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Social Media and the Mental Health of Children and Adolescents

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1 Introduction

We are currently experiencing a global mental health crisis among adolescents. This is the conclusion reached, for example, by the Lancet Psychiatry Commission on Youth Mental Health. The authors write: "Accumulating research evidence indicates that in many countries, the mental health of emerging adults has been declining steadily over the past two decades" and "The rising incidence of mental ill health in young people makes continuing neglect of their needs intolerable." [1] In Germany, too, children and adolescents have better mental health than during the coronavirus pandemic – but it is significantly worse than before.[2] According to the Lancet Commission, the possible causes of this crisis form a multi-causal network; they include the coronavirus pandemic, the measures taken to contain it and their consequences, as well as several global megatrends, including climate change and unregulated social media.

The latter factor – the role of social media – is the focus of this discussion paper. We, an interdisciplinary group of researchers, define social media as digital platforms that enable users to create and share content and thus establish and maintain social relationships.[3] Social media promote the exchange of information, opinions, images, videos and other content almost in real time. The category of social media includes social networking platforms (e. g. Facebook, Instagram, X), discussion platforms (e. g. Reddit), platforms that stream user-generated content (e. g. YouTube, TikTok), and professional career platforms (e. g. XING, LinkedIn). Messenger services (e. g. WhatsApp, Signal) for sending and receiving text messages are not considered social media by some researchers; others also classify messenger services as social media because an individual can communicate with many other people with user-generated content.[4] Our

1 McGorry et al. 2024, p. 731.

2 Kaman et al. 2024.

3 Taddicken & Schmidt 2017, p. 5.

4 For example, Carr & Hayes 2015.

definition of social media includes those messenger services that have a functionality similar to that of traditional social networks. This applies, for example, to Telegram, which, in addition to private communication, also includes public channels and group chats with thousands of members, through which content can be disseminated quickly and widely – similar to social networks. WhatsApp is also moving in this direction, for example with the currently discussed introduction of personalised advertising based on usage data. Both examples show that the boundaries between social networks and messenger services are becoming increasingly blurred – therefore our extended definition seems appropriate.

A central aspect of almost all social media platforms is their business model: Its aim is to monetise users' attention and data. Typically, user behaviour is analysed to identify specific characteristics, preferences and behaviour patterns of individuals and groups.[5] On this basis, users are then provided with personalised content, their behaviour is predicted, and targeted advertisements are presented to them, enabling the platform providers to generate revenue.[6]

However, the algorithm-based curation and sorting of content and advertising not only has economic effects – it also leads to social media being systematically used by state and non-state actors to influence the political attitudes of users. However, since social media only partially function as public spaces, these and other types of influence remain largely unobserved.

Political influence through social media is therefore a problem that has socio-political implications. The same applies to the links between social media and the mental health of children and adolescents. So, what role does social media play in relation to the increasing decline of mental health among children and adolescents? This question is highly topical in both national and international debates, and the political discussion about possible consequences is the subject of controversial assessments. Due to such worrying developments, there are now calls in Germany to regulate social media access for minors in order to reduce long-term health risks. Others, however, warn against hasty decisions and instead

5 German National Academy of Sciences Leopoldina et al. 2021.

6 ECJ, C-604/22, IAB Europe, Judgment 7 March 2024, para. 21 ff., 63, 74. On personalisation, see Spiecker gen. Döhmann, 2018, p. 36ff.

call for prudence and careful consideration. The Coalition Agreement between the CDU, CSU and SPD parties in 2025 set a goal of substantially strengthening the protection of children and adolescents in the digital world. This includes having secure default settings, mandatory age verification for digital devices and services, and the announcement of two national strategies to be commissioned by the German Ministry for Education, Family Affairs, Senior Citizens, Women and Youth (BMBFSFJ) during the current legislative period: The strategy *Protecting Children and Young People in the Digital World* and the strategy *Mental Health for Young People*.[7]

The impact of social media use is also a subject of controversial academic debate.[8] Most of the available evidence is correlative and not causal. A study result is considered causal if, in a methodologically sound way, it proves a cause-and-effect relationship between two or more variables, whereas it is considered correlative if it indicates a statistical association between two or more variables without proving a cause-and-effect relationship. Despite the currently unsatisfactory state of research (see Chapter 2), scientists worldwide are increasingly calling for robust measures to at least reduce the potential risks of social media use for the mental health of adolescents. American social psychologist Jonathan Haidt thus recently argued that the increasing time children spend on smartphones and social media is detrimental to play and sleep and, together with age-inappropriate content recommended by commercial algorithms, is rewiring childhood. Ultimately, he claims that this is causing an epidemic of mental illness.[9] Other researchers have strongly criticised this assertion and accused Haidt of incorrectly interpreting the correlative relationships between technology use and mental illness as causal.[10] And indeed, the question of how social media use affects the brain has barely been studied by neuroscientists, so that the empirical evidence is quite limited.[11] In this discussion paper, we adopt the following position

7 Coalition Agreement 2025, p. 100–101.

8 For example, Pearson 2025; Twenge et al. 2020; Orben & Przybylski 2019; National Academies of Sciences, Engineering, and Medicine 2024.

9 "The Great Rewiring of Childhood", Haidt 2024; based on Twenge 2017.

10 For example, Odgers 2024.

11 Montag et al. 2023.

on this issue: The pace of technological progress in digital and social media far exceeds the pace of gaining scientific knowledge in this field. This fundamental imbalance is further exacerbated by the fact that the major digital platforms often resist the creation of public knowledge and the sharing of data for scientific analysis – despite the fact that they are partially legally obliged to do so.[12]

In view of this situation and considering the evidence already available and the potential irreversibility of psychological damage to children and adolescents, we advocate for the application of the precautionary principle.[13] This principle, which is established in technology law for example, is a generally recognised legal and ethical standard for dealing with uncertainty. It is followed by the United Nations, the European Union (EU) and Germany in various policy areas. At its core, this concerns the question of how a society should act when there is a scientifically justified suspicion of significant harm to human health or the environment, but the empirical evidence is insufficient to conclusively proof the existence, likelihood, or magnitude of such harm. In such cases, the precautionary principle implies that responsible actors can, and often should, take measures against this risk.[14] Many areas of law, such as technology law, environmental law and data protection law, are based on this principle.[15] We emphasise at this point that the use of social media, especially its problematic use, poses not only a risk to the mental health of children and adolescents, but also other significant risks such as the possibility of cognitive and motor development disorders (e. g. reduced reading and writing skills). These risks, which we cannot discuss in detail here, also argue in favour of applying the precautionary principle.

The precautionary principle thus also constitutes the legal and ethical basis for the recommendations for action proposed in Chapter 4 for political decision-makers in Germany and the EU. The guiding principle of these recommendations is that, on the one hand, children

12 Orben & Matias 2025; Bruns 2021.

13 Hansson 2023; Clearly stated in the recently adopted guidelines of the European Commission 2025a, para. 20.

14 For example, ECJ, C-477/14, Pillbox 38, Judgment of 4 May 2016; ECJ, C-236/01, Monsanto, Judgment of 9 September 2003, with further references; ECJ, C-157/96, National Farmers' Union, Judgment of 5 May 1998; Müggenborg 2021, p. 18 f.; Calliess/Ruffert - Calliess, 6th Ed. 2022, TFEU Art. 191 para. 29f.

15 European Commission 2000; Kahl & Gärditz 2023, Section 4, para. 22.

and adolescents should be protected from the dangers of social media; as Article 17 of the UN Convention on the Rights of the Child (CRC) also stipulates, on the other hand, that they should be enabled to participate in digital life and that the use of social media can also have positive effects, they should also be empowered to use social media in a confident, reflective and competent manner. Last but not least, we also recommend timely research that reliably clarifies the relationship between social media and mental health – both correlative and causal – and continuously evaluates and, where necessary, adapts specific interventions for risk protection and competence building.

First of all, however, Chapter 2 summarises the current state of research on the frequency of specific media use among children and adolescents in Germany and on the opportunities and risks of social media use. While we cannot provide a complete overview of the rapidly growing body of literature and current evidence within the scope of this discussion paper, we do illustrate our view of the current state of research with important and relevant studies on the topic. Chapter 3 then provides an overview of existing legal regulations and technological safeguards.

