study "Cyberlife III" from 2020, according to which 17% of pupils are affected by cyberbullying attacks.²⁵ Fortunately, not all negative behaviour is so rampant that with a little coaching à la etiquette, nothing stands in the way of good communication. In this context, the terms netiquette and chatiquette have become established

„Netiquette is a made-up word composed of the words Net (Internet) and Etiquette. It refers to (good) behaviour in virtual communication. Although netiquette is considered sensible by many net participants, these unwritten rules usually have no legal relevance.“²⁶

One of the first, best-known netiquette rules, but given the fast pace of the internet these can already be considered historical and no longer applicable, date back to 1996. Mandel and Van der Leun listed rules in the form of twelve commandments, one of which was: "Say what you want to say openly and never censor!"²⁷ Almost three decades later, this rule is no longer up to date. Just as forms of communication change, rules of conduct are also subject to constant change. Numerous studies prove that rules of conduct are especially important for communication on the internet. In 2007, a study at schools showed that the introduction of rules of conduct within online courses significantly improved the quality of group discussions.²⁸ In addition to the forms of communication and the rules of conduct, the language of the net is also subject to permanent expansion. Emojis, GIFs, sounds, etc. imitate non-verbal communication signals and thus expand the communication possibilities on the internet. However, their use is not appropriate for every context. Especially in the professional sphere, it is therefore necessary to follow formal rules in text-based communication. Especially digital natives, i.e. those who have grown up with the internet, tend to use short forms such as LOL (laugh out loud) and the like. However, this can also lead to misunderstandings and should be avoided.²⁹ There are numerous netiquette rules on the internet. Ultimately, they all have in common to establish rules for healthy, friendly communication. As in real life, they demand friendly, respectful interaction. Without exception, insults and racist remarks are undesirable.

Even if in the course of time more and more new possibilities for realising communication flooded the market, one component concerning communication remains given, namely that no communicator can have a good conversation without awareness of rules of conduct and their consideration in the communication process. Apart from all the technical knowledge about which communication services can be best chosen for which situation, as well as the equipment that is necessary for this, the only decisive factor for a good conversation is whether the content can be transported without losses or a good relationship can be established. This applies to all communication in

both private and professional environments.

So how can content be transported without loss of information? Even though the internet enables communication services to exchange information more and more quickly, formal rules are often adapted to the process and many empty phrases are obsolete, it makes sense not to rely solely on total reduction in language. In addition to the right choice of words, a few words such as "Best regards from sunny Linz" instead of "Best regards Max Mustermann" can be used to build relationships. In this context, it is above all the chosen communication service that determines how detailed or concise a message should be. An SMS is not an e-mail and vice versa. But even when communicating via WhatsApp, Facebook Messenger & Co, it should always be kept in mind that messages that are too short do not always convey information as desired. Short forms such as kA (no idea) can communicate much more than perhaps intended. Possibly that the sender of the information really has no idea, which is not always the best thing - especially in the professional sphere - or that one does not want to take the time to answer the question at the moment, etc. Similarly, formatting that was used in the previous message transfer can now be interpreted differently. The use of capitalised words was previously considered a means of textual formatting alone, but in digital communication a word written in capital letters means that it is "shouted". What wants to be expressed is heightened, so to speak. Emojis can also be used to complement messages. In her book "Because Internet", Gretchen McCulloch gives an excellent description of the misunderstandings that can arise between sender and receiver. Aspects such as the change in linguistic awareness (grammar, punctuation, etc.), the emotionalisation of written language through communication on the internet as well as problems that arise due to intergenerational discrepancies are addressed. Not every 70-year-old finds Lol (laughing out loud) funny. But even younger people often have difficulties deciphering abbreviations and acronyms on the internet.

In addition to all the questions about how messages should be structured in terms of content so that there are no misunderstandings or insults, the legal aspects of communication must not be ignored. The fact that glorification of violence and drugs, pornographic depictions and racist statements are punishable by law is not open to discussion and is known to the majority of internet users. But what about sending content of copyright-protected works such as newspaper articles, pictures, etc. and the handling of personal data? Moreover, not all communication services can guarantee data security. Providers of communication services, such as the Clubhouse app³⁰, are particularly criticised when address books of users who invite others to a conversation can be read and app operators thus also obtain contact data of people who do not even use the app. It is therefore not only important to pay attention to what personal data and statements are disclosed, but also to what extent one is and can be held responsible for the disclosure of other people's data.

Even though it is easier for users to react/act differently on the internet under the guise of anonymity than in a face-to-face setting, a message can still be traced back to the sender via the IP address. Ultimately, the same rules for good communication ap-

ply online as in real life: Formulate your concerns as concretely as possible and treat each other with respect and appreciation. The influence and impact of digital communication on society worldwide is particularly visible in social media.

Data protection

The right to protect one's own personal data is already enshrined in the EU Charter of Fundamental Rights. In May 2018, the European General Data Protection Regulation (GDPR) also came into force. The aim of the regulation is to protect the "fundamental rights and freedoms of natural persons", in particular their right to the protection of personal data (GDPR Art.1). It contains rules and regulations for the processing of personal data. Among other things, it obliges companies and public bodies to inform data subjects about the intended processing of data at the time of data collection.

What data is affected by the GDPR?

According to the GDPR, personal data is any information that relates directly or indirectly to an individual. In addition to our name, our login or our email address, this also includes information such as customer numbers, online identifiers, location data and the like. Ultimately, this means all data that in any way allows conclusions to be drawn about our person. (GDPR Art. 4 lit.1)

Companies and public bodies may only store and process this data under certain conditions. For example, personal data may only be collected for a specific, unambiguous and legitimate purpose and may only be used for this purpose. Companies are also obliged to collect only the data that is really needed for the corresponding purpose (keyword "data minimisation"). (GDPR Art. 5 lit.1)

1.6 Social media

„Social media is a variety of digital media and technologies that enable users to interact and create media content individually or in community. Interaction involves the mutual exchange of information, opinions, impressions and experiences, as well as participation in content creation. Users actively refer to the content through comments, ratings and recommendations and in this way build a social relationship with each other. The boundary between producer and consumer becomes blurred ... As a means of communication, social media relies individually or in combination on text, images, audio or video and can take place regardless of platform“³¹

Around half of the world's population (depending on the statistics, the figures diverge by up to 5 percent³²) uses social networks and spends almost 2.5 hours a day on them. Social media, social networks, social web or web 2.0 are terms that were initially used synonymously.³³ People used the internet to exchange professional and private information, share content, stream or download films, shop online and carry out banking transactions. However, the meaning of social media has changed over the years. Since the 2005s, it has been understood to mean interactions via Facebook, blog platforms, microblogs, wikis and other platforms³⁴ as well as the networking of users such as on XING, LinkedIn and the like.³⁵

But why are these interactions social? From the perspective of communication studies, social applies in several ways to many media "that are part of acts of communication, interaction and social action".³⁶ Information, communication, community and cooperation can thus be named as the pillars of social forms par excellence within social media. Information is exchanged, relationships are strengthened or newly established, or cooperation takes place, such as in the construction of wikis.³⁷

1.6.1 Influence of social media on our society

Globally, Facebook, Instagram and YouTube are among the top ten most used social media³⁸ and are primarily used to share information. Whether posting, sharing or retweeting, news goes viral with a click. A study by Exact Target shows how influential social media are, according to which "consumers who use Twitter very actively have three times more influence on a brand's online reputation than average consumers".³⁹ According to a study "German Social Media Consumer Report 2012/2013", social media influence 8% of all purchase decisions.⁴⁰ In 2020, 90% of buyers purchased products they followed on social media, according to "SproutSocial 2020". The watch manufacturer Omega, for example, sold more than 2000 watches via Instagram in less than half a day.⁴¹ In 2020, the Corona crisis once again accelerated the use of social media, influencing not only purchasing decisions but numerous areas of daily life, such as our psyche, our communication behaviour, the formation of political opinion, and much more. The extent to which social media and its use influence people is sometimes also in the eye of studies. For example, a study by the University of Georgia concluded that young people who use social media strengthen their self-confidence as they experience and embrace community and thus have more control over how

Note

Further information on the topic of opinion forming and fake news can be found in the CUMILA module "Information Search and Opinion Making".

others perceive them.

