Children and Screens

In Search of
Lost Time

April 2024

PREAMBLE

Technology has the ability to empower and liberate children because it allows them to access knowledge more freely and easily. It can also be hoped that it will contribute to real social equality, because it provides access to the same knowledge regardless of the background of the child using this technology and irrespective of the price of the device they use. For the first time, on a given subject, children can know more than their parents, teachers or ministers.

But, like everything created by man, technology can also be used to confine, alienate and subjugate children.

After three months' work, the Commission became convinced that it had to present a true picture and describe the reality of children's hyper-connection and the consequences for their health, their development, their future, for our future too... that of our society, our civilisation, and perhaps even our humanity.

The Commission was shocked by its findings on strategies to capture children's attention where all cognitive biases are used to confine children to their screens, to control them, re-engage them and make money from them. It was alarmed by certain representations, for example of women, which digital technology heightens, and by what it can impose on young girls in their vision of themselves or the behaviour "expected" of them.

Pre-empting this new market, in which our children have become a commodity, is the new line of development for some digital companies. We want to tell them that we have seen what they are up to and that we will not let them get away with it.

Children's presence in the digital space, this migration from the real to the virtual, is too often done in isolation, without parents, and without any safeguards. We must re-empower them to better accompany them, better protect them and to give them back their place.

We must also, as the adults we are, put the time of childhood back into perspective: our children are not "little adults", they need to play, they need adults to forget about their mobile phones and give them time, they need to talk with adults and find them available at home, in parks, during their activities, in cities and in the countryside.

Faced with the commodification of our children, the Commission proposes taking back control of screens to put children back at the heart of our society and allow them to grow and develop in complete freedom.

A nation's greatest asset is its young people and ours are not for sale.

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SUMMARY

In mid-January 2024, President Macron called for the setting up of a Commission made up of experts from civil society to assess the issues associated with children's exposure to screens and make recommendations.

The Commission's work took place over three months. Nearly 150 young people and more than 100 experts and professionals were interviewed with the aim of covering, insofar as possible, the different aspects of children's and teenagers' relationship with screens and digital technology.

In the course of the work, the members of the Commission were convinced that the issue of "screens" should not obfuscate the much-needed wider debate about the place of children and teenagers in our ageing society, who are becoming increasingly invisible. For our young people, the uses of screens are sometimes much in-demand because they offer social interaction that is important for their development, because they provide unlimited access to knowledge, new skills and entertainment, because they are accessible to combat isolation and can compensate for certain disabilities. For our young people, the uses of screens are also sometimes a sufferance because they are made irresistible by deregulated strategies of capturing attention and personal data, because they heighten all kinds of hatred, because they are present everywhere in public spaces and because they promote control rather than empowerment.

A collective response should therefore be preferred to an approach that targets only the children-screens combination. This response will require the public debate to take better ownership of the issues of health, education, equality, fundamental rights and the environment, which crystallise or even confront each other in this issue of screens. It will require progress to be made in the knowledge and understanding of the basic needs of children and teenagers if they are to grow up properly. It will require building a coherent global, EU and national strategy at political level to underpin the effectiveness of commitments, government departments, researchers, teachers and educators, civil society and grassroots stakeholders. It will require adults to engage alongside children, to give meaning to the limitations and freedoms being promoted, to move towards more exemplary behaviour, to give children and teenagers back their "human" time.

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The Commission's findings are summarised below:

- Children, like their parents, live in a world in which screens and digital technology play a major role. Children are very widely exposed to screens (10 on average per household!) and at an increasingly young age, whether in their homes, at school, in public spaces, or given the equipment they may have for their own use.

- There is a clear scientific consensus on the harmful consequences of screens on several aspects of the somatic health of children and teenagers. In particular, the use of screens contributes, directly or indirectly, according to a dose-response relationship, to deficits in sleep, a sedentary lifestyle and lack of physical activity, obesity and all associated chronic conditions, as well as vision-related issues (development of myopia and possible risks to the retina from exposure to blue light). Questions still unanswered by science about the effects of exposure to electromagnetic waves and the possible impact of exposure to substances present in digital

terminals and recognised as endocrine disruptors call, at this stage, for caution, particularly in periods of high vulnerability such as pregnancy.

- Studies on the impact of screens on the neurodevelopment of children and teenagers still need to be further developed. While acknowledging the difficulties associated with the conditions of these studies in establishing causal links, and the importance of other environmental factors, the data encourages us to move towards regulating usage. In particular, the Commission calls for a high degree of vigilance – at least until the child's fourth birthday – by parents when using devices in their presence, but also, more broadly, by professionals working with young children: mechanically, this "technoference", which affects the quantity and quality of interactions with the child, can have a cascading effect on socio-emotional skills and language development. Adolescence is also a period of psycho-behavioural vulnerability.

- The notion of "screen addiction" as such is not yet recognised by science, but screens, and in particular the use of social media, seem to be, over and above the benefits they can bring, additional risk factors when there is pre-existing vulnerability in a child or teenager, particularly depression or anxiety. Against the backdrop of widespread use of digital technology, and the sharp decline in recent years in the mental well-being of teenagers, particularly young girls, research must move forward in order to inform decision-makers, but attention must now be paid to the harmful designs of certain digital services.

- Children's uncontrolled access to screens and inadequate regulation of the content to which minors may be exposed, in terms of pornography and extreme violence, pose a high risk to their balance, and sometimes even their safety, especially if there is little dialogue with adults. More broadly, they raise societal issues, for example with the massive dissemination of certain stereotypes or harmful representations of the relations between men and women, on sexuality and "living together". The risks of confinement caused by algorithmic bubbles need to be given greater consideration and harmful representations should be dismantled. The dangers of paedo-crime have never been higher and are present in all the digital spaces where minors can be found (video games, forums and messaging systems in particular).

The public authorities and the various digital players have not remained inactive in the face of the emergence and heightening of these various risks. But the subject is highly complex, fostering a feeling of helplessness or even renunciation. As such, the new EU commitments under the Digital Services Act (DSA) that has just entered into force, supported by France at the time of its Presidency of the Council of the European Union (EU), represent an essential window of opportunity for action. They must co-exist with growing political motivation in France, reflected in several recent legislative initiatives which have the advantage of putting this issue on public agenda, but which would be more effective if linked to a clear collective strategy.

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In view of these various findings, the Commission considers it essential to take resolute action to take back control of the situation and to move it forward with strong proposals aimed at young people. It calls for action to be carried out as far as possible within an internationally-coordinated framework and as part of a blanket approach (health, education, parenting, etc.) and not just a sectoral one.

The Commission has issued 29 guiding proposals. They are systematically broken down into different, more "operational" measures.