2 State of research

2.1 Usage behaviour of children and adolescents

In Germany, more and more children and adolescents are using social media at an increasingly early age. According to recent studies, 10 percent of 6- to 7-year-olds, 17 percent of 8- to 9-year-olds, 46 percent of 10- to 11-year-olds and 71 percent of 12- to 13-year-olds use TikTok at least once a week.[16] The use of social media can be described in two dimensions: by *quantity* – i.e. by frequency and duration of use – and by *quality*, i.e. by type of use, which can be active (e. g. uploading content, exchanging private and public messages) or passive (e. g. receiving content from other users).[17] But how much time do children and adolescents spend on social media? Representative samples from the German population show that not only the frequency of use but also the duration of use increases with age: In the study *Childhood – Internet – Media (Kindheit – Internet – Medien (KIM))* (6- to 13-year-olds: n = 1,225)[18] around half of the children surveyed or their parents reported using social media almost every day. The results of the study *Youth – Internet – Media (Jugend – Internet – Medien (JIM))* (12- to 19-year-olds: n = 1,200)[19] show that over 80 percent of adolescents use social media for an average of 3.5 hours a day. A longitudinal study commissioned by the health insurance company DAK also found a significant increase in usage among children and adolescents (10- to 17-year-olds) in Germany between autumn 2019 and 2024.[20]

16 Feierabend et al. 2024b.

17 Brailovskaia 2024.

18 Feierabend et al. 2024b.

19 Feierabend et al. 2024a.

20 DZSKJ 2025.

The quality of use also changes in relation to social media from childhood to adolescence: Initially, its use is exclusively passive (e. g. watching videos), which is increasingly supplemented by intensive active use (e. g. frequent posting) in late childhood and adolescence.[21] In addition, parents with higher levels of education are more likely to set rules and discuss media content than parents with lower levels of education.[22] However, children are increasingly using smartphones without parental supervision.[23]

A large international survey on social media use and mental health among children and adolescents aged 11, 13 and 15 was conducted by the World Health Organization (WHO) in 44 countries, including Germany, in 2021 and 2022.[24] For this purpose, representative samples from the general population were collected in each country and surveyed accordingly; the study focused on addictive behaviour relating to the use of social media. According to the study methodology, behaviour was considered addictive if 6 out of 9 criteria of the Social Media Disorder Scale were met.[25] The criteria include loss of control, neglect of other activities, withdrawal symptoms and negative effects on daily life. In Germany, a total of 11 percent of the adolescents surveyed exhibited addictive behaviour, with a range of 3 percent to 20 percent among the countries surveyed in the WHO study. This represents a significant increase compared to 2018, when only 7 percent of adolescents of this age group were affected.[26] According to the WHO study, 13-year-olds were particularly likely to exhibit addictive behaviour.[27]

In addition to more general data, the 2024 DAK study on social media use among children and adolescents in Germany, conducted by the German Center for Addiction Research in Childhood and Adolescence *(Deutsches Zentrum für Suchtfragen des Kindes- und Jugendalters, DZSKJ),* also identified indications of risky and pathological behaviour patterns.[28]

21 See the KIM and JIM studies: Feierabend et al. 2023, 2024a, 2024b.

22 Feierabend et al. 2024a.

23 Feierabend et al. 2024b.

24 Boniel-Nissim et al. 2024.

25 Van den Eijnden et al. 2016.

26 Moor et al. 2020.

27 Boniel-Nissim et al. 2024.

28 DZSKJ 2025.

The category “pathological” corresponds to the term “addictive” in the WHO study, even though the survey methods differ in some respects. The category “risky”, on the other hand, refers to usage behaviour that can be considered a precursor to pathological use. The results of the study are presented in Table 1. According to the DAK findings, the proportion of children and adolescents with pathological usage behaviour is lower than the figure quoted in the WHO study, but the absolute number of those affected is still very high. There are no significant differences in terms of gender distribution; however, there are age-related differences: Adolescents aged 14 to 17 are significantly more likely to engage in pathological usage behaviour than children aged 10 to 13.[29]

Table 1: Statistical data on social media use by children and adolescents (aged 10 to 17, self-reported) in Germany (n > 1,200)[30]

Frequency of use	**6 days per week (70% daily)**
Daily duration of use	
Per school day/workday	**2 hours 37 minutes**
Per day at the weekend/on holiday	**3 hours 47 minutes**
Risky usage behaviour	**21.1% (> 1 million children and adolescents*)**
Addictive usage behaviour	**4.7% (approx. 300,000 children and adolescents*)**

* Extrapolated to the total population of the same age in Germany, which was approximately 6.3 million children and adolescents at the time of the study.

In addition, the KIM study has shown that many children in Germany start using social media at an age that is well below the minimum age of 13, which is often defined by the platform providers themselves. The smartphone is the most popular device; almost one in two children aged 6 to 13 has its own smartphone or has access to its parents’ device.[31]

29 DZSKJ 2025.

30 DZSKJ 2025.

31 Feierabend et al. 2024.

2.2 Opportunities of social media use

Social media are important platforms for adolescents to express themselves and their opinions and to find their own political voice.[32] Receiving positive feedback from others or using social media for self-reflection can strengthen their self-esteem.[33] In particular, authentic self-presentation online has been positively linked to psychological well-being in several studies.[34] Social media also plays an important role in maintaining social contacts. A 2014 study of 1,840 adolescents in Belgium showed that active users in particular can experience social support online: Over time, exchanging private Facebook messages was associated with a stronger perception of social support, which in turn was linked to a decline in depressive symptoms among girls.[35] A meta-analysis of 14 empirical studies from Europe and China involving over 11,600 adolescents aged 10 to 19 showed a significant, moderately positive correlation between perceived social support from online contact and adolescents' self-confidence.[36] Social media also helps adolescents to build important personal networks that serve as social capital and foster social connectedness.[37] This is particularly important for minorities and vulnerable groups such as LGBTQ+ individuals.[38] In addition, many adolescents use social media as an important source of information about trends and world events.[39] Pursuing their own interests on social media platforms can inspire young users and broaden their horizons.[40] Finally, social media enables adolescents to exchange peer-to-peer knowledge.[41]

32 Kligler-Vilenchik & Literat 2025.
33 Krause et al. 2021.
34 Erfani & Abedin 2018.
35 Frison et al. 2019.
36 Zhou & Cheng 2022.
37 Erfani & Abedin 2018; Meier & Reinecke 2021.
38 Bond & Miller 2024; Craig et al. 2021.
39 Feierabend et al. 2024.
40 Weinstein 2018.
41 Asterhan & Bouton 2017.

Recent longitudinal studies from the Netherlands also suggest that effects are specific to the individual.[42] For example, a study involving 387 pupils in years 8 and 9 found that for 26 percent of the respondents there was a positive correlation between social media use and their general well-being over time; for 28 percent the authors reported a negative correlation, and for 45 percent they found no correlation at all. The factors responsible for these differences have not yet been fully explained. The intensity of use also plays a role: While low to moderate use of social media is usually harmless or even associated with positive effects, negative effects occur mainly with intensive use.[43] The intensive use of social media is defined as frequent, prolonged use which is emotionally significant and firmly anchored in everyday life.[44]

2.3 Risks of social media use

As indicated in Section 2.2, uses and gratifications provided by social media are certainly important for children and adolescents; however, these are offset by various risks. Such risks include cyberbullying (i.e., sending harassing or threatening messages, posting humiliating comments or threatening someone online),[45] hate speech[46] and misinformation,[47] deterioration in school performance,[48] impairments in reading and attention skills, and physical (including possible neurological) changes.[49] Of particular importance is the link between children and adolescents' use of social media and their mental health, as this constitutes a key prerequisite for their well-being and developmental opportunities. Notably, most mental illnesses develop during child-

42 Beyens et al. 2024; Valkenburg et al. 2021.

43 Frielingsdorf et al. 2025.

44 Ellison et al. 2007.

45 For example Zych et al. 2016; Modecki et al. 2014.

46 For example Obermaier & Schmuck 2022.

47 Lorenz-Spreen et al. 2023.

48 For example Sampasa-Kanyinga et al. 2019.

49 For example Montag 2019; Stevic & Schmuck 2024.

hood and adolescence.[50] The high density of biological, psychological and social developmental changes in childhood and adolescence, such as building relationships or developing impulse control, makes adolescents in these stages of life particularly vulnerable to the development of mental disorders.