At Stanford University, on the other hand, users who spend too much time on social media were said to be more likely to be plagued by negative feelings. And in Australia, a study found that girls' self-confidence drops and dissatisfaction with their own bodies increases the longer they use social media.⁴²

Why is this so? Why do users feel so secure or insecure about their self-esteem on social media? Due to the fact that this compilation of material is not an analysis regarding psychological effects through the use of social media in particular, only a few influencing factors are mentioned. Self-staging, which is the lifeblood of social media, seems to be particularly important. It is possible to stage oneself and present oneself to the world. We become self-promoters. Younger people in particular get the important self-affirmation through this. A better version of oneself is presented. We stage ourselves in order to become popular. Followers and links are the new currency. Those who have many followers become influencers. They produce themselves, communicate with their followers ("community"). Some earn money with it. But this also leads to pure staging, which has less to do with reality. Honest appreciation and deep relationships fall by the wayside. Feedback or criticism is very often hurtful and ends in downright shit-storms. In addition, due to the constant availability, users feel pressured to respond on time or to miss something if they are absent for a longer period of time. This phenomenon is also called "Fear of missing out" (FOMO).

Addressing the issue of the influence of social media on mental health is particularly important in view of the increasing numbers of users on social media. While social media use was still at 90 minutes per day in 2012, it increased to 138 minutes per day in 2018.

In Germany, Facebook is one of the most popular social media, followed by YouTube and Instagram in the top ten. Among the top three most popular social media channels in Spain are Facebook, YouTube and Twitter. Globally, the only change in the top ten most popular social media platforms is the ranking. The market leaders are Facebook, YouTube, WhatsApp, Instagram, Twitter and Co.

A good overview of what the most important social media platforms will offer in 2021 in terms of user numbers, target groups, topics and content, technical possibilities and the like can be found at:

<https://blog.socialhub.io/social-media-plattformen-2021/>

<https://blog.hootsuite.com/social-media-statistics-for-social-media-managers/>

Tip

Recommended study on the influence of social media on mental health: Royal society for public health: "Status of Mind: Social media and young people's mental health and wellbeing". Available at: <https://www.rsph.org.uk/our-work/campaigns/status-of-mind.html>.

2. Negative impact of modern communication



Hate Speech and Cybermobbing		
<p>He/she is able to recognise hate speech and decipher the arguments of the haters. He/she is able to recognise cyberbullying and can defend him/herself against it.</p>		
Knowledge	Skills	Competences
<p>He/she can</p> <ul style="list-style-type: none"> describe Hate Speech and its characteristics name up to three groups that are frequently affected by hate speech. describe how to respond to hate postings. describe cyberbullying and reasons why cyberbullying is on the rise. describe how to respond to cyberbullying. 	<p>He/she can</p> <ul style="list-style-type: none"> develop a strategy to recognise hate comments match hate comments to a specific group that is being targeted. develop a strategy to report hate comments develop a strategy to report cyberbullying 	<p>He/she is able to</p> <ul style="list-style-type: none"> apply strategies to decipher hate comments depending on the context apply strategies to report hate comments apply strategies to report cyberbullying

2.1 Hate Speech

2.1.1 Introduction

The translation of the term Hate Speech means hate speech and implies criminal as well as non-criminal statements that devalue people or even incite hatred and/or violence against them. Legally, these statements include criminal offences such as incitement to hatred, insult, defamation, coercion, threats and public incitement to commit crimes.

The Council of Europe, which launched the No Hate Speech Movement initiative, defines hate speech as follows:

"(...) the term 'hate speech' is understood to include any expression which propagates, incites, promotes or justifies racial hatred, xenophobia, anti-Semitism or other forms of hatred based on intolerance, including intolerance expressed in the form of aggressive nationalism and ethnocentrism, discrimination and hostility towards minorities and people with a migrant background." (Council of Europe, Committee of Ministers, Recommendation No. (97) 20) ⁴³

There are numerous examples of hate on the internet. One that was heavily discussed in Austria, for example, and is still remembered by many people today, is the hate postings regarding the Vienna New Year's baby 2018. On 1 January, a short message appeared on Facebook with a photo of the New Year's baby, who was born in 2018. The baby's name is Asel, an Arabic name. Besides the baby, the photo showed, among other things, the mother wearing a headscarf. Shortly afterwards, numerous hate comments followed, alluding mainly to the Arab-Muslim culture of the family. There was talk of a new terrorist, for example, and the mother's headscarf also played a role again and again. In addition to harsh insults, inflammatory and racist comments also appeared. The press photo of the year 2016, which shows the refugee girl Dunja trying to cool down in the water mist from the pipes of the Feldkirchen an der Donau fire brigade at 35 degrees, was similar. Amateur photographer and firefighter, Martin Peneder, was awarded the 2016 Lens Prize for this shot.

This image can be viewed at:

<https://www.derstandard.at/story/2000039482174/pressefoto-des-jah-res-bild-des-fluechtlingsmaedchens-dunja-gewinnt>

A post about the photo made international headlines: "Flamethrower would (sic!) be the better solution" commented a 17-year-old. He then lost his apprenticeship.⁴⁴

2.1.2 Why people discuss differently on the net

Swear words seem to slip across the keyboard faster online than they do across the lips. A major difference on the internet is probably the form of communication - it is written and mostly impersonal and crucial elements of interpersonal communication are missing: eye contact, facial expressions, gestures, the voice of the conversation partner - the physical counterpart. As a result, essential information such as the non-verbal signals, which have been proven to evoke empathy, are lost. In technical language, this is called "invisibility" on the internet. This invisibility is sometimes one reason why people type in statements that they would hardly say directly to someone's face. The feeling of invisibility disinhibits us. John Suler of the American Rider University already pointed out this problem more than ten years ago. In this context, he speaks of "online disinhibition effects". The psychologist Suler calls it simply a blind catharsis, an acting out of base needs and desires without even any personal growth. John Suler identifies a number of factors such as anonymity, invisibility, asynchrony, fantasy ideas of the other person, the separation between online and offline characters and the lack of authority that promote disinhibition on the internet.

Anonymity: One does not feel so easily vulnerable if others do not know one's name.

Invisibility: It is often also confused with anonymity, but it is something different. While anonymity hides the real name, invisibility eliminates non-verbal signals. This explains why people also make bad statements on Facebook under their real names.

Asynchrony: If you write a hateful comment, you often don't get immediate feedback. So you don't have to immediately deal with what your words are doing. Experts sometimes refer to this phenomenon as "emotional hit-and-run".

Fantasy image of the other person: When we chat with someone online, we develop an image of the other person in our minds. In reality, however, a lot of our own personality flows into this image.

Separation between online and offline character: In technical language, this is called the "dissociative imagination" and describes the idea that different rules apply online and that everything is not so serious, just a game.

Lack of authority: In many forums or on social networks, there is little to almost no moderation. The risk of an insult leading to a call to order is extremely low compared to many discussions outside the internet. This also makes it easier to be more disinhibited.

These disinhibition effects and their excesses can be well observed in social media. Many users who communicate harshly and unyieldingly online are often much more accessible in face-to-face conversation.⁴⁵

However, there is not always a private person behind every hate speech who gives free rein to their anger. Sometimes these statements come from strategically acting groups ("social bots"⁴⁶ or so-called "trolls") who direct themselves against a person and/or groups of people in the conversation.⁴⁷

Groups acting strategically

Strategic individuals or groups are those who share fake news, hate speech and manipulative statements or texts in order to deliberately manipulate, divide societies, radicalise others and the like.⁴⁸

Social Bots

Definition:

„Social bots are bots, i.e. software robots or agents that occur in social media. They like and retweet, and they text and comment, so they can have natural language capabilities. They can also act as chatbots and thus communicate synchronously with users. Social bots are used to visualise and amplify statements and opinions. In doing so, they can have an advertising character or political impact.“⁴⁹

Social bots simulate users in social media. Behind them can be companies that want to market their products and thus provide descriptions of the product in order to arouse the needs of potential customers, but also groups that want to influence political processes. In 2016, more than half of all internet traffic was generated by bots, and bad bots accounted for a third of this.⁵⁰ These bad bots spread false information, be it about politicians or companies, by deceiving users in social media as an automated account and creating the impression that it is a human being.