The Commission emphasises the fact that these proposals must be taken as a whole. They represent a "System". To consider that only a few of these measures – the most symbolic ones – will suffice would be a mistake. It also points out that these recommendations were drawn up in a context that did not make children or their parents feel guilty, even though everyone has a role to play. As such, the Commission sought to put responsibilities "in the right order" with digital players having to shoulder all their responsibilities. Lastly, the proposals seek to give precedence to the issues of education, dialogue and support, which are essential for the success of the ambition.

These proposals are structured around six objectives representing all the goals and targets to be achieved.

The first objective focuses on taking a hard line against the addictive and confining nature of certain digital services, banning them and, in doing so, giving children and teenagers back their freedom and the opportunity to make real choices. The requirement must also be based on the accessibility and clarity of the configuration and business model of any digital service, without which minors face developments that disregard their consent, and on promoting more ethical alternatives to existing models. Similarly, the Commission calls for a reaction against certain video games moving towards gambling models, based on microtransactions or misleading designs. Research and civil society stakeholders are major partners for regulators and a clear signal must be sent to them in this respect so that they can make an effort commensurate with the issues at stake and build more effective action coalitions in consultation with the major tech players.

The second objective aims to move away from parental control alone, which has its limits, in order to prioritise, thanks to everyone's involvement, technological solutions to scale up the protection of minors against illegal content, regardless of the digital entry point (mobile phone, box, Wi-Fi, at home, in schools, etc.). These solutions will be more effective if the decision is made to make further progress on the requirements for interoperability between different digital services, and in particular large platforms. They will have to ensure that the experience of minors is supervised, which they ask for, while respecting the spaces that must be theirs. Protection must also be given to children's physical health, and research and innovation programmes must be better developed to address somatic issues, such as vision for example. Each stage in the rollout of digital services should also include an assessment of their environmental impact.

The third objective is to promote gradual access to screens and the uses made of them by minors, according to their age. This staggered, reasoned and accompanied "pathway" approach should ensure that children and teenagers are not "dropped" into the digital world without support or instruction. It must ensure that children are made as safe as possible, by preparing them, and lead them towards gradual acquisition of their digital autonomy by protecting the youngest in particular from inappropriate uses and practices. In this respect, the Commission proposes "benchmark" age limits, which will be reassessed regularly to take account of advances in science and protection issues.

The Commission is therefore proposing to bolster the current recommendation not to expose children under the age of three to screens and to advise against their use until the age of six, or at least that it be severely limited, occasional, with educational content, and accompanied by an adult.

After the age of six, the aim is to move towards moderate and controlled exposure, taking its rightful place among activities that must be diversified and varied for the development of children and teenagers.

The Commission therefore considers that it is not appropriate for children to have a mobile phone before the age of 11 when they start secondary school. From the age of 11, if they have a telephone, it is recommended that it cannot be used to connect to the Internet; from the age of 13 if they have a connected phone, it must not allow access to social media or illegal content; from the age of 15, the symbolic age of the digital majority, access to social media should be limited to that with an ethical conception.

This gradual approach must be applied in schools, with the imperative need to build reference frameworks between the government and local and regional authorities, which are assessed, combine health and education issues and involve families and educational communities, both in the rollout of equipment and in the use of appropriate teaching methods. The Commission also recommends combating all practices unfavourable to children, for example in the use of digital work environments (ENTs) and the marks and assessment tool, Pronote.

The fourth objective emphasises the urgent need to train and support children and teenagers in the digital world, both in and out of school. This training needs to be more extensive, more progressive and more closely linked to the issues specific to children and teenagers. It must be accompanied on the ground by the presence of adult correspondents able to answer the questions of children and teenagers, including if they wish to raise them in a more intimate setting than the classroom. Education in all the humanities must also factor in a heightening of the difficulties brought about by digital technology. Beyond training issues, the Commission stresses the need to implement "countermeasures" to offset or limit some of the effects of screens on sleep and sedentary lifestyles in particular. Lastly, the Commission calls for a major, proactive commitment from the whole of society to massively expand all the alternatives to screens, in order to make children and teenagers want and have the opportunity to engage in other ways. The Commission is convinced that limitations alone, even if well understood, will not be sufficient: children and teenagers need to rediscover the interest that society owes them, to reconnect with human contact, to see playgrounds, populate urban spaces, waiting and transportation areas. This means making room for children's needs.

The fifth objective focuses on adults, and in particular on all those who are involved with children and teenagers, starting with their parents. In particular, the parenting support movement needs to be stepped up, but also teachers and, more broadly, all professionals and volunteers need to be equipped and trained in contact with young people. At the same time, society as a whole needs to set the example, without which minors will find it difficult to follow. We need to promote "disconnected" places and times, organise disconnection rituals and symbolic challenges and ensure that parents' lives are respected at a time when teleworking has become widespread, blurring the line between personal and professional life. It is on that condition, in the interest of everyone, and minors in particular, that "screens" will be able to regain their rightful place.

Lastly, the sixth objective sets out the proposals the Commission considers necessary for implementing a winning global strategy. This requires, in particular, much stronger governance, including a prominent place for children and teenagers, a monitoring centre to gather and oversee the key data on screens and the diversity of its uses, and a forward-planning council to embrace the challenges of a technological revolution fast-tracked by artificial intelligence. The Commission also recommends building a system for funding public action, research and non-profits for discissions with digital players themselves, but based on their contribution under a "polluter pays" principle that we believe could be applied in this field (see in particular revenue from fines or supervisory fees currently earmarked for the EU authorities alone). The Commission calls for a large-scale communication strategy, highlighting

the legitimate expectations for the development of children and teenagers, based around key moments in the lives of minors, establishing itself in the public landscape as other public health topics have managed to do, and ensuring the consistency of all messages.

<p style="text-align:center">*</p>

The Commission hopes that these principles can be applied together and will form the basis for the first stage of a collective and transpartisan vision, which alone can create the much-needed surpassing required to bring about lasting changes in behaviour and the emergence of a proposal commensurate with the journey of childhood and adolescence.

INTRODUCTION

In mid-January, President Macron called for the setting up of a Commission made up of experts from civil society to assess the impact of children's exposure to screens, evaluate the effectiveness of actions already implemented and make recommendations. The public authorities have introduced some initiatives but the subject is highly complex, at the crossroads of health, education, social equality and many fundamental rights, including freedom, dignity and child protection. This complexity must not, however, lead to feeling of helplessness which by being felt becomes real, in the face of an industry that is anything but inert.

After three months of working together, the members of the Commission are convinced that the issue of screens should not obfuscate the wider and necessary debate on the place and needs of children in our society. We cannot question the rightful place of screens in children's lives and promote a gradual and safe approach to digital technology without committing ourselves further to a strong political and societal project that serves their needs and rights.