This is succinctly expressed in an international consensus statement published this year by over 120 researchers.[51] According to the statement, the intensive use of smartphones and social media can cause developmental disorders including sleep problems. In addition, a link with attention disorders and addictive behaviour has also been described. Among girls, the use of social media can be associated with body dissatisfaction, perfectionism, mental health issues and an increased risk of sexual harassment and assault.[52] Various studies[53] confirm and specify these findings: They have concluded that intensive or addictive use of social media can be associated with a range of psychological problems. These include increased symptoms of depression and anxiety, stress, nervousness, sleep problems, impaired attention, eating disorders, dissatisfaction with one's body and self-image, suicidal thoughts, and self-harming or suicidal behaviour.[54]

Subjective well-being and life satisfaction are also often negatively linked to social media use.[55] Longitudinal analyses involving 17,409 participants aged 10 to 21 in the United Kingdom have shown that there are different adolescent developmental windows for sensitivity to social media. Within these windows, more intensive social media use – as self-reported by the participants – predicts a decline in life satisfaction one year later, whereas lower use predicts higher life satisfaction. These time windows appear to be slightly offset in boys (aged 14–15 and 19) and girls (aged 11–13 and 19). Finally, a decrease in life satisfaction – regardless of gender and age – makes a later increase in (self-assessed)

50 Kessler et al. 2005.

51 Capraro et al. 2025.

52 Feierabend et al. 2024a.

53 Even those with young adults; for example Braghieri et al. 2022.

54 For example Shannon et al. 2023; Liu et al. 2022.

55 Bozzola et al. 2022; Keles et al. 2020; Moss et al. 2023.

media use more likely.[56] The studies cited here and those cited below generally indicate small to medium effects for the respective samples. However, when extrapolated to the population groups to which the effects can be applied – for example, all children of a certain age in Germany – this implies that a very large number of adolescents may in fact be affected by the risks studied.

The negative effects on the mental health of children and adolescents are even more pronounced with the prolonged or potentially addictive use of social media. This is shown by the WHO and DAK cross-sectional studies for Germany: Children and adolescents with addictive usage patterns were significantly more likely to exhibit severe symptoms of depression and anxiety, stress, sleep problems and suicidal thoughts than their peers without addictive usage patterns. In addition, their mental well-being was poorer, and they had less flexible coping strategies for dealing with everyday demands, such as those at school. They tended to intensify their use of social media, especially in stressful situations. Similar findings have also been reported in cross-sectional studies from the Netherlands, Finland and the USA.[57] Longitudinal studies complement the cross-sectional findings and confirm that long-term, and particularly addictive, use of social media increases the risk of mental health problems in adolescents and is therefore considered a risk factor. A longitudinal US cohort study (N = 6,595) demonstrated an increased risk of depression and anxiety disorders in children and adolescents aged 12 to 15 over a three-year study period.[58] A longitudinal study from Israel, in which researchers followed 3,697 children and adolescents (aged 8 to 14) over a period of four years, showed a significant increase in social media use over time, which was also associated with an increase in negative psychological symptoms and a significant deterioration in mental well-being.[59]

For fundamental methodological reasons, cross-sectional studies cannot establish a causal link between social media use and the mental health of children and adolescents; they can only reveal corresponding

56 Orben et al. 2022.

57 Boer et al. 2021; Kennard et al. 2025; Kim et al. 2024; Paakkari et al. 2021.

58 Riehm et al. 2019.

59 Shoshani et al. 2024.

correlations.[60] The situation is different with longitudinal studies, which can provide indications of cause and effect. Another promising approach to investigating the causal relationship between media use and mental health are intervention studies aimed at reducing social media use in a controlled manner. In these studies, participants are randomly assigned (e. g. by age and gender) to an intervention group or a control group. While the intervention group is asked to reduce their social media use by, e. g. 30 minutes per day over a certain period, the control group does not change their usage. Before and after the intervention period, both groups complete questionnaires assessing mental health factors, such as symptoms of depression. If statistically significant changes in symptoms between the first and other data assessments are only evident in the intervention group, causal effects can be assumed. Initial studies involving young adults in Germany and the USA show that even a conscious reduction in daily social media use by 20 to 30 minutes leads to significant improvements in mental health.[61] When this reduction is also combined with alternative activities such as physical activity or mindfulness exercises that promote positive emotions offline, the long-term positive effect is even greater.[62]

Available studies mainly relate to adolescents aged 13 and above. However, as shown in Section 2.1, social media is often used by younger children. To date, there has been very little research on the correlative and causal relationship between social media use and mental health in this age group.[63] However, parents appear to act as role models for their children's media use, as there is a significant positive correlation between the media use of children and adolescents and that of their parents.[64] Parents who themselves exhibit addictive behaviour on social media thus serve as negative role models and increase the risk that their children may also develop addictive behaviour.[65] In addition, the way parents regulate their children's media use is closely linked to

60 Kraemer et al. 1997.

61 For example Brailovskaia et al. 2020; Hunt et al. 2018.

62 Brailovskaia et al. 2022.

63 Rega et al. 2023.

64 Poulain et al. 2023.

65 Kattein et al. 2023.

their own attitudes towards media and their own media use habits:[66] A study of 1,415 parents of 3- to 6-year-old children in China showed that parents who are aware of the risks of intensive social media use control their own use more strictly and also regulate their children's use in a targeted manner; their children, in turn, use social media less frequently in an addictive manner than children of less risk-aware parents.[67] Further studies confirmed the finding that children are less likely to engage in intensive use and addictive tendencies on social media when their parents actively monitor their media use and set clear, consistent rules. Conversely, children and adolescents were more likely to develop problematic usage patterns when parents were less involved or display inconsistent and reactive parenting practices.[68]

2.4 Summary

Social media is omnipresent and can provide valuable functions for children and adolescents – for example, promoting social participation, offering inspiration, and broadening horizons. At the same time, as outlined in Chapter 1, the mental health crisis among adolescents is worsening. Numerous studies show links between intensive or even addictive social media use and mental health problems. Initial longitudinal and intervention studies also indicate possible causal relationships. Prolonged use often comes at the expense of key areas of development, such as physical activity, recreation, social skills, problem-solving abilities, and the successful mastery of developmental-psychological tasks. In addition, children and adolescents face further risks associated with social media use, such as cyberbullying and hate comments.

In our opinion, the conditions are more than sufficient for the precautionary principle to be applied to the use of social media by children and adolescents. The risks to adolescents, their well-being, and future life opportunities are considerable, and society as a whole may also be affected, for example through additional burdens on the health system

66 Nikken & Schols 2015.

67 Li et al. 2025.

68 Vossen et al. 2024; Wang et al. 2024.

and negative effects on the labour market and social cohesion. There is, therefore, a clear need for political action to protect children and adolescents in their use of social media. At the same time, more intensive research is required to better understand the mechanisms of social media use in this age group.

3 Protective measures

Germany, the EU, and many other countries have already implemented a wide range of measures to protect children and adolescents in their use of social media. Relevant companies also provide solutions that can enhance this protection. In this chapter, we provide an overview of the key legal provisions and other protective measures for children and adolescents in the social media context. We also describe technological approaches that enable the implementation of these and further protective measures. An assessment of the usefulness and effectiveness of these measures is not within the scope of this discussion paper.