That paid opinion-making on the internet is in vogue and can also be used for parliamentary purposes is shown by an EU campaign. The EU is said to have provided three million euros for the work of paid opinion makers to steer discussions on the net that are critical of the EU.⁵¹ In this way, opinions can be generated in a targeted manner.

Trolls

Trolls deliberately disrupt and prevent good communication in social media. They deliberately provoke with an aggressive choice of words on controversial topics and write sexist, racist and other discriminatory comments. On the net, trolls do not present themselves with a personal profile such as a personal photo, and can usually only be reached via pseudonymous email addresses. This gives them the desired anonymity. Trolls can be divided into various typical types of behaviour:

- Insulter (spreads hate comments)
- Debater (disputes arguments of the opposing side, rips off well-researched articles by generalisation and faulty logic)
- Grammarian (criticises spelling or grammar of others)
- Offended troll (deliberately misreads things and is offended because of it)
- Big Troll (shows how much he knows, even if it is only a little)
- Profanity troll (uses many swear words, uses capital letters)
- Single-response troll (likes to post just one word to be annoying).
- Derailing troll (disrupts discussions by derailing discussion and getting everyone talking about his topic)
- Spammer troll (gets people to buy a product and makes money from it).

Usually their comments are longer than usual and well structured with an introductory part and a concluding part, which are published syntactically flawlessly. Often these messages are posted several times. An essential criterion for a troll are expressions/words that are not used in the target country. For example, in Poland one uses the term Hitlerists and in Russia one speaks of fascists, but in Austria of Nazis. It is advisable not to respond to comments from trolls. "Don't feed the troll" is one of the rules recommended when dealing with trolls. Furthermore, trolls should be reported to the site administrators or, if legal limits are exceeded, charges should be considered with law enforcement agencies.

2.1.3 How do haters argue?

There are different, typical forms of negative argumentation in the field of hate speech:

- Xenophobia, e.g. by deliberately spreading false facts ("We have to pay for all this").
- Disparagement
- Repetition of phrases already known from the media ("The boat is full")
- Generalisations ("All politicians are corrupt")
- Equation
- Call for acts of violence ("We will hunt them down")

Violence on the net is not only directed against women through disparagement such as insults, but also through calls for violence such as threats of rape.

The rhetorical device of commonality is particularly often evoked through the use of the pronoun "we".

2.1.4 Effects on victims and society

Not only individuals can be affected by hate speech, but also groups of people. Especially hate speech that is racist and xenophobic, anti-Semitic, sexist, homophobic, etc. falls into this area. According to the Forsa survey on Hate Speech 2020, the group of 14 to 24-year-olds is particularly often confronted with hate comments. Only 6% said they had never seen hate comments on the internet.⁵² According to the representative study "#Hass im Netz: The insidious attack on our democracy", those who are personally targeted by hate comments often suffer from emotional stress, fear and anxiety, even depression and problems with their self-image, with women showing these symptoms significantly more often than men. The following statistics show how often inflammatory content is posted on social media: on Facebook alone, 9.1 million inflammatory posts were removed in the first quarter of 2020.⁵³

Due to the permanent disrupted communication through aggressive, insulting and disruptive interjections, people no longer perceive these disruptions in the same way as they did a few years ago. The inhibition threshold is no longer reached so quickly, nasty and hurtful comments are almost standard. That is why it is especially important to sensitise people and to push for prosecution against haters.⁵⁴ When hate speech is directed against groups in society, such as migrants, women, the unemployed or vulnerable people, it can also have an impact on society as a whole and trigger social change. For example, it was found that the increase in violent acts against refugees correlated with an increase in hate speech.⁵⁵

Hate speech is therefore not a trivial offence and should be reported!

Hate speech is hurtful, degrading and should be reported and removed from social media to protect everyone. As online hate speech is not an isolated incident, many European countries have come out in favour of supporting victims of hate speech and fighting the perpetrators/haters.

Reporting banned speech and hate speech is essential. To report hate comments, there are dedicated hotlines on the various social media, but specialised associations can also be used.

Reporting options

- Facebook: by reporting to the "Community Standards" or the "Help Centre".
- Instagram: Report as "Abuse and Spam" using the Instagram Community Guidelines.
- Snapchat: To Snapchat support using the community guidelines
- Twitter: per the "Help Centre: here's how to report a violation"
- YouTube: Report as "Inappropriate Content" using the guidelines
- BanHate App: This is an anti-hate posting app for reporting offences on social networks
- Stopleveline.at: Page against sexual abuse or national socialist re-activation

2.1.5 Limit of freedom of expression

The exact boundary between a socially still acceptable term versus a concrete xenophobic, sexist or racist statement is sometimes difficult to define. Linguistic norms also change regularly with the spirit of the times. However, if constitutional norms of criminal law as well as civil law protection of personality are transgressed, the Criminal Code comes into play. The relevant paragraphs can be applied to protect against insults, incitement of the people and threats. Threats of murder or terrorist attacks are sufficient to constitute a criminal offence.⁵⁶ According to the European Court of Human Rights (ECHR), "a distinction must be drawn between a statement that merely repels, shocks and disturbs, but is still permissible, and one that is already capable of arousing hatred."⁵⁷ In Austria, the criminal offence of incitement to hatred makes it possible to take action against persons or groups of persons who incite hatred in public in an inhumane manner. The "§283 in its current form has only been in force since the beginning of the year, the amendment also includes the inclusion of disability, age, sexuality and gender, as well as the incitement of individuals."⁵⁸ In Spain, offences in this regard are regulated by Articles 510.1, 510.2, 510.3 and 510.4 of the Spanish Penal Code. These laws provide that persons committing these offences are punishable by a prison sentence of 1 to 4 years or a fine of between 6 and 12 months. According to Art. 5.1. of the Spanish Penal Code, victims have the right to be supported. They are thus entitled to legal and emotional support as well as other protective measures according to Art. 28 of the Spanish Penal Code.

In order to sensitise people against hate on the net, it is important that many users of social media actively oppose hate on the net. Be it commenting on hate postings, addressing hate on the net and, above all, not spreading it. If possible, hate postings should be deleted.

The importance of this issue is shown by numerous projects implemented on this topic.

You can access interesting projects under the following links

- <https://hateaid.org>
- <https://www.hass-im-netz.info>
- <https://love-storm.de>
- <https://www.ichbinhier.eu>
- <https://www.bricks-project.eu>

2.2 Cybermobbing

Communication options via social media and messenger services have become increasingly important in recent years. As useful and beneficial as these means of communication are, they also confront society with risks. Cyberbullying/cyberbullying in particular is increasingly becoming the focus of public discussion. Cyberbullying/cyberbullying (hereafter referred to as cyberbullying) is de facto to be understood as bullying in virtual space.⁵⁹ The shitstorm, to which insulting, aggressive, threatening statements on the net are attributed, is also a form of cyberbullying. Other forms of abuse of such means of communication are known as cyber-stalking, the permanent following of people, or happy slapping, the publication of videos filmed with a mobile phone showing beating attacks.⁶⁰ Cybercrime, such as data theft, credit card fraud, etc., also fall into the category of violence on the Internet. Cybergrooming involves targeting people online to establish sexual contact - a form of sexual harassment.⁶¹

2.2.1 Definition: Cyberbullying/Cybermobbing

„Cyber bullying means deliberately insulting, threatening, exposing or harassing with electronic means of communication. On the internet, photo and video platforms (e.g. Flickr or YouTube) and social networks (e.g. Facebook) are mainly misused for these attacks.“⁶²

„Bullying is understood to be deliberate, targeted and repeated attacks on individuals or groups. The aim of the bullies is to socially exclude or isolate their victims. A key feature of bullying is that the attacks occur regularly and over a long period of time.“⁶³

"Bullying classifies the imbalance of power, the systematic harassment over a long period of time and the helplessness of the victims“⁶⁴

„Cyber bullying is about using new techniques such as email, chats, instant messaging systems (like WhatsApp or Telegram) or even mobile phones to repeatedly and deliberately hurt others, threaten them, insult them, spread rumours about them or make them afraid.“⁶⁵

Whether bullying or cyberbullying - basically it is always about insults, threats and attacks on one or more persons. Bullying happens in the analogue world and cyberbullying in the virtual world. However, many academics question whether the term bullying can be so easily transferred to the virtual world and equated with the term cyberbullying, or whether the definition of cyberbullying should be supplemented by other factors.