Raising the issue of screens and children runs the risk of leading us to believe that the problem lies only in the relationship between screens and children, and that solutions are to be found in this pairing alone. Admittedly, screens, which must be considered in their entirety (technological tools, uses and content that they make accessible), are everywhere: through those who accompany children, through the urban furniture and public spaces they inhabit, through children's own use of them ever earlier. But behind the relationship of young people to screens are many phenomena that call for a project to overcome them.

Obviously, this is a thorny subject, which deserves some nuance, and one in which the members of the Commission have every reason to be humble. In addition to the various components of screens, there are the different needs of children according to their age and sometimes their gender, from before birth until the end of adolescence. Their brains continue to evolve until they are about 25 years old and although we know something of how they function, there are still many unknowns. At several key moments in their development (the first 1,000 days or puberty for example), children have vulnerabilities that require vigilance.

While the issue of the relationship between screens and children is, for all these reasons, a difficult one, and one that is bound to be the subject of much debate once this report is submitted, the members of the Commission hope that we will be able to rally around a simple principle: the issues raised by the exposure of children and teenagers to screens requires a collective response.

The main thing is to realise, in an ageing society, that children are gradually becoming invisible, are becoming the poorly-armed captives of economic giants and all-out control strategies, are being urged not to make noise in collective spaces, are setting alarm clocks at night to check their notifications or are finding out that their parents have access to their grades before their teacher communicates them to them and are faced without choice with debatable representations from an ethical and democratic point of view, while struggling to gain recognition for the value of their online experience.

We cannot accept that children become commodities, targets of endless notifications, glued to reward systems designed by behavioural science experts to be irresistible, with free time that is becoming highly digitalised. We cannot accept that their minds, their time and their lives can be treated like data that can be bought and sold at will. Where digital technology can be useful, where it can change children's lives for the better, it must be used without risk to their physical and mental health. Where children fall prey to confining mechanical devices, we must reject them.

This objective is demanding as it calls for a commitment from everyone. It can only be achieved by reinvesting the voices and needs of children themselves, by giving meaning and a framework to the digital experience, by organising a large-scale transition of digital training and its codes, and by taking responsibility for sometimes radical changes and investments on the part of adults.

There is an urgent need to regain control of what is desirable for children. The technological, civilisational, societal, anthropological and family transition has sped up again with the COVID-19 pandemic, both because "locked-down" homes contained even more screens and as the boundary between the personal and professional lives of parents has become more blurred with the spread of teleworking. New and fast-moving technological possibilities, such as artificial intelligence and the metaverse, are also not currently understood from the standpoint of children.

In its work, the Commission was guided by the following key principles:

- <u>The search for consistency and progressiveness</u>: The paradoxical injunctions and confusion that abound do not allow children or their families to make sense of the freedoms and limits that must be set and explained. It is absolutely necessary to make a major investment in research, across all disciplines, with strong cooperation between civil society stakeholders, to shed more scientific light on the impact of screens on children. There are currently scientific controversies, in particular because it is difficult to move from identifying correlations to demonstrating a causal relationship. Nevertheless, the Commission considers that the time required for research and these uncertainties are not incompatible, including by applying the precautionary principle, with the immediate establishment of a project and recommendations that are strong and understandable by society. It is a major political responsibility to make our intentions known, wherever necessary, so as not to accept what is incompatible with the empowerment and health of children.

- <u>The assertion of a public policy imperative to protect children</u> in digital life, equivalent in its objectives to that which applies in other spheres of collective and individual life, even though digital life is particularly complex due to the absence of "geographical" and "temporal" boundaries in an unregulated globalised environment. The primary responsibility does not lie with individuals and families. If digital life can provide leisure, social connections, knowledge and empowerment, there is no reason why it should not be governed by rules that protect children's physical, developmental and mental health. It would not occur to anyone to entrust the keys to a car to a child who is too young, without serious instruction, without prior support, without checking the quality of the vehicle and without a common highway code.

- <u>The need to put the fight against inequality at the heart of the project:</u> this requirement can justify both making greater efforts to identify vulnerable children and those most exposed to health risks; such as harnessing specific responses, including digital ones, where they are likely to improve the lives of children, whether they are disabled or isolated.

- <u>The urgent need for familiarisation with digital technology and its uses to give</u> everyone back the ability to choose, act and balance their digital lives: for children and their families, for professionals and, in particular, educational communities, for local stakeholders, for regulators, for researchers and virtuous civil society players.

- <u>The identification of a twin imperative of regaining control of screens, that of the massification and the visibility and accessibility of alternative responses to screens</u>, to reinvest in activities that are essential and unavoidable for children's development.

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The Commission's work is taking place in a particularly favourable context for building this ambition. Expectations and requests are everywhere, among children themselves, families and professionals. The European Union is moving fast, the Member States are organising themselves, civil society is structuring itself and some platforms are being brought before the courts. It is essential that all these developments and initiatives are now backed by a clear and shared strategy at national and EU level, which also provides the right incentives for economic players. Without this clearly-defined collective course, there is a great risk that energy will be dissipated and a proliferation of ill-conceived and counter-productive standards will emerge.

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The Commission, co-chaired by **Servane Mouton,** a neurologist, and **Amine Benyamina,** an addictions psychiatrist, has a total of ten members, who guarantee the multidisciplinary approach and expertise required to address these complex issues:

- *Jonathan Bernard,* an epidemiologist at Inserm and leader of a research programme on the impact of screens on children's development.

- *Grégoire Borst,* Full Professor of Developmental Psychology and Cognitive Neuroscience of Children and Adolescents at Université Paris Cité and Director of the LaPsyDE Laboratory at the CNRS.

- *Axelle Desaint,* Director of the Digital Education Unit in Tralalere, and Safer Internet France, the European Commission's national digital education programme for young people and families.

- *Florence G'sell,* visiting Professor at Stanford University, Professor of private law at the University of Lorraine and holder of the Digital, Governance and Sovereignty Chair at Sciences Po.

- *Marie-Caroline Missir,* Managing Director of Réseau Canopé (public teacher training network).

- *Catherine Rolland,* head of the "science and video game" teaching and research chair at the Ecole Polytechnique de Paris;

- *Grégory Veret,* founder of Xooloo, a company specialising in the protection of children on the internet.

- ***Célia Zolynski,*** Professor of private law at the Université Paris 1 Panthéon-Sorbonne, member of the National Digital Ethics Committee (CNPEN) and qualified personality of the National Human Rights Advisory Commission (CNCDH).

During the three months of its work, the Commission was neither able nor wished to conduct an academic or university study, which was more in line with the long-term work carried out by various public organisations. While making sure to clearly establish what the scientific consensus is today, and what is more uncertain in the absence of sufficient data, as well as taking account of the debates and divergences that can be expressed both within the Commission and in society more generally, the Commission has succeeded in agreeing on a body of findings and recommendations which it hopes will provide a solid basis for implementation of a collective strategy commensurate with the interests of children.