3.1 State regulation

3.1.1 Legal framework in the EU and Germany

At EU level and in Germany, there are already several legal provisions that are relevant to the protection of children and adolescents with regard to social media. Within the scope of EU law, national legislators are generally no longer able to act independently or establish their own legal basis for additional protective measures. In particular, the EU's Digital Services Act (DSA) precludes stricter national regulations – such as those in the German Interstate Treaty on the Protection of Minors in the Media *(Jugendmedienschutz-Staatsvertrag, JMStV)* or the Youth Protection Act *(Jugendschutzgesetz, JuSchG)* – provided that they pursue the same protective purpose (so-called full harmonisation).[69]

An important regulation for the protection of children and adolescents is the EU Directive on Audiovisual Media Services (AVMSD),[70] which applies in particular to social media platforms that allow the public sharing of user-generated videos. It stipulates that providers must take "appropriate" measures to protect children and adolescents

69 For example Martini et al. (forthcoming).

70 Directive 2010/13/EU (AVMSD).

from harmful content, such as pornographic and indexed content.[71] Furthermore, the EU General Data Protection Regulation (GDPR) includes[72] provisions that are highly relevant to the protection of minors on social media. For instance, according to Article 8 of the GDPR, adolescents must be at least 16 years old to independently consent to the processing of their personal data.[73] As the business model of most social media companies relies on collecting and processing as much personal data as possible for commercial purposes, children under the age of 16 may only use such services with their parents' consent.[74]

The aforementioned DSA is also particularly important.[75] It contains numerous provisions relating to the protection of children and adolescents on online platforms, this includes most social media platforms, but not instant messaging services. Specifically, European law requires online platform providers, first, to ensure that their terms and conditions are understandable to minors.[76] In particular, providers must explain how recommendation systems work and how users can influence them. Second, the DSA requires platform providers to ensure a high level of protection for minors when using their services.[77] To achieve this, providers must take "appropriate and proportionate measures", which may vary depending on the individual case. Various potential measures are mentioned in the specialized literature and in the EU Commission's guidelines on implementing the protection of minors required by the DSA;[78] these include, for example, secure default settings for accounts that allow interaction only with confirmed contacts,

71 Harmful content is content that may impair the physical, mental, or moral development of minors or that is illegal or glorifies violence.

72 Regulation (EU) 2016/679.

73 Article 8 (1) para. 2 GDPR allows member states to lower the age limit to 13 years. Germany has not made use of this option.

74 ECJ, C-252/21; Simitis et al. - Klement, 2nd Ed. 2025, GDPR Art. 8 para. 31 f.; Taeger 2021, p. 506; Kühling/Buchner - Buchner/Petri, 4th ed. 2024, GDPR Art. 6 para. 40; Radtke 2023, p. 164. On one aspect of the processed data, for example: https://www.facebook.com/about/ads

75 Regulation (EU) 2022/2065.

76 Article 27 in connection with Article 14(3) DSA. Similarly, with regard to information relevant to data protection, Article 12(1)(2), GDPR.

77 Article 28 DSA.

78 For example European Commission 2025a; Müller-Terpitz/Köhler - Holznagel 2024, DSA Art. 28 para. 39, 42.

preventing other users from taking screenshots, disabling tracking functions, and turning off filters that may be problematic for children and adolescents. Particularly addictive features, such as autoplay, push notifications, and infinite scrolling, should also be deactivated by default. In addition, the introduction of child-friendly time management and complaint functions is recommended. Parental control functions, however, should only be used as a support measure. Furthermore, the EU Commission's guidelines demand that recommendation systems should be adapted, for example, by responding less to click behaviour, prioritising age-appropriate content, and that no profiling takes place to generate personalised content recommendations.

Thirdly, the DSA requires providers of large online platforms, i.e. those with more than 45 million active users a month in the EU, known as Very Large Online Platforms (VLOPs),[79] to regularly assess whether their platforms pose systemic risks to children and adolescents. Such assessments must be conducted at least once a year. Any identified risks should be analysed and evaluated, and appropriate, effective and proportionate measures must be taken to mitigate them. The DSA names age verification systems[80] and parental control functions as examples of such measures.

Regarding age verification systems, the EU Commission generally takes a risk-based approach across all legislation: the greater the risk of use for children and adolescents, the stricter the requirements for the age verification.[81] Initial requirements for technical age verification can be found in the consolidated version of the eIDAS Regulation,[82] which was amended last year by the eIDAS 2.0 Regulation.[83] Under the new legal conditions now in force, Member States are obliged to provide their citizens with at least one digital wallet by the end of 2026, referred to as the European Digital Identity Wallet (EUDI Wallet). The

79 Article 34, 35 DSA. This text is based on the fact that almost all relevant social media platforms (Facebook, Instagram, Snapchat, TikTok, X, YouTube) are already classified as "very large online platforms", or VLOPs. European Commission 2025b.

80 Age verification mechanisms are also suitable protective measures within the meaning of Article 28b(3)(3f) of the AVMSD.

81 European Commission 2025a.

82 Regulation (EU) 910/2014.

83 Regulation (EU) 2024/1183.

main purpose of the EUDI Wallet is to enable digital identification by storing identity credentials, such as an identity card for opening a bank account. The EUDI Wallet will also allow the authentication of individual attributes, such as a person's age enabling its use for age verification. For the transition period before full implementation of the EUDI Wallet, an EU-wide interim solution is being developed for age verification, known as the mini wallet.[84] According to the EU Commission, both the EUDI Wallet and the Mini Wallet are intended to meet the highest standards of age verification.[85] However, independent technological assessments are still pending.

Many of the guidelines described above shift the responsibility of assessing risks and implementing protective measures for children and adolescents in the social media sphere to the platform providers – and thus to those whose business model causes the risk. However, a significant degree of responsibility is also placed on children and adolescents themselves, and their parents. This is because, in order to use protective functions such as parental or self-control tools, or options to adjust recommendation systems, users need to be aware of these features, take action themselves, and know how to use them correctly. This sets a high bar. Those who are insufficiently informed or unaware are therefore unlikely to be adequately protected by the DSA regulations, even though the obligation to explain the functioning of social media and online platforms in an understandable manner is intended to mitigate this gap. Another problem is the considerable personal investment required to implement these requirements effectively, including time, technological resources, knowledge and intellectual effort. Moreover, many parents hesitate to restrict their children's use of social media for fear of limiting their social participation. Finally, schools, other educational institutions, clubs, and other extracurricular organisations also use social media as a format for information and participation, which, in fact, obliges many children and adolescents to engage with these platforms.

The authorities of the country in which the respective social media provider is based are generally responsible for enforcing European

84 There was a call for tenders by 18 November 2024, see European Commission 2024.

85 European Commission 2025a and European Commission 2025c.

regulations.[86] However, depending on the applicable legal provisions, there are different rules that govern cooperation between authorities in Europe. For example, the competent lead data protection authority must primarily cooperate with the authorities in the country of residence of the affected users,[87] while also mandatorily having to engage in intensive consultation with the central European coordinating body – the European Data Protection Board (EDPB).[88] Additionally, other data protection authorities may also take action on their own initiative in response to specific complaints.[89] In contrast to the GDPR, the DSA allows authorities of other EU countries, where online platforms are accessible, to also initiate investigations by their own competent authority.[90] Furthermore, the EU Commission itself monitors VLOPs and exercises direct supervision over them.[91] However, the personnel, technical and financial resources of supervisory authorities and social media providers or online platforms – especially VLOPs – are extremely unevenly distributed. In addition, the effectiveness of supervisory measures is often delayed for years by legal challenges initiated by the platform providers.

3.1.2 Regulatory approaches outside the EU

In recent years, several countries outside the EU, including some US states, have introduced new regulations to protect minors using social media. The approaches differ considerably. Australia, for example, has a particularly strict model that has attracted worldwide attention: Children and adolescents under the age of 16 are in principle prohibited from creating an account on certain social networks[92] without the possibility of an exception through parental consent, as is allowed

86 Article 28a(1) AVMD and Section 2 I 1 JMStV; Article 56(1), (6) and (7) and Article 49(1) and (2) DSA; Article 56 GDPR.

87 Article 60 GDPR.

88 Consistency procedure, Article 63 ff. GDPR.

89 Article 77 GDPR.

90 Article 58 DSA.

91 Article 56(2)(3) DSA.

92 The regulation does not cover all social networks that fall under the definition of "social media" used in this discussion paper.

under the GDPR, for example.[93] Other countries focus more on regulating specific functions considered particularly risky. For example, certain recommendation systems based on user data that can be addictive are prohibited.[94] Additionally, the use of design elements such as push notifications, autoplay, or endless scrolling is restricted, or completely prohibited in some cases, especially during night-time hours.[95] In some cases, there are also time limits on daily social media use, or even complete bans at certain times of the day, such as at night.[96] Some countries go even further prescribing the type of content that is allowed to be displayed to children and adolescents – such as age-appropriate educational content selected by the state.[97] In many of these cases, parents can decide whether certain pre-set protective measures may be deactivated.