Thus Torsten Porsch and Stephanie Pieschl, research assistants in the field of educational psychology, analyse the intentions of perpetrators. They investigate the question of whether perpetrators always act with harmful and full intent. Accordingly, they make the assumption that perpetrators do not always act with harmful intent and "just want to be funny". In addition, the question of the significance of the frequency of action in the virtual space, i.e. how often this occurs and at what point one

can speak of a repetition, must be discussed. Likewise, the imbalance of power in the virtual space must be re-evaluated. Under the term bullying, the imbalance of power is defined as a physical and/or verbal superiority. In the virtual space, however, other factors influence the imbalance of power. Harmful content can reach an immense range in a very short time. Thus, above all, the media competence of the perpetrators and victims is decisive for how cyberbullying is staged on the part of the perpetrators and dealt with on the part of the victims. Victims in particular often do not know how to fend off such attacks and what intervention options are available to them. Taking these criteria into account, Pieschl & Porsch arrive at the following definition of cyberbullying:

"Cyberbullying is any form of harassment, denigration, deceit, betrayal and exclusion using information and communication technologies that makes the victim feel helpless or at the mercy of others and (emotionally) burdened, or that he or she would be likely to feel that way if he or she knew about the incidents" (Pieschl & Porsch, 2012, p 18).⁶⁶

In this sense, any insulting statement, but also the posting of defamatory photos and videos via mobile phone, can be classified as cyber-bullying. This also applies to the sending of such messages via e-mail or posts in chat rooms, on homepages and social networks as well as calls via mobile phones.⁶⁷

According to Katzer, cyberpsychologist and expert on cyberpsychological behaviour, two factors are decisive in promoting cyberbullying. One is the anonymity on the internet and the other is the loss of control by users on the internet. In the shadow of anonymity, perpetrators often remain unrecognised for a long time or always, as there are no functioning control and sanction mechanisms. In the chapter on hate speech, numerous factors have already been mentioned that promote this disinhibition, which also apply to cyberbullying.



2.2.2 The situation of the victims

The situation of victims in the virtual space differs from bullying situations in the real/ analogue environment in one point in particular, namely that of endless victimisation. Once attacks, insults, threats, etc. have been published on the internet, they can spread virally and appear again and again for a lifetime. It is precisely the reach and the publicity factor that further intensify the bullying situation.⁶⁸ In addition, victims of cyberbullying attacks usually do not even know those who are bullying them, as they move in the shadows of anonymity and can therefore hardly be identified by the victims. In this respect, victims of bullying have a better chance of escaping the attacks than cyberbullying victims. They do not know who to flee from and fear is literally breathing down their necks. Here, attacks can take place around the clock and in any place. And once an offensive statement is online, it can damage the victim's reputation for life, which can have a negative impact on future employment, college admissions or relationships.⁶⁹

2.2.3 How can victims defend themselves?

Many of the points already mentioned in the sub-chapter on hate speech also apply here.

- Ignore cyberbullies. This way it is possible to avoid further points of attack!
- Do not react, do not answer!
- Disclose as little personal information about yourself as possible!
- If possible, block cyberbullies!
- Issue a deletion order for unwanted content!
- Change contact information!
- Document the attacks in order to be able to present sufficient evidence in case of prosecution!
- Keep a cyberbullying diary!
- Save attacks by means of screenshots!
- Seek advice from institutions that specialise in cyberbullying!
- Report attacks to the police!
- Don't be afraid to be strong and fight for yourself with confidence!⁷⁰

2.2.4 Legal situation in different countries

In Austria:

Cyber-bullying is punishable by law. According to the Criminal Code, cyber-bullying has been punishable since 01.01.2016 and is "continued harassment by means of telecommunications or a computer system" (e.g.: SMS, WhatsApp, Facebook, etc.). This applies "if the honour of a person is violated and this is perceptible to a larger number of people and/or facts or images of the personal sphere of life are perceptible to a larger number of people without their consent and unreasonably affect a person in their way of life."⁷¹

The penalty is a custodial sentence of up to one year or a fine of up to 720 daily rates. If a suicide or attempted suicide were to follow as a result of a cyber-bullying attack, the law provides for a prison sentence of up to three years.⁷²

Legal basis

- Section 107a of the Criminal Code (StGB)
- Section 107c of the Criminal Code (StGB)

Stalking, i.e. the persistent pursuit of victims, §107a StGB) has been punishable in Austria since 2006 - this also applies to the "virtual" world.⁷³

In Germany

In contrast to Austria, cyberbullying is not a separate criminal offence in Germany. However, this does not mean that cyberbullying is not punishable. In the case of cyberbullying, laws of the Criminal Code come into play in Germany.

In particular, the following laws of the Criminal Code may be applied:

- § 185 Insult
- § 186 Defamation
- § 187 Defamation
- § 238 Stalking
- § 201 Violation of the confidentiality of the word
- § 201a Violation of the most personal sphere of life through image recordings
- § 240 and § 241 Coercion and threat

In Spain

Cyberbullying has been a punishable offence in Spain since 2013. A specific article was included to regulate any kind of sexual harassment over the internet. However, the laws on this subject in the Penal Code are not precisely defined. They only take into account acts that have a sexual intent according to Article 131 Law 26.904 of the Spanish Penal Code. In Spain, positive initiatives are promoted by the Spanish authorities to combat cyber-bullying, such as the introduction of early warning systems in schools with a set of indicators that allow teachers to detect attacks of cyber-bullying and inform students' parents. In the case of cyber-bullying attacks directed against children, Spanish legislation provides for the Convention of the Rights of the Child to protect victims, as well as regulations in this regard in the Spanish Constitution and the Criminal Code for criminal prosecution.

2.2.5 Helpful information and links

In German language

- <https://www.klicksafe.de/themen/kommunizieren/cyber-mobbing/cyber-mobbing-was-ist-das/>
- <https://de.wikipedia.org/wiki/Cyber-Mobbing>
- <https://www.bmbwf.gv.at/Themen/schule/zrp/dibi/inipro/cybermobbing.html>
- http://cyberhelp.eu/de/introduction/what_is
- <https://www.frauenreferat-ooe.at/cybermobbing.htm>
- <https://www-de.scoyo.com/eltern/kinder-und-medien/hilfe-bei-cyber-mobbing>
- <https://www.polizei-beratung.de/themen-und-tipps/ Gefahren-im-internet/cybermobbing/>
- <https://www.youtube.com/watch?v=hy3VpO00EDA>
- <https://info.arte.tv/de/verschaerfung-der-gesetze-gegen-cyber-mobbing>

In spanish language

- http://www.autismo.org.es/sites/default/files/cermi_2019_el_acoso_y_el_ciberacoso_escolar_en_el_alumnado_con_discapacidad.pdf
- <http://www.fundacioncsz.org/ArchivosPublicaciones/292.pdf>
- <https://www.diariosur.es/sociedad/educacion/ciberacoso-smartphone-menores-20180627152238-ntrc.html>
- http://dehesa.unex.es/bitstream/handle/10662/5792/1695-288X_15_1_131.pdf?sequence=1&isAllowed=y
- <https://www.pantallasamigas.net/programa-cibermentores-contrael-acoso-y-el-ciberacoso/>

In english language

- <https://cyberbullying.org/advice-for-adult-victims-of-cyberbullying>
- <https://what-europe-does-for-me.eu/en/portal/2/P05>
- <http://cyberhelp.eu/en/introduction/behavior>
- <https://deletecyberbullying.wordpress.com/about/>
- https://www.alda-europe.eu/newSite/project_dett.php?!D=139

3. Messenger services - WhatsApp & Co

Instant messenger services are now one of the most important means of communication worldwide. The significant increase in users, supported by the widespread use of smartphones, has completely turned the communication behaviour of people in the 21st century upside down. Whereas telephone calls used to be indispensable for communication, today it is short messages via WhatsApp and Co. These providers enable extremely flexible communication that is not tied to time or place - as long as there is an internet connection. Messenger services have become an indispensable part of our everyday lives, both privately and in business and professional communication. In contrast to analogue means of communication such as telephony, messenger services also enable the transmission of videos, pictures and documents.