To inform its work, the Commission interviewed more than 150 young people and around 100 experts and practitioners:

- The Commission was keen to involve young people in its discussions to avoid, insofar as possible, the trap of adult representations. Who better than young people themselves to talk about their uses, needs, difficulties and expectations? This involvement of young people took various forms, including immersion in workshops alongside non-profits or the organisation, with the support of the Canopé network and the Interministerial Directorate for Government Transformation (DITP), of a dedicated day with nearly 80 lower secondary school pupils.

- The Commission also conducted around 100 interviews with professionals, deliberately drawn from a wide variety of fields (healthcare, education, early childhood, society, institutional, academic, non-profit and economic sectors, etc.), although these interviews were not necessarily exhaustive. The Commission has endeavoured to embrace all positions as widely as possible without exclusivity or preconceptions, while conducting these discussions completely independently from the interests of the people it spoke to.

The Commission's proposals are therefore more in line with policy principles for an overall strategy, systematically informed by more operational recommendations that will have to be specified in a medium-term roadmap.

Here, the Commission would like to highlight a number of factors which, in its view, determine the effectiveness of this strategy:

- The approach must be systemic and use all possible measures. If initiatives are introduced separately and promoted on a political level in a fragmented way between ministerial officials, without relying on a shared vision in the public debate, they will have only a very limited impact. In order to achieve a large-scale impact, all areas of action need to be used in an orderly manner.

- Success will depend on strong political impetus, going beyond the political and media spheres: only this impetus will secure the commitment of all parties, and in particular economic players, to the cause of children.

- Effectiveness will be gradually improved: it is useful to set ourselves a long timeline and to assume that we will improve the situation step-by-step. Each measure will have its own imperfections and limitations, but this should not be an obstacle to their implementation nor to their systematic assessment to guide public policies in this area.

The Commission's work is presented below in four parts:

- Exposure of children and teenagers to screens: What are we talking about?

- Exposure of children and teenagers to screens: Is it serious?

- Exposure of children and teenagers to screens: What has been done so far?

- Exposure of children and adolescents to screens: What is the objective and how can it be achieved?

This work is a step towards the emergence of a proactive and consistent public policy, commensurate with the issues at stake, as well as fostering societal and transpartisan involvement of all stakeholders, including young people themselves. The Commission's three-month thought-process will obviously need to be continued and deepened, as well as structured in an organisation that is both lasting, agile and equipped with the means to act.

PART 1 – EXPOSURE OF CHILDREN AND TEENAGERS TO SCREENS: WHAT ARE WE TALKING ABOUT?

Screens and digital technology are now an essential part of our society. They are present everywhere, in workplaces, homes and public spaces. They have become commonplace tools for work, training and leisure.

Although the presence of screens in our daily lives, and in those of young people in particular, is nothing new – it started with the arrival of televisions in the home – it has increased significantly over time with the arrival and development of the Internet, the diversification of available terminals and the multiplication of uses made possible by all these tools. It has particularly sped up since the recent arrival of individual and mobile devices, tablets and smartphones in particular.

Children and teenagers, like the whole of society, live in regular contact with, and use, screens and digital tools.

The following explanations aim to present basic data on the place and role of screens in our society, particularly among young people.

Without claiming to be exhaustive and given that the diversity of existing data sources can sometimes lead to varying figures from one study to another, this part attempts to provide an overview of the current situation and the presence of screens among minors. It therefore focuses firstly on the amount of equipment in homes in general and minors in particular (1.1), and secondly on the uses that minors make of screens (1.2).

1.1. How many screens and digital tools do minors have access to in their homes, at school or via their own equipment?

1.1-1. Children and teenagers can access screens via the equipment in their home

Homes are a place where screens are particularly present. In France, according to the 2022 edition of the Digital Barometer, households had on average nearly 10 digital devices with screens. It should be noted that of the 10 or so screens listed per household, an average of 2.6 were not being used.

Households were equipped with screens as follows:

- 2.85 mobile phones/smartphones

- 2.13 televisions (it can be noted that the number of televisions is tending to fall: whereas one in two households had several TV sets in 2012, the rate of households with at least two TV sets was down to 42% in 2022)

- 1.99 laptops or desktops

- 1.24 tablets

- 1.07 handheld gaming consoles

- 0.71 connected watch or bracelet

With respect to the rate of equipment per person, again according to the 2022 Digital Barometer:

- 94% of respondents said they own a television at home

- 89% of people had at least one personal or business computer at home

- 87% of the population aged over 12 had a smartphone (+3 points compared to 2020)

- 57% of people had a tablet at home

It should be noted that other digital tools, with or without a screen, have made their way into homes and that their presence is increasing. As an example, the rate of equipment in voice-assisted connected speakers is increasing sharply, with an estimated 27% of households having them (compared to 19% in 2020 and only 9% in 2019). At the same time, the number of "other connected objects" (devices related to healthcare, household appliances, security or home automation) in households is also growing rapidly since, according to the same source, "40% of respondents own at least one", which represents an increase of seven points compared to the previous study.

1.1-2. Children and adolescents can have access to screens through school

Children also have access to digital tools through school, be it a fixed or mobile terminal or an interactive digital board (IDB). These screens are sometimes used as educational or discovery materials and digital training.

As regards school equipment levels, the most up-to-date data available to the Commission relates to public sector digital equipment for the 2021-2022 and 2022-2023 academic years. The main data is set out in the table below.

Table 1: Public sector digital equipment in 2021-2022 and 2022-2023

	Number of fixed terminals per 100 pupils	Number of mobile terminals per 100 pupils	Number of video projection tools per 100 pupils
Nursery schools	3	3	2
Elementary schools	5	10	4
Primary schools	4	10	4
TOGETHER 1st DEGREE (2022-2023)	**4**	**9**	**3**
Lower secondary schools	23	17	6
General and technological upper secondary schools	43	23	7
Vocational upper secondary schools	71	26	11
TOGETHER 2nd DEGREE (2021-2022)	**33**	**20**	**7**

Source: Data communicated to the Commission by the Digital Education Directorate (DNE) at the Ministry for Primary and Secondary Education covering the work of the Directorate of Evaluation, Forecasting and Performance (DEPP) at the same ministry.

In addition, it should be noted that:

- 98% of public secondary schools have dedicated computer rooms (100% of vocational upper secondary schools, 99% of general and technological upper secondary schools, 97% of lower secondary schools and 99% of school complexes) according to the DEPP at the Ministry for Primary and Secondary Education.

- According to data[1] dating back to the 2018-2019 academic year, 75.5% of primary schools had Internet access in at least half of the classrooms (82.9% of elementary schools and 58.7% of nursery schools), 95% of lower secondary schools, 94% of general and technological upper secondary schools and 95.5% of vocational upper secondary schools.