3.2 Measures relating to education and the economy

3.2.1 Educational settings

Regarding social media, educational settings in Germany are focusing on the targeted promotion of media literacy. To this end, there are a number of educational policy frameworks in Germany and internationally that address media education in schools – with the particular aim of enabling children and adolescents to use digital and social media in a critical, reflective and responsible manner.[98] Existing frameworks

93 Online Safety Amendment (Social Media Minimum Age) Act 2024, No. 127. A similar law with a strict ban for under-14s and an opt-out option for parents for 14- and 15-year-olds has also been introduced in the US state of Florida, Florida House Bill 3 2024. The US state of Louisiana has also introduced a regulation similar to the GDPR, Louisiana Senate Bill 162.

94 See, for example, Stop Addictive Feeds Exploitation (SAFE) For Kids Act, introduced by New York Bill No. S7694A.

95 For example, New York: Stop Addictive Feeds Exploitation (SAFE) For Kids Act, introduced by New York Bill No. S7694A; Utah: Utah Minor Protection in Social Media Act, introduced by Utah Social Media Regulation Amendments, S.B. 194. This law is currently suspended due to a possible violation of the First Amendment to the US Constitution, see District Court, D. Utah, Case No. 2:23-cv-00911-RJS-CMR.

96 See for example Social Media Amendments, H.B.464.

97 For ideas on guidelines for the development of a mode for minors on the internet, https://www.tagesschau.de/ausland/asien/smartphone-kinder-china-100.html

98 For example, the Finnish curriculum for *Multiliteracy and Media Literacy* or the German *DigitalPaktSchule*.

include the *European Framework for the Digital Competence of Educators* (DigCompEdu),[99] the joint strategy of the Standing Conference of the Ministers of Education and Cultural Affairs on *Education in the Digital World*[100] and, at the state level, for example, the basic curriculum for media education in Berlin and Brandenburg[101] or the competence framework for media education in Bavarian schools.[102] Additionally, there are curricula and teaching materials, some of which are empirically validated, addressing problematic phenomena such as cyberbullying and misinformation.[103] According to education researchers, the primary challenge for media education in Germany is not a lack of policy declarations, frameworks, or empirically validated curricula, but rather the frequent failure of implementation in schools. There are several reasons for this, including a shortage of specialist staff, limited time, insufficient training opportunities for teachers and the lacking treatment of media education as a cross-disciplinary competence.

In many schools, the use of private smartphones and other technical devices is restricted or completely prohibited in classrooms. The specific regulations vary significantly between German states: while some states have issued strict guidelines, others leave responsibility to individual schools. For example, Hesse plans a state-wide ban on the use of private smartphones in schools starting in the 2025/2026 school year. Students may bring devices to school but may not use them in the school building or on school grounds, with exceptions for upper secondary schools, educational purposes, or emergencies.[104] Saarland is planning a general ban on the use of private mobile phones and smartwatches in primary schools and in the primary years of special schools, also with defined exceptions.[105] Bavaria is taking a similar approach through its legislation; according to the Bavarian Education and Teaching Act *(Bayerisches Gesetz über das Erziehungs- und Unterrichtswesen, BayEUG)*, private mobile devices may not be used

99 European Commission 2025d.

100 Conference of Ministers of Education 2016.

101 Berlin-Brandenburg Education Server 2025.

102 Mebis Editorial 2019.

103 For example, Marten et al. 2025; Marten & Stadler 2025.

104 Kultus Hessen 2025.

105 MBK Saarland 2025.

on school premises; their use in class is only permitted with the explicit permission of the teacher.[106]

In contrast, most other states leave the regulation of smartphone use to individual schools. These schools determine in their rules whether and how devices may be used in class, on school grounds, or during breaks. In Saxony-Anhalt, for example, approaches vary widely: some schools impose a complete ban, while others allow the targeted educational use of digital devices in class.[107] In Rhineland-Palatinate, by contrast, schools are provided with model usage regulations in order to create clear and uniform framework conditions and recommendations for regulated use, despite school autonomy.[108]

Evidence on the efficacy of smartphone bans in schools is mixed. A recent study of British schools found no evidence that restrictive school policies reduce overall daily smartphone and social media use, nor that they are associated with greater psychological well-being among adolescents.[109] However, the study did identify a link between the intensive smartphone and social media use and increased depressive symptoms, anxiety, and reduced well-being. In contrast, other studies suggest that smartphone bans can have positive effects on well-being, social behaviour, and academic performance.[110] The impact of general smartphone bans in schools on the mental health of children and adolescents remains the subject of ongoing research.

3.2.2 Private companies

Some social media providers have also developed protective measures to safeguard children and adolescents from risks and inappropriate content. However, most of these features can be disabled by children, adolescents, or their parents, and some must even be activated first.

Certain social media providers apply stricter privacy settings for users under a specific age. For example, profiles are set to “private” by default, and the ability to send or receive direct messages can be

106 Article 56(5) BayEUG.

107 German Press Agency 2025.

108 Rhineland-Palatinate State Institute for Education 2025.

109 Goodyear et al. 2025.

110 For example, Zierer & Böttger 2024; Abrahamsson 2024.

restricted. Other default settings include limiting usage time through break reminders or automatically disabling push notifications during night-time hours. In some cases, hosting live streams is prohibited, and specific content is deliberately hidden. Additionally, some platforms offer special parental control features that allow parents to configure their children's account settings, set periods of restricted access, or receive notifications about certain activities, such as new chat contacts. Many providers also provide information materials to educate users about risks such as cyberbullying and data protection issues.

In addition to the platforms themselves, popular smartphone operating systems also provide integrated protection features. They offer parents comprehensive tools to set daily usage times, restrict access to certain apps, and filter content according to age. They also allow parents to create child profiles with customisable restrictions and emphasise privacy protection, according to the providers. Furthermore, third-party apps are available that offer additional control options including monitoring app usage, limiting screen time, tracking location and filtering content.

For technical age verification, some providers are developing digital wallets that store digital ID cards and proof of age on smartphones. This makes it easy to verify age, which can make access to age-restricted services more secure and help social media platforms comply with legal requirements. However, depending on the specific design of the solutions, conflicts with data protection and IT security may arise.

There is a risk that social media platforms using such protection systems will collect additional personal data that would not otherwise be obtained and use it for commercial purposes or to influence users. Therefore, it is essential that these measures are linked to clear and enforceable data protection requirements in order to prevent potential misuse.

3.3 Technical implementation

Technical solutions that are secure, data protection-compliant and user-friendly are essential for the effective implementation of regulatory and other protective measures on social media, while also easing the burden on children, adolescents, and their parents. In the following, we

present and discuss a range of approaches that are already in use today, as well as potential future solutions that could further strengthen the protection of children and adolescents.

One option is to directly integrate protective functions into device hardware and operating systems. Some smartphones already include features such as GPS tracking, access restrictions for social media, automatic usage limits and geofencing notifications that alert parents when their child enters or leaves specific locations. These safeguards are provided by the devices themselves, independently of social media platforms. However, such solutions raise questions about their international applicability, data protection, IT security and transparency.

Some apps aim to make social media use more deliberate and help users reduce impulsive usage behaviour. They are particularly useful for supporting older adolescents in developing a reflective and self-determined approach to social media. Initial evidence of their effectiveness comes from a field experiment conducted by the Danish Competition and Consumer Authority (DCCA) with 13- to 17-year-olds:[111] In one intervention, users had to wait six seconds before an app opened, while the waiting time was accompanied by a calming animation. This simple measure reduced daily social media activity by more than a third. For social media users with an average daily usage time of three hours, this would mean freeing up over one hour per day for other activities.

So far, technical age verification methods have rarely been used to protect children and adolescents online, even though they could effectively restrict uncontrolled and potentially harmful access to problematic content and functions. As mentioned earlier, EU Member States are currently developing the EUDI Wallet, which will allow age verification, among other functions. In Germany, the Federal Agency for Disruptive Innovation *(Bundesagentur für Sprunginnovationen, SPRIN-D)* is coordinating the design of a German EUDI wallet ecosystem and the implementation of the corresponding wallet. Age verification using the Personal Identity Data Function (PID) is planned. PID allows individuals to selectively and securely share officially confirmed digital identity data. The corresponding age verification will meet central security and data protection requirements. These include, for example,

111 Danish Competition and Consumer Authority 2025.

unobservability: The confirming authority is not able to trace when or to which service the proof of age was submitted. At the same time, the planned method follows the principle of data minimisation: Users disclose only the necessary age attribute – for example, "I am at least 16 years old"– without revealing any further personal information. Every decision to use such a proof is entirely up to the user (user control). In addition, unlinkability is guaranteed as long as the issuing authority is trustworthy: multiple uses of the same proof of age cannot be linked to each other, meaning that no usage profiles are created. If the aforementioned assumption of trust is to be avoided, alternative procedures could be applied – such as issuing the age verification independently of the PID function or using cryptographic techniques such as zero-knowledge proofs (ZKP). ZKPs are particularly forgery-proof and minimise the collection of personal data.[112] However, there are still challenges to the secure and practical implementation of ZKPs on smartphones.