The aim of this chapter is to get to know a wide variety of messenger services and to develop strategies on how we can evaluate the services for use in private and professional environments.



Messenger services		
He/she is able to use instant messenger services in a self-determined way to send and/or exchange messages.		
Knowledge	Skills	Competences
He / She can <ul style="list-style-type: none"> Describe the basic principle of an instant messenger service Describe up to three different messenger services Identify elements that ensure safe use of messenger services. 	He / She can <ul style="list-style-type: none"> Develop a strategy on how to use an instant messenger service to exchange messages. Use an instant messenger service other than WhatsApp or facebook-messenger specifically. Select messenger services that enable secure use 	He / She can <ul style="list-style-type: none"> Apply strategies to use the right messenger services depending on the context. Apply strategies to use Messenger services safely with regard to data protection

3.1 What are "instant messengers"?

"Instant messaging" means "immediate message transmission". Messages transmitted via the Internet in real time appear immediately on the recipient's terminal device. These messages do not have to be retrieved first. Furthermore, not only text messages can be transmitted, but also videos, audio files and documents. Depending on the provider, telephony and video chat are also possible.⁷⁴ With many messenger services, the user can see directly whether and when the recipient has read the message. Unlike e-mails, for example, the sender and recipient of the message must have the same messenger installed.

In online chat rooms, information can also be exchanged and messages sent, but these virtual rooms are usually organised thematically and, depending on their accessibility, can be entered and left by any user. In a sense, they are public.⁷⁵ Messenger services, on the other hand, are not. Users of these services communicate privately with users they themselves have created in a list. To do this, users must register with the provider of a messenger service and create a user account.⁷⁶

3.2 Messenger services - A historical review

At the end of the 1990s, the era of messenger services began. The chat service IRC allowed users to meet and exchange information in so-called channels. In addition, the Short Message Service appeared on the scene - known as SMS. Especially in Central Europe, the SMS enjoyed great popularity and neologisms like "texting" were added to the vocabulary. In the mid-90s, the first instant messaging service to use the internet for sending was launched: ICQ (I seek you). At its most popular times, more than 100 million users used this service. Today, with only eleven million users, its market share compared to other providers is no longer worth mentioning. Services such as Yahoo Messenger and Microsoft Live Messenger are just as negligible.⁷⁷

3.3. How do messenger services work?

Messengers send messages, photos, videos, voice messages and more over an internet connection. In order to use a messenger service, registration is first required, during which the user is assigned a number, an ID or a name. Now a contact list of acquaintances/friends can be created. When registering, many services compare the contacts in one's own phone book and check whether they also use the corresponding service. One click is all it takes to establish contact. Different messenger services offer a wide variety of functions. Sending is usually free of charge with all of them, only telephony to the telephone network is associated with additional costs - if the service offers this function at all. However, it should be noted that the use of a messenger (especially the sending of photos and videos) can put a heavy strain on the available data volume.⁷⁸

3.4 User figures for messenger apps

The user figures show how widespread messengers are. More than four billion users use chat apps. Two billion users use WhatsApp, followed by 1.3 billion Facebook Messenger users. In Austria, WhatsApp, Facebook Messenger, Snapchat, Skype and Telegram are among the most used messenger services. In Germany, messenger users largely prefer the same messenger services: WhatsApp, Facebook Messenger, Apple Messages App, Skype and Telegram. More than 58 million people use WhatsApp every day in Germany. This ranking also roughly reflects user behaviour worldwide.⁷⁹

3.5 Overview of available messenger services

As mentioned at the beginning, WhatsApp and Facebook Messenger dominate the market. When we search for messenger services on the internet, we soon realise that we have an almost overwhelming offer at our disposal. And many of the other services are in no way inferior to WhatsApp and Facebook Messenger in their range of functions. But what criteria should be considered when choosing messenger services? In addition to the criteria of whether these services are available for the smartphone operating systems iOS and Android, the focus should also be on the data protection regulations of the respective providers, their user-friendliness and server stability. Accordingly, data protection should play an essential role when choosing messenger services. An important factor here is end-to-end encryption, which ensures that data can only be read by chat participants and not by the app operators.⁸⁰

In addition to the numerous messenger services, there are also many applications that come from the field of software development and are used for communication. Moreover, the transition between exclusive messenger applications and video conferencing systems is fluid. Many of these messengers also offer the possibility of real-time communication with sound and video transmission. At the same time, in software-based video conferencing solutions it is usually also possible to "chat" with other people from the contact list and send text messages. A clear demarcation is therefore not always possible.

The following discussion of messenger services focuses on the best-known ones and does not claim to be exhaustive.

Tip

Useful tips on all messengers can be found on the website of the German Consumer Advice Centre at: <https://www.verbraucherzentrale.de/wissen/digitale-welt/datenschutz/whatsappalternativen-messenger-im-ueberblick-13055>

WhatsApp

The free messenger service WhatsApp is operated by Facebook Inc. and allows the unlimited transmission of text, image, video and audio messages as well as the exchange of location information, contact information and documents. Since 2016, users have also been able to make free phone calls over the internet. The app is compatible with various smartphone operating systems. To use the service, however, the phone number must be provided. WhatsApp is criticised because the service requires access to the entire phone book and transmits all contact data to the WhatsApp servers in the United States for data matching. In addition, WhatsApp belongs to the Facebook group and is therefore subject to US laws. These authorise US authorities to gain access to the data. There is also a risk of data exchange between the companies of the Facebook group. For example, the Terms and Conditions updated in January 2021 state "WhatsApp also works with and shares information with the other Facebook companies so that they can help us operate (...) and market our services". In this context, the aspect of data protection should always play an essential role when using WhatsApp.

Threema

Threema is a messenger that offers services on the same scale as WhatsApp, but also focuses on data protection and privacy. This is ensured, among other things, by end-to-end encryption, as well as a server location in Switzerland and a focus on data economy (https://threema.ch/de/faq/privacy_protection). The End-to-End Encryping Messaging Application (EEEMA) led to the naming of the Swiss company Threema. To use Threema, neither a mobile phone number nor an email address is required. A randomly generated identification number when setting up the app allows you to remain anonymous, and without leaving a data trail. Everything is managed directly on the smartphone and not on a server. However, Threema is not free. The download costs the user between 2 and 4 euros once.

Signal

Signal also encrypts messages end to end and thus offers good security conditions. Signal was developed in 2014 by a non-profit foundation based in the USA. The service was published under an open source licence. Many users choose to use Signal because it does not allow messages to be read or listened to. When registering, however, the phone number must be given. Signal developed rather slowly as a messenger service at the beginning, but its market share is growing. From a data protection perspective, Signal is another option alongside Threema.

Telegram

Signal's biggest competitor is Telegram. Telegram was programmed by a Russian team of developers. According to its own information, the development team is based in Dubai. The team assures that there is no fear of data being passed on to third parties. The selection "Secure Chat" is supposed to ensure that conversation histories are not stored on the server and that they can also be automatically deleted by setting an expiry date. Telegram is a synchronised cloud messenger that makes it possible to exchange data from different devices.