In 2021, the DEPP indicated that the level of equipment in relation to the number of pupils had improved significantly since the number of pupils per computer had fallen sharply over the last decade in primary schools and lower secondary schools. In nursery schools, the indicator fell from 25.3 to 15.9 pupils per computer between 2009 and 2019; over the same period, it fell from 11.6 to 6.9 in elementary schools and from 8.1 to 3 in lower secondary. In upper secondary schools, the indicator has remained relatively stable since 2010, due to an already high level of equipment (it fell from 3.1 to 2.3 between 2010 and 2019).

According to the same study, however, this average rate conceals a broad heterogeneity according to size, type and classification of the school (for example, schools located in priority education areas are better equipped).

Moreover, again according to the DEPP, even though the number of pupils per computer is falling, French schools are less well equipped digitally than the average for OECD countries. According to the 2018 Talis survey, the use of digital technology in the classroom remains limited among French teachers: "French teachers report little use of information and communication technologies (ICTs) in their teaching practices, unlike in other OECD countries. Indeed, while a large number of French teachers make frequent use of digital tools to prepare their lessons (94% for primary schools and 88%

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[1] Source: INSEE, Economy and Society in the Digital Age, 2019 Edition.

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[2] Source: *Le numérique éducatif: que nous apprennent les données de la DEPP ?,* working paper no. 2021.S03 – Summary Series, August, 2021.

for secondary schools), fewer use them to guide classroom sessions (respectively 50% and 70%) and even fewer let pupils use ICT for projects or work in the classroom (14% and 36%).[3]

1.1-3. In addition, children and teenagers often have their own equipment.

With regard more particularly to children and teenagers, the available data[4] in terms of the average number of personal screens in France, i.e. screens genuinely dedicated to their own use, shows that, for 2022:

- in the 13-19 age group, young people had an average of 2.9 personal screens

- in the 7-12 age group, young people had an average of 1.6 personal screens

A detailed analysis of the types of personal devices owned by children and teenagers shows that:

- smartphones are very common with 89% of 13-19 year-olds (up 12 points on 2016) and 35% of 7-12 year-olds owning one in 2021. Among young people who own a personal smartphone at the age of 10.5 years (34% in 2022), the average age of acquisition was estimated at nine years and eight months.[5]

- 69% of teenagers aged 13 and over own a personal computer. Children between the ages of seven and 12 are less likely to have such equipment in their own right, but 19% are still equipped.[6]

- 58% of 7-12 year-olds and 63% of over 13 year-olds have personal game consoles.

1.2-   How do children and teenagers use screens?

The practices of children and teenagers can be analysed from the point of view of the time spent on screens (1.2.1) and the uses made of them (1.2.2) (times and uses at school are not taken into account in the explanations in 1.2.1).

1.2-1. What is the average time young people spend using screens?

As regards total cumulative screen time, the latest benchmark study in France when the Commission carried out its work dated back to 2015, well before the COVID-19 pandemic (Esteban study conducted by *Santé publique France*). According to this study, children aged six to 17 spent an average of four hours and 11 minutes per day on a screen. There is a clear trend towards a rather significant increase in screen time among children and teenagers if we consider the studies available for previous periods.

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[3] Source: TALIS survey, 2018.
[4] Source: IPSOS study, Junior Connect', 2022 edition.
[5] Source: Ined-Inserm, Elfe Cohort, Survey 10.5 years 2022.
[6] According to the DEPP (2021), 34% of lower secondary school pupils in private schools have their own computer, compared with 26% for those in priority education.

Table 2:   Average screen time per day (in hours and minutes) in major ANSES and *Santé publique France* surveys

Age groups	ENNS study (2006-2007)	INCA2 study (2006-2007)	INCA3 study (2014-2015)	Esteban study (2014-2016)
3-6 years	2h07	2h00	1h47	not available
7-10 years	2h47	2h22	2h28	3h07
11-14 years	3h31	3h12	3h38	4h48
15-17 years	3h27	3h50.	4h50	5h24
All minors	2h57	2h48	3h05	4h11

Source: Commission based on data from studies carried out for ANSES and Santé publique France

The 2024 study on young people and reading carried out by the IPSOS Institute for the National Book Centre (CNL) reveals that young people aged between seven and 19 spend an average of three hours and 11 minutes on screens every day. With regard to the 16-19 age group, it shows that boys spend more than five hours and 12 minutes on screens (in addition to time spent in front of a screen for school, studies or work) with girls spending five hours and nine minutes. Among children aged seven to nine, the average daily screen time is one hours and 50 minutes for boys and two hours and 20 minutes for girls.

The latest "Elfe Cohort" survey,[7]conducted in 2022, showed that children aged 10 and a half spent an average of two hours 36 minutes per day in front of screens. It is interesting to note that this study presented the viewing time of the screens by type of device. These two hours and 36 minutes were broken down as follows on average: 59 minutes of television, 33 minutes of video games, 29 minutes on tablets, 19 minutes on smartphones and 16 minutes on computers.

As regards the youngest children, the estimates published in April 2023 in the *Santé publique France's* weekly *Bulletin Epidemiologie* and obtained from data from the "Elfe Cohort" on screen time of children born in 2011, showed that the average daily screen time of children was 56 minutes at two years' old (i.e. in 2013), one hours and 20 minutes at three and a half years' old (in 2014-2015) and one hours and 34 minutes at five and a half years' old (in 2017). Only 13.7% of children were not exposed to screens at all at the age of two.

1.2-2. How do children and teenagers use screens?

Overall, the youngest children mostly watch television (particularly cartoons) but very quickly, as they grow up, they start going online and play video games. Increasing numbers of young people are using the Internet, sometimes even before playing video games or, at the same time, using connected devices (tablets in particular) to watch videos or engage in other recreational activities. According to an *e-Enfance* survey with Toluna-Harris Interactive in February 2023, the parents polled said that their children started using the Internet (with an adult) at five years and 10 months old and that the age at which they started using the Internet on their own was six years and 10 months old.

[7] The "Elfe Cohort" is the France's first nationwide study for monitoring children which looks at the multiple aspects of their lives from the perspective of the social sciences, health and the environment. The children in this cohort were born in 2011.

When screens, regardless of the device, are used to access the Internet, usage varies according to age. According to the same *e-Enfance* survey with Toluna-Harris Interactive, the first uses of the Internet by 6-10 year-olds are mainly for entertainment-related activities, with the aim of relaxing, having fun and satisfying their curiosity: 44% to watch videos, 34% to use creative apps and 33% to listen to music. Teenagers aged 13 and over are more likely to use the Internet for social purposes. They prefer social media, mainly that based on videos, instant messaging services, video games or music.