The German electronic identity card (eID) can already be used to prove that a person is at least 18 years old. This works through the use of group keys shared by several million users, which ensures anonymity. However, as with all electronic identity documents, there are challenges regarding user-friendliness and public acceptance.[113] Banking apps, which are widely used and mostly easy to use, offer an alternative solution. Yet, they come with their own risks, in particular the possibility of data profiling: the collection and analysis of information about user behaviour to create detailed personal profiles, for example regarding consumer behaviour or personal interests. This is highly problematic from the perspective of data protection, consumer protection, and IT security. Solutions offered by large third-party providers such as Google or Facebook would, in turn, be very convenient for users; however, it would have to be ensured that these services are not exploited for profiling or data collection under the guise of protecting children and adolescents. At present, the technologies in use do not rule out such misuse.

Another age verification technique is AI-based. Algorithms analyse

112 European Commission 2025a, para. 46, advocates for a "double-blind" age verification method for the implementation of age verification systems, which also includes zero-knowledge proofs.

113 IDnow 2023.

biometric features, such as facial features or usage behaviour, to estimate a person's age as accurately as possible. Modern systems rely on deep learning to identify minors with a high degree of accuracy, thereby controlling access to age-restricted content. However, these methods raise serious concerns regarding data and consumer protection and can easily be misused for other purposes, as they involve the processing of sensitive biometric data.[114] Moreover, they are likely to be incompatible with the EU AI Regulation (AI Act).[115]

AI can also be used for content moderation on social media, for instance, for keyword and hashtag filtering to block certain terms and URLs, and image or video analysis to detect nudity, violence, or copyright infringements. Similarly, AI-based Natural Language Processing (NLP) can identify hate speech, bullying or suicide-related content. In addition, multimodal AI applications, which combine text, image, audio, and video analysis, can enhance the detection of threats to minors with greater accuracy.

However, such measures give social network providers additional information about their users and greater control over what content is accessible. This, in turn, allows the algorithms that sort and recommend posts to operate in a more targeted manner, potentially increasing the platform's influence over its users. The Leopoldina statement "Digitalisation and Democracy" outlines one approach to organising the necessary content moderation without such an increase in platform power.[116]

114 AVPA 2022.

115 Regulation (EU) 2024/1689.

116 German National Academy of Sciences Leopoldina et al. 2021.

4 Policy recommendations

As outlined in Chapter 2, there is clear evidence that, despite its many benefits, the use of social media can significantly impair the mental health, well-being, and development of children and adolescents. This remains the case even though protective measures are already in place in Germany, the EU, and beyond (see Chapter 3). It is therefore necessary to make these measures more effective, to amend them systematically, and to consistently enforce existing age restrictions.

In the following, we give policy recommendations. The guiding principle is twofold: on the one hand, children and adolescents should be protected from the potential dangers of social media through age restrictions and mandatory minimum standards; on the other hand, they should also be empowered to use social media confidently, reflectively, and competently, ensuring their social participation. In our view, many of the measures currently under discussion do not go far enough to achieve both of these goals and remain too narrowly focused on age restrictions.

In order to achieve these two goals, we recommend a gradual, age-based approach to social media use. For children under the age of 13, there should be a strict and effective ban on the use of social media. For adolescents aged 13 to 17, social media and networks should be age-appropriate, meaning that key functions of current platforms must be significantly restricted. We also consider it important for parents to accompany the social media use of 13- to 15-year-olds, as many parents wish and, in some cases, already do.[117] To this end, technical monitoring functions need to be improved and made more user-friendly. This will enable young people to participate in social media in a self-determined manner, without being overwhelmed by unfettered exposure to its risks. Educational programmes and awareness campaigns should support both adolescents and their primary caregivers. Importantly, such measures should be developed together with parents and adolescents

117 Haidt et al. 2025.

(co-design). Given our broad definition of social media (see Chapter 1) it will be necessary to carry out regular assessments to determine whether certain messaging services should also fall under these age-appropriate rules, depending on their functions.

One could, of course, argue that effective measures need to target the business model of the attention economy more directly, as its negative consequences affect not only children and adolescents but also adults. However, such an approach would be a long-term political project, whereas the present danger to children and adolescents demands swift action. Our recommended actions therefore focus on the immediate protection of this particularly vulnerable group.

The following policy recommendations are based on available research on the effects of social media use and the effectiveness of protective measures. In areas where reliable evidence is lacking, we apply the precautionary principle and recommend measures we consider appropriate based on current knowledge and our professional assessment. We acknowledge that alternative assessments are possible given the available evidence is partly contradictory and incomplete. Continuous scientific monitoring, evaluation, and further refinement of these measures, as well as systematic research into the positive and negative consequences of social media use, including the underlying mechanisms, are therefore essential.

4.1 Measures for regulation at EU level and in Germany

As explained in Chapter 3, the full harmonisation of EU law – exemplified by the DSA – does not allow for supplementary national regulations that would be directly addressed to social media providers or online platforms. Therefore, the following recommendations for action should be understood to mean that the German Government should advocate for relevant legal regulations at EU level, except in exceptional cases where the existing European legal framework provides scope for national regulation. Where the recommendations below are directed at social media providers, their implementation should be ensured by effective legal requirements and sanctions.

4.1.1 Establishment of a digital infrastructure for age verification

To effectively implement existing and future age-based regulations, a reliable, secure, and privacy-preserving technical solution for age verification should be made available. We therefore recommend that the EUDI Wallet, to be introduced in all EU Member States by 2026, be designed in Germany so that it is available to all citizens aged 16 and over and enables data minimal age verification. This includes, in particular, the ability to prove that a person is at least 16 or 18 years old. Additionally, it should allow verification of parental consent and confirmation of a minimum age of 13, allowing individuals over 13 and under 16 to open accounts on social media platforms. All necessary security and data protection requirements should be met, in particular unobservability, data minimisation, user control, and unlinkability, as described in Section 3.3. As outlined in Section 3.3, the German EUDI implementation will have these standards as long as the issuing authority is trustworthy. We also recommend considering the use of the solutions mentioned in Section 3.3, which do not require such an assumption of trust.

The information provided during the age verification process may only be used by social media platforms for this specific purpose. Where social media can be used without creating a personal account, they should be designed in such a way that young users receive a reduced version of the service, excluding features that promote addiction and adult content, as described in Section 4.1.4. Full access to all functions and to content not suitable for children and adolescents should only be granted upon successful proof of age.

4.1.2 Age-based access restrictions for social media

The minimum age for creating a social media account should be set at 13 years. In our opinion, the studies presented in Chapter 2 clearly indicate that social media is unsuitable for younger children. The *Global Mind Project*, a worldwide programme for exploring mental health in the digital age, has reached the same conclusion and made a corresponding recommendation.[118] For 13- to 15-year-olds, parental consent and confirmation of the minimum age of 13 should be required. Providers

118 Thiagarajan et al. 2025.

should be obliged to verify age limits and parental consent in the future, as described in Chapter 4.1.1.