Telegram gained attention in 2020 primarily because the service was increasingly used by supposed critics of the system and conspiracy theorists as an alternative channel during the Corona pandemic, after their channels and profiles were in turn blocked on the major platforms such as Facebook and YouTube. Already in April 2020, more than 400 million users were recorded for the first time, according to the developers. After supporters of former US President Donald Trump stormed the Capitol in Washington on 6 January 2021, networks like Parler were blocked. Telegram's user numbers then received a further boost. Most recently, the service reported 500 million active users (as of January 2021).

Telegram is currently free to use. Nevertheless, the developers have already announced on their website that they will start monetising the service in 2021 in order to finance the infrastructure and the salaries of the developers.

Facebook Messenger

Facebook has outsourced the Messenger function to its own app. On the PC, messages can be sent via the Facebook website; on the smartphone, a separate app is needed to use the Messenger in the same way. On the smartphone, however, the function of reading and writing messages is tied to the installation of Facebook Messenger. The app requires extensive permissions on our smartphone. Facebook thus receives comprehensive information about us and our contacts. Messages in Messenger can also be read by Facebook employees. Encryption is offered, but it must be activated by all users and the Messenger must be used as an app for this.⁸¹

Skype

In 2017, the estimated number of registered Skype users worldwide was 1.33 billion.⁸² The messenger service has been owned by Microsoft since 2011, is widely used and easy to use, especially for video conferencing. Particularly attractive for users is the Skype Translator, which translates what is spoken directly and displays it as subtitles in the live video image. Skype also offers a screen-sharing function. The service is therefore more of a video conferencing solution than a pure messenger. In basic mode, Skype is free of charge as soon as the conversation partners have installed Skype.



Google Meet

Google Meet, the successor to Google Hangouts, is a video conferencing and chat app from Google. Every person with their own Google account has access to a free version of the service. However, there is also a paid version for businesses.⁸³ Google Meet services include the ability for up to 100 participants to join a call without a picture, via the web or smartphones. G Suite Enterprise Edition offers special security through password-protected dial-in numbers in meetings. Screen sharing is also possible, as is subtitling in real time.

Zoom

Zoom is provided by Zoom Video Communications and is a software specialist in the field of video communication. Especially during the Corona crisis of 2020/2021, Zoom scored with its software-based video conferencing solution, which provides companies with faster internal communication along with many additional functions. Video conferences, web seminars and live chats can be realised and files can be exchanged within these activities. A free version is available, but the range of functions is limited.

Zoom has come under fire in the past for serious security problems. However, the US company made numerous changes to adapt the security standard to European requirements.

Nevertheless, there are still a few things to keep in mind in the latest version. For example, links to meetings should only be shared with people who are also allowed to attend the meeting. Passwords should always be created according to certain security criteria and the sending of sensitive data should be avoided. The importance of such secrecy was recently demonstrated by an incident in which a Dutch journalist logged into the Zoom meeting of EU defence ministers after a picture of Ank Bijlefeld, the Dutch defence minister, was shared on Twitter, showing the access code for the Zoom meeting.⁸⁴

Slack

Slack was designed as a communication software for offices, but it also offers numerous other functions. After successful registration, each user can create so-called channels for various tasks and transmit documents, photos, etc. All users in a team can access the information in the channel and work on it simultaneously. Slack offers both open channels (accessible to everyone in the company) and closed channels, to which only invited users have access. With the Slack Connect function, even cross-company exchange is possible. In terms of security, Slack supports various protocols for encryption and Europe can be selected as the storage location.⁸⁵

Discord

The Discord communication software was developed explicitly for the "gamer community" and is used for chats, voice and video conferences. The individual channels are structured according to topics and enable communication with like-minded people who want to exchange ideas among friends or in communities. The use and the creation of an own server are free of charge..

„The different channels and @mentions make it much easier to share information in a targeted way. The voice chat is great for one-on-one conversations with my teacher - we can just quickly switch to a voice channel and have a conversation.

Discord has brought us closer together as a physics class.“

Genavieve, AP Physics Student

From a data protection perspective, the use of Discord is questionable. The storage and processing of data takes place in the USA and messages sent via the service are not end-to-end encrypted. Discord also allows users to interact incognito.⁸⁶

End-to-end encryption

With end-to-end encryption, messages are encrypted when they are sent and only decrypted again when they reach the recipient. During the transmission of the data via the internet, it is therefore not readable. Only the two communication partners are able to decrypt the message using a digital key. But even though messenger services advertise end-to-end encryption and promise security, security gaps are discovered time and again. One notable example is the NSA scandal and the related revelation that both the USA and Germany decoded at least the metadata of other countries' encrypted communications

3.6 Dealing with the use of messenger services

In the professional environment, messenger services can speed up the exchange of information between departments and/or employees, and questions that suddenly arise can be answered quickly. However, this form of communication can also put a certain amount of pressure on employees, in that the expected amount of time to clarify inconsistencies becomes shorter and shorter. This can increase the stress level..

What should employees pay attention to when using messenger services?

- Not all topics should be discussed via messenger service
- Who may read along?
- Times of rest
- Which supporting functions are used (e.g. reminder functions)?
- Compliance with security requirements (no external services or self-installed systems)
- Data protection compliance
- Communication rules

As with any medium, it is important to observe generally accepted communication rules when using messenger services. Messenger services enable particularly fast communication and the sender of messages usually expects a quick reply. If replies are held back for a long time, this is considered extremely impolite in messenger circles. Furthermore, formal means such as formal salutations, long greetings and sprawling final sentences as in letters should be avoided. Nevertheless, a difference between private and professional communication should be recognisable in the style of communication. Grammatical and spelling errors should not creep in. Furthermore, studies point out that users of messenger services should limit themselves to a maximum of three parallel chats, as otherwise a fluid chat flow is no longer given, which has a detrimental effect on the exchange of information. A messenger conversation should never take too long, which means that requests that require a lot of time to answer should be made via an alternative communication channel. It is also advisable not to send negative messages via messenger. The same applies to products offered or advertising. This also violates the generally accepted terms of use.

3.7 Messenger services and data protection

When choosing a messenger service, the issue of data protection should also be taken into account. This can be seen in the example of WhatsApp: the application automatically transmits all contact data stored on the smartphone to the company when it is installed. However, this should not happen without the consent of the contacts concerned. This means that in the case of WhatsApp, we would actually have to obtain consent for the sharing of data from each person in our address book before installation and also document it.

It must also be clarified in advance what exactly happens to the data. Many messenger services do not provide sufficient explanation in this regard. Many messengers run via servers located worldwide. This means that data is transferred to third countries that may not be subject to European data protection law. What happens to the data transmitted to the respective company cannot be adequately assessed from the outside. The "right to be forgotten" granted by the European General Data Protection Regulation (GDPR), i.e. the complete deletion of user data, is also likely to be difficult to enforce.

In addition, the GDPR requires a strict separation of business and private data, which becomes difficult if the employee uses WhatsApp on his or her smartphone for both business and private purposes. The private and business use of smartphones can also become problematic if software that was purchased privately and may not be used for commercial purposes is used for business purposes.

But how can employers protect themselves when smartphones are used for both business and private purposes?

There are various solutions for securing mobile end devices. For example, a so-called container app such as SecurePIM can be used. All company data is "locked" in the container and access by apps and unauthorised persons is prevented. This enables the use of instant messaging that meets the requirements of GDPR. SecurePIM is the only security solution approved by the German BSI (Federal Office for Information Security) for the transmission and processing of classified information. Appropriate solutions should always be checked from a security and legal point of view before being introduced.



4.0 Content Creation & Collaboration Tools

4.1 Content creation

In the advertising industry, content creation has always been the be-all and end-all, be it to increase awareness or to attract new customers. But never before has it been so easy to reach very many segments of the population on such a large scale as it is today. Social media channels are the new drivers of content distribution. Today, anyone can produce their own content and distribute it immediately. Be it via their own website or social media platforms, for example their own YouTube channel.

The word content comes from the English language and means content. The Anglicism stands predominantly for content from the media and the internet. The German Duden defines content as "qualified content, information content especially of websites".