Social media plays a significant role in the use of screens by children and teenagers. For example, a study by the e-*Enfance 3080-Caisse d'Epargne* non-profit, published at the end of 2023, shows that 86% of 8-18 year-olds are registered on social media. A previous study, carried out for the *Génération numérique* non-profit,[8] which was published in February 2022, showed that in 2021, 62% of boys and 68% of girls in the 11-18 age group were on social media.

The main uses reported on social media were chatting with friends or family (78% of 11-18 year-olds), watching videos (58%) and playing video games (29%). Discussions concerning lessons and homework which used to be the third most-popular use have now given way to video games. It should also be noted that many children under the age of 13 are registered on social media, although it is, in theory, prohibited before the age of 13. According to the same study, in 2021, 58% of 11-12 year-olds had an account on at least one social media platform. For its part, the Regulatory Authority for Audiovisual and Digital Communications (ARCOM) reported that "45% of French people aged 11-12 are registered" on the TikTok application.

Video games also figure prominently in the use of screens among children under the age of 18. According to the study "*Les Français et le jeu vidéo*", conducted in June-July 2023 by Médiamétrie for the *Syndicat des éditeurs de logiciels de loisirs* (SELL), 93% of 10-17 year-olds play video games (94% of 10-14 year-olds and 92% of 15-17 year-olds). Of these "child" gamers, 22% play several times a day, 40% play almost every day and 30% play once or twice a week. According to the same study, video games have a strong social dimension for children and teenagers: 81% of them play with others, either online or locally (compared to 58% of adult gamers) and 48% of children playing video games say they feel that they "belong to a community" (compared to only 29% of adults). 68% of parents say that they are concerned about their children's video game playing, either by always being with them when they play (7% of parents) or by letting them play independently but choosing the games or advising them on the games they can play; 69% play with their children at least occasionally and 94% say they are aware of parental control systems but only 45% say they use one.

Regarding the use of screens by children and teenagers in connection with their schooling, according to the DEPP, digital tools are mainly used to carry out research, create written documents or oral presentations, or for computer programming.

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[8] "*Les pratiques numériques des 11-18 ans*" survey presented by the *Génération numérique* non-profit - February 2022.

In 2019,[9] the digital tool most used by lower secondary school pupils in year 10 is still the calculator: 56% of teachers say that they "very often" have their pupils work with a calculator, while only between 3% and 5% have them "very often" use dynamic geometry software, a spreadsheet or even an online exercise bank. It should be noted that, like the PISA tests, the national assessments, in particular when pupils start year seven, are carried out on screens. The OECD PISA study notes that "pupils' digital capital helps to improve results in the PISA competence tests". However, "pupils' possession of personal digital tools seems to differ according to their parents' social background and the school they attend. For example, 34% of lower secondary school pupils in private schools have their own computer, compared with 26% of those in priority education". While French teachers are still poorly trained in the pedagogical use of digital technology, the lockdown favoured their appropriation and slightly increased the use of digital technology in schools. As a result, according to the DEPP, almost 80% of first-degree teachers and more than 85% of lower secondary-school teachers said that lockdown had helped to develop their digital skills, and nearly 80% of teachers believe that the introduction of distance learning has had a positive impact on their pedagogical innovation (differentiation, group work, project-based teaching).

Paradoxically, and contrary to the myth of the "digital native", the use and prevalence of digital tools in the daily lives of children and teenagers is not correlated with their digital skills: France has an average score of 499 in "digital literacy",[10] just slightly above the international average of the countries participating in the survey. This score means that only 40% of pupils achieve the average level of digital literacy skills assessed in the 2018 International Computer and Information Literacy Study (ICILS) by the International Association for the Evaluation of Educational Achievement (IEA). This average level refers to the basic tasks of collecting and managing information on computers.

Lastly, the above-mentioned 2019 INSEE study on "Economy and Society in the Digital Age" provides interesting information on the proportion of schools offering services accessible, in particular to pupils, outside schools via the Internet (see table below).

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[9] According to the PRAESCO (Content-Specific Teaching Practices) survey, which focuses specifically on pedagogical practices in mathematics education.
[10] 2018 International Computer and Information Literacy Study (ICILS) by the International Association for the Evaluation of Educational Achievement (IEA).

Table 3: Proportion of establishments (in %) offering off-premises services via the Internet

Accessible services	Nursery schools	Elementary schools	Lower secondary schools	General and technological upper secondary schools	Vocational upper secondary schools
Skills booklet on the internet	5.6	66.7	-	-	-
Teaching materials and resources	41.3	54.0	95.1	95.4	92.0
Timetable on the internet	3.2	9.3	97.4	98.3	97.5
Calendars and news from the school	16.9	31.8	96.9	95.4	94.7
Pupil grades on the internet	-	-	99.3	99.8	99.7
Pupil absences on the internet	-	-	95.3	96.9	97.7
Textbooks on the internet	-	-	99.5	99.1	100.0
Other services on the internet	47.0	19.3	-	-	-

Source: Commission based on data published by INSEE (Economy and Society in the Digital Age), 2019.

PART 2 – EXPOSURE OF CHILDREN AND TEENAGERS TO SCREENS: IS IT SERIOUS?

Without prejudice to the progress that can be driven by digital technology when it is used properly, such as the increased opportunities for exchanges and openness to the world or access to the knowledge and empowerment that it can provide, it is so widespread today in terms of equipment, uses and content that it is important to control its impact and reduce any associated risks to the health and safety of children.

To control this impact, the main challenge is therefore to be able to clearly identify and classify it, making sure to explain what has been widely established scientifically, or even by consensus, and what may now be questioned, or prove more controversial, in the absence of sufficient data.

The Commission has therefore sought to take stock of what is known about the impact on children and teenagers of digital technology and screens as tools and technology from the point of view of:

- somatic health (2.1)

- the neurological and socio-relational development of children and teenagers (2.2)

- the mental health of minors (2.3)

- risks of exposure to content that is inappropriate, traumatic or even dangerous for the safety of minors (2.4)

- more "societal" impact (2.5)

2.1- Screens as a technology present risks that have now been established by science on certain aspects of the physical health of children and teenagers

There is a very clear consensus on the direct and indirect negative effects of screens on sleep (2.1.1), on sedentary lifestyles, lack of physical activity and the risks of being overweight or even obese (with a cascade of related pathologies) (2.1.2) and on eyesight (2.1.3). However, questions about other suspected or possible health effects of screen technologies remain unanswered at this stage, prompting caution and further research (2.1.4).

2.1.1- Screens and their uses have a proven negative effect on children's and teenagers' sleep

Available data reveals that young French people are sleep-deprived. In France, in 2020,[11] teenagers slept seven hours and 45 minutes per night on average and, in particular, less than seven hours per night on weekdays, instead of the eight hours and 30 minutes to nine hours recommended by the US charity National Sleep Foundation (NSF).[12] In addition, 16% of 11 year-olds and 40% of 15 year-olds had a deficit of more than two hours of sleep per day, on weekdays.