4.1.3 Parental supervision and self-regulation

Social media accounts should provide technical options for parents and adolescents to monitor usage and to ensure it is age-appropriate (e. g. by limiting usage time and selecting age-appropriate content). To effectively prevent addictive behaviour, it needs to be possible to monitor and guide usage across different platforms. Although common operating systems offer screen time control functions on individual devices, these tools are insufficient for tracking actual usage behaviour across multiple devices. It is crucial that parental control options are set up in such a way that they protect their children's rights to privacy and unimpeded development.[119]

4.1.4 Design of social media for children and adolescents

A list of binding minimum requirements, in line with the DSA and other regulations and guidelines (e. g. the EU Commission's guidelines on the protection of minors in the context of online platforms), should be established for the design of social media accounts for minors.[120] While some social media providers already implement such requirements on a voluntary basis, the high priority of protecting children and adolescents requires binding regulations for the design of social media. This list should be developed in cooperation with the German Federal Agency for Child and Youth Protection in the Media *(Bundeszentrale für Kinder- und Jugendmedienschutz, BzKJ)* and should include, inter alia:

For accounts of users under the age of 18:

- Ban on advertising for products and content that could endanger mental and physical health
- Age-appropriate algorithmic content suggestions
- No personalized advertising

119 OHCHR 2021.

120 European Commission 2025a.

- No generation of user profiles
- No partner ads
- No advertising-based monetisation (e. g. paid product placement, affiliate links, sponsoring)
- Data protection guidelines and settings presented in simple and easy-to-understand language

Additional requirements for the accounts of users under the age of 16:

- Access only to content and interactions with already confirmed contacts
- No live streaming, either hosting or passive consumption
- No push notifications, autoplay, or infinite scrolling

Platform providers should also be required to incorporate systematic interruptions into the user experience for adolescents, which are triggered automatically after defined time intervals. The purpose of this measure is to help adolescents develop reflective and self-regulated media use behaviour through appropriate external stimuli and to counteract the development of excessive or addictive use. A Danish study has shown that such measures can be effective.[121] Specifically, the corresponding function could be implemented as follows: After 45 minutes of uninterrupted use, access to the social media platform is automatically paused. A full-screen message informs the user of the time spent using the platform and asks: “Would you like to continue or take a break?” Further use is only possible after active confirmation, for example by clicking on a button labelled “I want to continue”. A short delay or a second confirmation can further curb impulsive behaviour. The interruption should be designed so that it cannot be circumvented.

Finally, platform providers should conduct an empirical risk analysis before introducing new features or functions and demonstrate that they are safe for all users, especially adolescents aged 13 to 17.

121 Danish Competition and Consumer Authority 2025.

4.2 Measures for educational settings

We recommend banning the use of smartphones in daycare centres and schools up to and including grade 10. Smartphones are the most commonly used digital devices among adolescents and are therefore central to social media use by children and adolescents.[122] As shown in Section 3.2.1, studies indicate that such a ban can have positive effects on well-being, social behaviour, and school performance.[123] Although other studies have found little evidence of the benefits of such measures,[124] we consider a smartphone ban to be a sensible measure as part of a comprehensive protection concept. Educational support and regular evaluation of the ban's impact are crucial in this context.

At the same time, a digital education curriculum should be established in daycare centres and schools and taught cross-disciplinarily to prepare children for key aspects of digital life. This includes the confident and reflective use of social media, and knowledge about the opportunities and risks associated with digitalisation in society. We propose that curricula and materials be developed in a participatory manner, involving teachers, children, and adolescents, to ensure high levels of acceptance. In addition, specific addiction prevention measures should be incorporated into a holistic concept for promoting physical and mental health.[125] To achieve such confident and reflective use, learners, with the help of school devices that are available to everyone in the same way, should be empowered to make systematic use of digital infrastructure and digitally mediated content. Digital education should also foster understanding of the business models of social media providers and how these are implemented in specific services offered. Power structures on the internet and in social media should be critically examined, alongside the development of media literacy skills, such as identifying misinformation and recognising trustworthy sources. Furthermore, pressing issues such as the widespread use of artificial intelligence (e. g. large language models, AI chatbots) and their conse-

122 Feierabend et al. 2023, 2024a.

123 Zierer & Böttger, 2024; Abrahamsson 2024.

124 Goodyear et al. 2025.

125 Popp et al. 2025.

quences should be addressed, including the contexts in which their use is appropriate and where it may be potentially problematic.[126] Critical awareness should also be taught, including the environmental impact of digital technology (carbon footprint, sustainability, consumption of rare earth elements, etc.), and their cognitive, affective, motor, physical, and time-economic effects on users.

Furthermore, the skills of professionals at all levels of the education system – including pre-school and elementary education – should be specifically updated to enable early identification and preventive intervention regarding risky or addictive social media use among children and adolescents. This includes sharing knowledge about the manifestations and effects of problematic use (e. g. through continuing education, training, or workshops) and developing practical skills for dealing with children and adolescents (e. g. through application-oriented training) who have been affected.[127] All-day schools could play a central role here, as they provide opportunities to practice skills such as the reflective use of digital services and using the time gained from reduced media use in meaningful and structured ways (e. g. physical activity, play, music, art, theatre). In addition, they can draw on staff with expertise in media education, which is more likely to be available in all-day schools.[128]

The use of social media for educational purposes (e. g. for organisation or communication in class) should be critically examined and kept to a minimum. If its use is necessary, preference should be given to unproblematic applications, such as privacy-friendly messenger services.

4.3 Measures for public awareness

As outlined in Chapter 3, parents, adolescents, and children already have many technical options at their disposal to make social media use safer and more beneficial. However, it is unclear how often these functions are actually used and whether they effectively help to reduce the negative effects of social media. We therefore recommend implement-

126 Simon et al. 2024.

127 Griffith et al. 2024.

128 DIPF 2019.

ing a broad, evidence-based, and prevention-oriented public health campaign led by the German Federal Institute of Public Health *(Bundesinstitut für Öffentliche Gesundheit, BIÖG)*, involving paediatricians and other relevant professionals. The aim of the campaign should be to provide children, adolescents, and parents with specific information about the benefits, risks, and possible protection options associated with social media, and to promote the use of appropriate functions. The campaign should give practical recommendations on how to use social media sensibly and what to avoid, as well as basic guidance on how to support physical and mental health.

The campaign should focus on the long- and short-term consequences of problematic media use, using clear and easily understandable language to ensure accessibility for children and educationally disadvantaged groups. In addition, the campaign should emphasise the function that parents have as role models. Rules for social media use should be clear, practical for everyday use, and age-appropriate, and provide guidance for parents, children, and adolescents alike – similar to the easy-to-remember three-word slogans used to communicate protective measures during the coronavirus pandemic ("AHA – Abstand, Hygiene, Alltagsmaske", i. e. distance, hygiene, everyday mask). Furthermore, adolescents, parents, and caregivers should receive practical and realistic suggestions for alternative, age-appropriate activities (e. g. exercise, play, social interaction, music, creative activities), so that the time freed up by reduced media use can support healthy development.

In addition, low-threshold online and face-to-face counselling services should be established or expanded to enable early detection and intervention for problematic media use among children and adolescents. Existing apps for accompanying media use by children, adolescents, and parents, as discussed in Section 3.3, should also be made more user-friendly and more motivating in order to increase their effectiveness. Finally, clubs, churches, and other civil society organisations should critically review their use of social media. While maintaining their presence on these platforms is generally desirable, it should not contribute to increasing the risks for minors. For internal communication, organisations should prioritise the use of services that are as unproblematic as possible, such as privacy-friendly messenger services.

4.4 Measures for strengthening independent research

We recommend increasing the funding of independent research on social media and its positive and negative effects on the mental health of children and adolescents. Particular attention should be given to previously under-examined age groups, such as children under the age of 10. Research should examine sensitive developmental windows, interactions with parental media use, the role of peers, and the effects of emerging AI-supported social media formats – such as virtual friends or "social hallucinations", in which artificial intelligence creates a false but subjectively convincing impression of authentic social interaction.

To enable independent, public research, barriers to accessing social media data need to be systematically removed – for example, through legal obligations to implement open interfaces (application programming interfaces, APIs) for scientific purposes. Effective mechanisms for enforcing these requirements are also essential: Platform providers should be required to make their data available quickly, in contrast to the current practice. An obligation should be introduced that requires providers to apply to the courts for exemptions from data disclosure at their own expense and to justify such exemptions. Unlawful refusal to disclose data should be punished with substantial fines imposed by the EU Commission or the responsible supervisory authorities.

With a view to developing the strategies announced in the German 2025 Coalition Agreement on *The protection of children and adolescents in the digital world* and on *Mental health for adolescents*, we propose the development of science-based, normative guidelines for action. These guidelines could form the basis for nationwide educational initiatives, initially implemented by external experts and eventually integrated into the school curriculum.