„The term content (...) is a viable umbrella term for all types of publications and releases - from the CEO's speech to the video and Facebook post. It stands for all types of content that a company uses to engage with its stakeholders and interest groups. That's why we use this term“⁸⁷

„The term content describes the sum of texts, graphics, illustrations and images that make a website worth visiting and interesting. Beyond the pure significance and attractiveness of the content, content is also one of the main determinants of the value of a website.“⁸⁸

Content Creation & Collaboration-Tools		
He/she is able to use content tools in a self-directed way to generate content and collaborate on shared tasks with others in different contexts.		
Knowledge	Skills	Competences
He/she can <ul style="list-style-type: none"> describe the basic principle of content tools name up to three different content tools describe the basic principle of collaboration tools describe up to three different collaboration tools name the risks that arise with regard to the use of collaboration tools name the risks from a data protection point of view 	He/she can <ul style="list-style-type: none"> develop a strategy on how to use content tools use up to three different content tools in a targeted way select content tools according to the context develop a strategy on how to use collaboration tools to connect with others, send and/or share data and work on common tasks. 	He/she is able to <ul style="list-style-type: none"> apply strategies to use the right content tools depending on the context apply strategies to use the right collaboration tools according to the context. apply strategies to use collaboration tools in a secure way with regard to data protection.

Content is becoming increasingly important and seems to be displacing classic public relations, or PR, and advertising. The internet is a surplus of information and every piece of information wants to claim a certain unique selling point. Media vie for our attention and only those who are able to deliver the latest and most interesting content get the "publicity". According to the "B2B Online Monitor 2014 - Kings of Content", four out of five company representatives surveyed were of the opinion that content marketing will be one of the most important topics in the future with regard to product presentation and the associated sales.

Dr Manfred Uhl, Professor of Marketing and Corporate Communications at Augsburg University of Applied Sciences, defines content marketing as follows:

„Content marketing (CM) is a communication principle that places content that is individually relevant to dialogue partners, prepared using journalistic forms of presentation, at the centre of communicative work with internal and external stakeholders. The basic aim of CM is to support economic and/or communicative goals of an organisation. These are functionally achieved through entertainment, information, integration and identification. CM is oriented towards the pull principle and uses editorial storytelling in a media environment that is familiar and credible to the dialogue partner. It networks offline and online channels, uses peer-to-peer communication and takes into account the respective specifics of digital and analogue communication channels.“⁸⁹

Agencies and service companies within the communication industries are trying to jump on the content marketing bandwagon by all means, as they are in danger of losing customers.⁹⁰ Particularly affected are PR agencies, which have a hard time placing content as a result; advertising agencies, which are fighting a decline in advertising acceptance as consumers become more critical; or corporate publishers, who cannot reduce themselves to print media alone, but must also distribute content online. But social media service providers also need to produce more inspiring content.⁹¹

4.1.1 History

Historically, the history of content is a recent one. Mass media that disseminated content globally only emerged in the 20th century. The dissemination of content relied primarily on word of mouth via "recommendation management".

Eck and Eichmeier cite the tyre manufacturer Michelin as an example of the first content marketing in Europe. The "Michelin for motorists" (around 1900) became a restaurant and hotel guide within two decades. The "Guide Michelin", which was intended to encourage the French to drive, contained travel tips as well as instructions on how to change tyres. In 1926, the "Guide Michelin" was expanded and now also included a restaurant rating with stars. Corporate publishing was a priority at Michelin and was used to attract customers who were not interested in product presentation but in captivating stories. It was the first mass media, radio and TV, that created the conditions for content to reach millions of people in the 1930s. .⁹²

In Germany, in contrast to the USA (1941), the advertising offensive via TV began relatively late, in 1956. It was not until the emergence of private television through RTL, SAT1, ProSieben and other "pay-TV" channels, which were financed exclusively by advertising, that the advertising market changed permanently.⁹³

Until the 1990s, it was important for companies to obtain addresses of the target group. This consumed and still consumes large sums of advertising budgets, because reaching addressees through advertising via mass media such as radio or TV is expensive. ⁹⁴

With the advent of the internet, companies went online from the mid-90s, but little changed in their advertising presence. Even if companies commissioned advertising agencies for this purpose, the formats of previous brochures were merely transferred to the digital world. So-called content management systems were used to improve the presentation of editorial processes. This process developed very slowly because many companies were afraid that these investments would not pay off. However, as the users of the World Wide Web grew, so did the number of companies that invested in their own online editorial offices. Online editorial departments put an enormous strain on the budget and many companies were forced to buy content for their homepages from media companies or other service providers. This did not always prove to be the cheaper option. It was not until the emergence of social media in 2002 that Eck and Eichmeier speak of the so-called content revolution. From then on, the ever faster and easier exchange of content via blogs and RSS feeds played an essential role in the online representation of companies.

David Kirkpatrick sums up in FORTUNE Magazine how important blogging is for the sale of products and services::

„Why can't you escape the blog? Freelance bloggers can promote your product or nullify it. Either way, they have become a force that businesses can no longer ignore“ ⁹⁵

For many brand companies, corporate blogs are part of their content marketing strategy. Since 2006, the number of corporate blogs has been steadily increasing. In 2020, 81% of companies believed that corporate blogs are important for their business and generate more website visitors as a result.⁹⁶

In the age of digitalisation, new technologies brought new demands on content. In "Marketing in the Age of Digitalisation: Opportunities and Challenges through Digital Innovations", Urbach names three aspects as accelerators of digital marketing. Firstly, customer behaviour has changed massively in recent decades. More and more people - especially digital natives - inform themselves and buy online. Secondly, digital technologies enable purchases without time and space restrictions and open up new payment options. As a third aspect, Urbach cites the increasing servitisation, i.e. the expansion of the product range through services.⁹⁷

Digital natives are people for whom the use of digital media was a matter of course from an early age and whose everyday use is completely automated - in other words, "natives of a digital world"

Servitisation is the offering of additional services for products or their complete replacement. Servitisation can be service-, benefit- or result-oriented.
Service-oriented: The product is offered together with a service.
Usage-oriented: The product remains the property of the service provider.
Results-oriented: A service replaces the product.
According to a study in the UK, design and development, maintenance and support, and retail and distribution were the most frequently used servitizations in 2009.¹¹⁰

Describing all content processes in detail is beyond the scope of this context. At this point, we only want to point out how technical progress and digitalisation influence content marketing and present some content tools / content tools that support these processes. Because content tools are becoming more and more relevant and affordable for private individuals as well. People publish texts on web blogs or stage themselves on social media channels. Videos for one's own YouTube channel can be produced inexpensively, photos can be edited and covers can be designed.

4.1.2 Content Creation Tools

Content marketing tools can be divided into the following categories:

- Keyword and topic research tools
- Influencer marketing tools
- Content curation tools
- Promotion, retargeting and personalisation tools
- Email marketing tools
- Graphic tools
- Video tools
- Audio tools
- Interactive Content Tools
- Content collaboration tools
- Marketing Automation Tools
- Content marketing tools for copywriting
- Content creation platforms
- Content distribution tools
- Analysis and monitoring tools

The range of content tools is large. We limit ourselves to a small selection of solutions that can prove useful in private as well as in professional life. The list is not exhaustive and is available on the CUMILA Wiki.



Overview of useful tools on wiki.cumila.eu

4.2 Collaboration Tools – Collaboration Technology

The word "collaboration" comes from Latin and is composed of con (with) and laborare (to work). First of all, it means "to work together".⁹⁸ In addition, however, the term also describes the process of active, usually equal, cooperation between several people on a common task without strictly defined boundaries.