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[11] National Institute of Sleep and Vigilance. 20th "Sleep" Day. *Le sommeil des français en 2020.*

[12] Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. Sleep Health. 2015 Mar;1(1):40-43.

However, sleep is an essential component of health, regardless of age. It is not only a time for rest, which is vital for the body, it is also a time during which crucial endocrine, metabolic and cognitive physiological processes occur.

Chronic quantitative and/or qualitative changes in sleep are conducive to the onset of many pathologies: metabolic disorders such as excess weight or obesity, diabetes, cardiovascular diseases, mood disorders and certain psychiatric disorders such as depression, neurodegenerative diseases such as Alzheimer's disease, certain cancers (breast and prostate cancer, for example), epileptic seizures and migraine attacks and impaired immune regulation. In addition, a lack of sleep or poor-quality sleep significantly increases the risk of bodily injury and road accidents. In general, chronic sleep deprivation increases the risk of mortality.

In minors, as in adults, the lack of sleep engenders a cascade of consequences that can be serious for both physical and mental health. In children, sleep also plays a crucial role in overall development, in particular in memory processes,[13] in using attentional capacities[14] and in the regulation of emotions. During early childhood and throughout schooling, acute and chronic sleep deprivation can compromise learning and academic success by altering alertness, processing speed, cognition and behaviour. Sleep impairment in children under 18 years of age is thus responsible for significant cognitive problems and can have lifelong repercussions. Lastly, the quantity and quality of children's sleep is particularly important as sleep patterns become established in childhood: poor sleep hygiene is likely to be a long-term problem.

Screens and the uses that are frequently made of them, in the evening or at night in particular, have direct and certain negative effects on the quantity and quality of children's and teenagers' sleep, and disrupt their natural cycles.

Several mechanisms explain the link between screen use and sleep:

- The widespread use of screens in the evening, and sometimes even at night, which automatically reduces sleep time and significantly disrupts its quality. From this point of view, teenagers are particularly at risk as the following have been noted:

    o Very frequent late use of screens. These uses are facilitated by the fact that many children and teenagers now have a connected device constantly in their bedroom (this is the case for 71% of 11-18 year-olds).[15] This tends to push back bedtime and the time when they fall asleep, and therefore reduces the amount of time they actually sleep.

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[12] Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. Sleep Health. 2015 Mar;1(1):40-43.

[13] Declarative memory (which records facts and whose content can be expressed verbally) is consolidated during deep sleep and procedural memory (or "memory of automatisms" which enables us, for example, to walk or ride a bike without having to relearn every day) is consolidated during REM sleep. The quality of sleep determines the quality of memory the following day.

[14] There is a direct relationship between attentional resources and acute or chronic sleep deprivation. The greater or longer the sleep deprivation, the greater the attention deficit. This applies to sustained attention, focal attention and working memory.

[15] "*Les pratiques numériques des 11-18 ans*" survey presented by the *Génération numérique* non-profit - February 2022.

- Checking the time or notifications on a smartphone when waking up at night, causing cognitive arousal and difficulty falling back to sleep.

- The existence of widespread behaviour among children and teenagers consisting of staying awake voluntarily, or even scheduling a wake-up call in the middle of the night, to use a screen (to chat with friends, to follow news on social media, to watch videos, to play video games, etc.). A recent survey found that 31% of young people aged 11 to 18 reported staying awake or waking up at night for this purpose.[16]

- Exposure to rapid scrolling of images, sounds, lights and movements on screens, such as video games, which stimulate wakefulness. Viewing violent or age-inappropriate content can have a particularly negative effect on the process of falling asleep and on the quality of sleep.

- Exposure to "blue light" emitted by the screens of most current terminals, which shifts the peak of melatonin, a hormone essential for synchronising biological rhythms.[17] Normally, the decrease in brightness in the evening is accompanied by an increase in the secretion of this hormone, with a peak in the middle of the night, around 3 to 4am. However, the use of screens in the evening, and particularly in the hour before bedtime, prolongs the period when melatonin synthesis is suppressed, further delaying the onset of sleep and the occurrence of the peak. This disrupts the circadian rhythm (or "internal clock" of the human body) and the physiological functions that depend on it (endocrine, cardiovascular, metabolic, immune and cognitive functions).

- Disturbances in the circadian rhythm linked to time spent on screens, including during the day. Indeed, this rhythm is also influenced by physical activity. If this is not sufficient, sleep will be impaired. However, the recreational use of screens by children and teenagers can often encroach on these activities, with a disruptive effect on the internal clock.[18]

For the first three points, the harmful effects of exposure to screens are particularly marked when terminals are used in the evening (particularly in the hour preceding the theoretical bedtime). A survey by the National Institute of Vigilance and Sleep in 2022 showed that children who spend more than an hour on screens between 5pm and 8pm go to bed later and have less sleep,[19] as a result of the various factors mentioned above.

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[16] "*Les pratiques numériques des 11-18 ans*" survey presented by the *Génération numérique* non-profit - February 2022.

[17] Recent studies tend to conclude that "blue light filters" do not improve sleep quality (sleep latency, sleep architecture, feeling fit the next morning) or melatonin secretion.

[18] "*Les troubles du sommeil*", Yves Dauvilliers. Editions Elsevier. 2019.

[19] In 2022, 40% of children under 11, 60% of 6-11 year-olds and around 70% of 12-17 year-olds used a screen in the hour before falling asleep. In addition, one in ten children under the age of 11 fell asleep in a room with a screen on.

It should be noted that for teenagers, these phenomena of sleep disturbance linked to screens and their use are in addition to the "natural" or physiological phase shift, namely a tendency for teenagers to be "night people" who fall asleep later in the evening and wake up later in the morning. This phenotype, which may be accentuated by the use of screens in the evening, physiologically shifts sleep towards very late hours and the waking time is more often than not stable and imposed by school hours, resulting in sleep deficit.

Faced with these worrying findings, the Commission noted during its work that awareness of the effects of screens on the children's teenagers' sleep is highly insufficient. For example, a recent survey found that 49% of parents of children under the age of 11 thought that the use of screens had no impact on their children's sleep, and that 8% even thought that this impact was beneficial.[20] In general, the biological realities associated with sleep are currently not sufficiently taken into account by society as a whole, particularly in the case of pre-teens and adolescents.

Table 4:   Sleep duration recommendations by the National Sleep Foundation[21]

Age	Sleep time in hours/24h
0-3 months	14-17
4-11 months	12-15
1-2 years	11-14
3-5 years	10-13
6-13 years	9-11
14-17 years	8-10

2.1.2- The prominence of screens and way they are used encourage a sedentary lifestyle and a lack of physical activity, causing excess weight and even obesity, which are responsible for many chronic diseases

French data shows that minors are insufficiently physically active, too sedentary and significantly affected by excess weight and obesity.