5 Conclusion and outlook

Social media is extremely popular among adolescents and can play an important role in facilitating social participation. However, there is convincing evidence that the use of social media can have a significant impact on the health, well-being, and developmental opportunities of children and adolescents – despite measures implemented at European and national levels, as well as individual initiatives by social media providers. Considering the risks to individuals and societies associated with social media use by children and adolescents, the authors of this discussion paper believe that political action is needed. Federal and state governments should take effective measures to protect this particularly vulnerable age group. Adolescents should be protected from the risks of social media while also being given the opportunity to develop a reflective and independent approach to it, without becoming overwhelmed. Strategies that focus primarily on age restrictions do not go far enough. Instead, we propose an integrated, age-differentiated protection strategy that combines the various components into a coordinated package. This approach would encompass all social media platforms, including messenger services with relevant functions, and would combine regulatory, technical, and educational measures with public awareness campaigns. As set out in our proposal, the creation of social media accounts should be prohibited for children under the age of 13, as such services are generally unsuitable for this age group. For 13- to 17-year-olds, however, platforms should implement age-appropriate restrictions, such as prohibiting personalised advertising and the creation of individual user profiles. For 13- to 15-year-olds, we also recommend parental supervision, supported by easy-to-use solutions. To ensure compliance with age limits, a reliable framework for age verification must be introduced. In educational settings, the use of smartphones should be prohibited up to and including Year 10. At the same time, a compulsory educational curriculum should be established to promote reflective and confident use of social media by adolescents. Furthermore, a broad public aware-

ness campaign is needed to highlight both the risks and the potential of social media. Finally, further research is essential to better understand the consequences of problematic social media use, as well as the effectiveness of protective measures and interventions, so that these can be developed on an evidence-based foundation.

The risks of social media for adolescents, as outlined in this discussion paper, cannot be considered in isolation or confined to a single policy area. These risks arise or intensify against the backdrop of profound economic, technological, and geopolitical transformations, which exacerbate existing risks and raise new questions regarding regulation, responsibility, and protection – particularly for vulnerable groups such as children and adolescents. For example, the attention economy, which is central to many digital business models, warrants critical scrutiny. The extraction and monetisation of attention incentivise technological strategies that maximise user loyalty and deliberately create addictive structures in the digital space.

Rapid technological progress further fuels this economically motivated trend, which is why social media is also developing so rapidly: Increasingly powerful algorithms and AI systems are being used to predict user behaviour – and, by making emotional connections, to control it. AI-based avatars linked to language models; automated simulation of interpersonal relationships, designed to build trust and offer customised services for specific emotional needs (the so-called "intimacy economy"[129]); and the targeted creation of "social hallucinations" all open up new dimensions of digital influence. These are largely unregulated, and their psychological effects on the socio-emotional development and mental health of children, adolescents, and adults are as yet unknown. Geopolitical factors compound these challenges. Key infrastructures for global digital communication are based in countries with fragile democratic stability (e. g. the United States) or with authoritarian regimes (e. g. China). Social media platforms based in these countries not only shape political opinion but also create structural dependencies that could undermine our democracy and security. Taken together, these developments illustrate that protecting adolescents from the dangers of social media requires more than merely sector-specific measures.

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Such protections must be embedded in a comprehensive German and European strategy for digital resilience and digital sovereignty. Preserving political and personal agency in the digital age requires clear rules, effective control, international cooperation, and a normative framework that prioritises the welfare of children and adolescents.

Glossaries

Methods Glossary

Effect size	Effect size refers to the quantified extent of an empirical effect, e. g. with regard to a statistical correlation between variables or the difference between variables. Small effect sizes indicate small effects, medium effect sizes indicate moderate effects, and large effect sizes indicate strong effects.
Longitudinal study	Scientific investigation in which quantitative data is collected at several time points over a longer period in order to identify changes in or correlations between different variables over time
Predictor	A predictive variable that enables the prediction of an outcome that could be a specific event (e. g. the onset of a disease)
Cross-sectional study	Scientific investigation in which quantitative data is collected at a single time point to determine the characteristics of certain variables or relationships between different variables
Sample size	The sample size indicates how many individuals or units were actually surveyed or measured in a study. This is denoted by the letter *n*.
Variable	A characteristic or factor that can vary in intensity and can be observed, measured or manipulated – for example, age, intelligence, mood or reaction time

Legal Glossary

General Data Protection Regulation (GDPR)	Regulation (EU) 2016/679 governs how private individuals and the state may handle personal data for the purpose of informational self-determination and protection against data misuse and informational power asymmetry, but also taking economic interests into account
Digital Services Act (DSA)	Regulation (EU) 2022/2065 requires providers and operators of digital services to provide better protection for users – for example, by removing illegal content, setting rules for advertising, and ensuring greater transparency in recommendation systems
Consolidated version of a legal act	Version of a law, regulation, directive or other legal rule that contains the original act of law with all subsequent amendments and corrections that apply at a specific point in time
Artificial Intelligence Regulation (AI Regulation)	Regulation (EU) 2024/1689 regulates the development and use of AI systems in Europe for the purpose of ensuring the safety of citizens and guaranteeing basic rights by following a risk-based approach

Regulation on electronic identification and trust services for electronic transactions in the internal market (eIDAS)	Regulation (EU) No 910/2014 regulates electronic identification, electronic signatures and trust services for the purpose of security and trust in cross-border electronic transactions in the EU
Regulation establishing the European Digital Identity Framework (eIDAS 2.0)	Regulation (EU) 2024/1183 extends eIDAS, sets new requirements for digital identities, authentication and trust services, and, among other things, requires EU Member States to provide the EUDI wallet by 2026 and authorities and companies to recognise it
Very Large Online Platform (VLOP)	Designation in the Digital Services Act (DSA) of very large online platforms with at least 45 million monthly users in the EU that are subject to specific requirements
Full harmonisation	Full legal harmonisation by the EU, without the possibility of Member States adopting diverging national regulations National legislators are no longer legally permitted to enact independent regulations in this area They can only exert their influence within the EU to amend/adapt EU regulations

Technical Glossary

Affiliate Link	Special link for tracking a referral-based, commission-related product purchase and identifying the person entitled to commission
Operating system	Software that controls the basic functions of a computer, manages the hardware and enables programmes to run; interface between the user, applications and computer hardware
Chatbot	Digital application that simulates human modes of communication and, in interaction with a human or digital counterpart, analyses, conveys and, if necessary, researches information – usually via text or voice interfaces
Deep Learning	A subset of machine learning in which artificial neural networks with multiple layers (deep networks) are used to recognise and process complex patterns in large amounts of data
European Digital Identity Wallet (EUDI-Wallet)	EU-initiated digital application that will enable citizens and businesses to use digital identification securely across Europe in the future, facilitating cross-border access to online services and ensuring data protection and personal control of data

EU Mini Wallet	Intended EU-wide application for age verification, which will serve as a temporary solution until the introduction of the EUDI wallet with age verification at the end of 2026
Geofencing	Technology that defines a virtual geographical area (“fence”) around a specific location and triggers an automatic action when a GPS or RFID-enabled device enters or leaves this area – for example, a notification, a warning or the start of a programme
GPS tracking	Method of using GPS to determine and monitor the exact location of persons, vehicles or objects in real time
Keyword and Hashtag Filter	Automated functions that filter content based on specific words (keywords) or hashtags to identify relevant posts or hide unwanted content
Machine learning	A branch of artificial intelligence in which computers use specific data sets to recognise patterns and undergo learning processes that enable the respective system to make decisions independently and without corresponding programming
Natural Language Processing (NLP)	A branch of artificial intelligence that enables computers to understand, analyse and generate human language

Neural networks	Computer models that are used in particular in machine learning for data-based pattern recognition and solving complex tasks and are inspired by the structure of the human brain – i.e. they consist of many artificial neurons that are linked to each other by weighted and adaptable connections similar to synapses
Sponsoring	A financing model for the presentation of digital content, whereby companies pay in exchange for visibility or advertising of their products and brands
Unlinkability	Characteristic that excludes the linking of certain (digital) actions, transactions or data from the same person or from the same source
Unobservability	Characteristic of a system in which internal states or processes cannot be derived from observable outputs
Zero Knowledge Proofs (ZKP)	A method in cryptography in which one party (prover) proves to another party (verifier) that it knows certain information or that a statement is true without revealing the information or the direct proof itself
Certificate	Digital document that confirms the identity of a person, organisation or website and is issued by a trusted authority, known as a Certificate Authority (CA)

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Note: All links were active at the time of going to press.

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