„Collaboration refers to cooperative working between individuals with a common goal“⁹⁹

„Collaboration is the work of two or more individuals on shared material that has been deliberately planned to achieve a common group goal. To achieve this group goal, communication, coordination and cooperation between the actors involved are necessary.“¹⁰⁰

Collaboration - connotation of a term

In German, the term Kollaboration is often used synonymously with Kooperation, since the word Kollaboration has a negative semantic connotation. Collaboration as a connotation of "collaborating with the enemy". But we must refrain from this, because collaboration involves more than mere cooperation. For in addition to cooperation, communication and coordination are also to be understood as sub-areas of collaboration.¹¹¹

4.2.1 History

More than 90 percent of all households in Germany have a computer (as of 2019), compared to less than 50 percent in 2000.¹⁰¹ In the same period, the number of internet users in Austria increased many times over, from 2.1 to almost 8 million.¹⁰² More and more people are "online" and using the new technologies. For example, according to Eurostat, about 40% of individuals in the European Union now use cloud services to store documents, photos, videos and music.¹⁰³

Increasing digitalisation has also triggered a major change in the world of work. Innovative technologies are displacing human workers in some areas. However, due to digital progress, more and more workers are also dependent on the use of digital devices and networks. Simpler jobs, especially manufacturing jobs, will continue to disappear in the coming years.¹⁰⁴ According to the Düsseldorf economist Jens Südekum, the increasing use of robots has cost around 275,000 industrial jobs in Germany alone over the last 20 years. At the same time, however, just as many new jobs have been created in other sectors. Predominantly in areas that require a higher level of education and in which social, communicative and creative skills are becoming increasingly important. With this development, the demand for workers who primarily perform cognitive activities is increasing.

In the modern world of work, many new working models and organisational approaches exist. In the age of the "home office", workers are increasingly working independently of time and, above all, location. More and more workers are dependent on digital devices and technologies, but as a result there is also a need for social interaction, collaboration and creativity. The modern form of work design relies on workplaces that provide spaces and structures that allow and encourage interaction and collabo-

ration. Customised hardware and software programmes act as a bridge.

Employees who perceive their workplace as collaborative and flexible are more motivated, satisfied and loyal to the company.¹⁰⁵

Another trend is the use of collaborative working methods to better exploit the potential of the company's own employees. Employees are increasingly involved in the creative planning processes or already in early phases of product development. The goal here is to release creativity and thus find new innovative ideas. Among other things, this involves the interdisciplinary exchange of individual specialists from different departments. Whereas in the past each department worked for itself and there were only individual interfaces with other teams, modern approaches are based on interdisciplinary teams. Potential customer groups are also consulted and involved in the early stages of product development. The new creative processes try to find solutions from the perspective of the end user. They are based on the, quite justified, assumption that problems can be solved better if people from different disciplines work together in a creative environment. New innovation methods have become established here, especially in IT and product development.

4.2.2 Difference between cooperation and collaboration

In a cooperation, a task is divided into different subtasks for which different persons or teams are responsible. The processing takes place in parallel. The cooperation partners each pursue different sub-goals and do not have to be in the same place, nor do they have to know each other.

In collaboration, people or teams also work in parallel, but also together on a result. The participants are involved in the production of all the results of a project. The work is done sequentially, i.e. continuously. It is usually self-organised, self-responsible, interest-driven and independent of hierarchy. In this way, complex issues that do not allow for pure "succession" or "juxtaposition" can be solved at high speed.¹⁰⁶

A collaboratively written children's book may contain stories by different authors, with illustrations added afterwards. In a collaborative children's book, all authors write a story together at the same time.



4.2.3 Collaborative working methods

Working collaboratively requires more than bringing all project participants to the same table, exchanging information and collaborating. Managing these processes requires new methods of collaboration and appropriate tools to enable such collaboration online, regardless of location and across borders, possibly even time zones.

Online tools make it possible for several people to write on a document, structure a collection of ideas or fill in a table at the same time. With some tools, it is even possible to track who has contributed or changed which content. All participants in the creation process are both creators and viewers at the same time. Everyone benefits from the ideas of others and thus receives new impulses.

But collaborative approaches are not only found in the creative environment. The term "groupware" (group software) is used to describe systems that support a group of people in their field of activity or goal. The boundaries here are not clearly defined and are fluid. It already starts with the sharing of a company-wide telephone book and appointment calendar or internal customer and order management to which all employees have access. Collaborative approaches can also be found in project management solutions or knowledge management and document management.

Increasingly, cloud services are also being used, which have the advantage that both the software and the data are located directly on a central server and can be accessed from any location via the internet.

A well-known example is collaborative writing through the use of a wiki system such as Wikipedia. In a collaborative authoring community, each contributor has equal opportunities to add, edit or remove text. Writing thus becomes a process in which every change to the text results in further processes. Collaborative writing requires that the participants have a lively discourse and are clear about the purpose of their text.

In companies, cloud services such as Microsoft Sharepoint, Google Docs or the open source software Nextcloud are usually used for collaborative document editing. However, the use of an online tool is not always the best choice for the respective purpose. It is important to find a suitable tool depending on the goal in the pedagogical practice. The respective methodology should be based on the target group as well as on the content to be taught or developed.¹⁰⁷

4.2.4 Risks when using collaborative software solutions

First of all, the use of collaborative online solutions brings enormous advantages in terms of flexibility of work. Every project member can participate regardless of time and place. In most cases, only an internet connection is necessary. Workers can often use their own smartphone or computer.

In this context, the term BYOD - Bring Your Own Device - has become established to describe the professional use of private devices. This can have disadvantages not only for employees but also for companies. In addition to questions of security and data protection, licensing issues may also need to be clarified.

According to Dell, 480 million new smartphones were sold worldwide in 2016 and 65% of these are used in a BYOD environment. However, for 64% of companies, this also results in higher IT security costs.¹⁰⁸

At work, the smartphone is mainly used for email communication and to retrieve business documents. If employees use their private devices for this purpose, it is in the interest of the company to issue suitable security guidelines and offer security applications. In this case, company information ends up on private devices, the protection of which cannot be monitored by the company.

However, certain risks must already be taken into account when selecting the solution to be used. Many internet companies have their headquarters outside the European Union and it is not always directly obvious in which country their own data is stored and to what extent the provider can guarantee technical and organisational measures with regard to IT security and data protection. This must at least be taken into account before using the tool.

However, collaboration solutions will become increasingly important and central to working together to develop and implement joint ideas.¹⁰⁹ According to a foresight study by the Fraunhofer Institute for Systems and Innovation Research, the next ten years will see more micro-enterprises as well as self-employed people working predominantly collaboratively in individual teams and on projects.

In the education sector, too, it will be increasingly important to design continuing education programmes that focus on teaching skills in collaboration and networking as well as self-organisation and self-management.

"Security in the company" - Collaborative solutions

VPN connections

A Virtual Private Network (VPN) is used to establish a secure connection between the company network and an external end device such as a smartphone or computer. The end device dials into the "virtual network" by means of a user name and password and thus establishes a parallel connection to the company network. In this context, we often speak of a VPN tunnel, as the VPN connection manages the communication link and secures it to the outside. A communication server protects the network by encrypting and decrypting the data that is exchanged. The employee's external device behaves as if it is in the internal network when a VPN connection is active. This allows internal tools and drives to be accessed.

Virtual Desktop Infrastructure

With a virtual desktop, employees access a virtualised PC on the internet via the internet. The advantage of this is that the employee does not work directly with his or her own end device, but only uses it to access the online PC. Technically, this runs on its own server in the computer centre.

Cloud solutions

With a cloud solution, all the software is located in a data centre. Employees access the software via the internet and then work online. Although many providers offer options to synchronise files with the local hard drive as well, basically the main source of data is online. The advantage is that the service is always accessible from anywhere

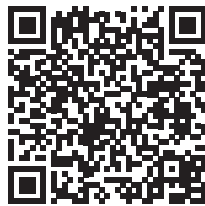


4.2.5 Collaboration-Tools

When searching for collaboration tools on the internet, it quickly becomes clear that there is no shortage of offers. There are solutions and tools for every conceivable use case. However, the most important question is always first of all what problem is to be solved. Which topics should be worked on? In what form? Who needs access and which end devices need to be supported? Based on this needs analysis, it becomes clear which requirements the corresponding tool must fulfil.

There are numerous software and web-based offerings for working together virtually, setting appointments, holding meetings and the like.

The range of collaboration tools is large. We will limit ourselves to a small selection of solutions that can prove useful in both private and professional life. The list makes no claim to completeness and is available in the CUMILA Wiki..



Overview of useful tools on wiki.cumila.eu

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