Studies carried out by ANSES in 2020 using 2016 data on sedentary lifestyles[22] and physical activity show that 33% of children under the age of three did not engage in any outdoor physical activity. Between the ages of three and 10, one third of boys and two thirds of girls were considered sedentary. Between the ages of 11 and 17, 20% of boys and more than half of girls were considered sedentary.

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[20] National Institute of Sleep and Vigilance. 20th "Sleep" Day. *Le sommeil des français en 2020*.

[21] Hirshkowitz M, Whiton K, Albert SM, et al. National Sleep Foundation's sleep time duration recommendations: methodology and results summary. Sleep Health. 2015 Mar;1(1):40-43.

[22] Sedentary behaviour is defined as an "a state of wakefulness characterised by low energy expenditure when sitting or lying down". NB: time spent sitting in front of a screen for leisure has been the most widely-used indicator since the 1970s-1980s in studies to assess sedentary behaviour among young people under the age of 18.

In general, a strong social gradient was observed in children's sedentary lifestyle: the lower the socio-educational level, the more sedentary the child.

The most-recent "Obépi-Roche" national epidemiological survey available on excess weight and obesity revealed that 21% of 8-17 year-olds were overweight, with 6% being obese. Among 2-7 year olds, excess weight and obesity are on the rise. These alarming figures, observed in most high-income countries, have led to talk of an "obesity epidemic". Here again, it is worth highlighting the existence of a strong social gradient, with higher rates of excess weight and obesity in families with lower socio-educational levels.

However, a sedentary lifestyle, lack of physical activity and being overweight are recognised as major risk factors in terms of health, in particular as they increase the risk of cardiovascular and metabolic diseases.[23]

In addition to the increased risk of cardiovascular diseases,[24] a sedentary lifestyle increases mortality from all causes. Moderate to intense physical activity alone does not fully compensate for the sedentary lifestyle caused by time spent sitting. Beyond seven hours per day spent sitting, each additional hour increases the risk of mortality by 5%.

The probability of an obese child remaining obese in adulthood varies between studies from 20% to 50% if obesity is present before puberty and from 50% to 70% if it appears after puberty. Persistent obesity is a definite source of future complications, facilitating the onset of cardiovascular[26] and metabolic diseases.

It should be emphasised that certain pathologies encouraged by a sedentary lifestyle, excess weight and obesity, previously considered to be specific to adults (arterial hypertension, lipid disorders, type-2 diabetes, sleep apnea syndrome, etc.), can now be present from childhood in the event of obesity, with a significant increase in the risk of cardiovascular disease in adulthood. On the other hand, obesity may also lead to early puberty in girls.[27]

There are clear links between the use of screens, a sedentary lifestyle and reduced physical activity.
There are many factors behind sedentary behaviour among young people which are part of modern lifestyles. Screens alone cannot explain the situation. However, the time spent by minors in front of screens mechanically contributes to sedentary attitudes since it necessarily involves more time spent in a static, sitting or lying position. It is also associated with less total physical activity since the more time spent in front of a screen, the less time will be available and effectively devoted to moderate or high intensity physical activities, by simple substitution effect.

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[23] The concept of cardiovascular disease covers a range of pathologies: myocardial infarction and other coronary heart diseases, strokes, chronic renal failure of vascular origin, arteritis of the lower limbs and venous diseases.
[24] For example, according to the INTERSTROKE study, a sedentary lifestyle is responsible for 35% of strokes.
[25] A sedentary lifestyle should not be confused with the absence of sport or insufficient physical activity. You can be sedentary (too much time spent without activity) and also engage in physical activity or sport.
[26] According to the INTERSTROKE study, the risk of strokes increases by 22% if you are overweight and by 64% if you are obese.
[27] Li W, Liu Q, Deng X, Chen Y, Liu S, Story M. Association between Obesity and Puberty Timing: A Systematic Review and Meta- Analysis. Int J Environ Res Public Health. 2017 Oct 24;14(10):1266.

While the epidemic of excess weight and obesity cannot be attributed to screens alone, their excessive use contributes to it.

Numerous studies have found dose-response associations between screen time and increased risk of excess weight and obesity, or excessive accumulation of adipose tissue.[28] It should be noted that, in the literature, this link is more apparent in teenagers than in young children. This can be explained, on the one hand, by the fact that the accumulation of adipose tissue occurs over a more or less long period of time until the stage of excess weight is reached and, on the other hand, by the specific characteristics of growth in young children. Routine weight-tracking tools may mask the identification of a link at this age. Nevertheless, early childhood is a period during which the excessive use of screens can lay the foundations for later excess weight.

Several factors may explain this link:

- Time spent on screens leads to a decrease in calorie expenditure.[29] The attention paid to the screen implies a static sitting position, which is a source of sedentariness, and a reduction in energy consumption. It is interesting to note, however, that "the range of energy consumption" depends on the type of screen viewed. Energy consumption is lower when watching television, when the viewer remains passive, than when using a screen in conjunction with a video game which may involve more physical activity and engagement.[30]

- Time spent on screens is more frequently associated with eating behaviour leading to an increase in energy intake from food.[31] In particular, eating in front of a screen (in front of a television, for example), diverts attention and reduces or postpones the sensation of satiety, thus encouraging overconsumption of energy through food.[32] The use of screens also seems to foster greater permeability to advertising messages promoting food products and thus leads to their consumption.[33] There is also a correlation between screen time and greater appetite for fatty, salty or sweet products, with a Nutri-score classified as D or E.

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[28] Fang K, Mu M, Liu K, He Y. Screen time and childhood overweight/obesity: A systematic review and meta-analysis. Child Care Health Dev. 2019 Sep;45(5):744-753. doi: 10.1111/cch.12701.

[29] Lanningham-Foster L, Jensen TB, Foster RC, Redmond AB, Walker BA, Heinz D et al. Energy expenditure of sedentary screen time compared with active screen time for children. Pediatrics. 2006;118:e1831-1835.

[30] Courbet D, Fourquet-Courbet MP. *Usage des écrans, surpoids et obésité*. Obésité. 2019;14:131-138; Cessna T, Raudenbush B, Reed A, Hunker R. Effects of video game play on snacking behavior. Appetite. 2007.49:282.

[31] Courbet D, Fourquet-Courbet MP. *Usage des écrans, surpoids et obésité*. Obésité. 2019;14:131-138.

[32] Bellissimo N, Pencharz PB, Thomas SG, Anderson GH. Effect of television viewing at mealtime on food intake after a glucose preload in boys. Pediatr. Res. 2007;61:745-749, Higgs S, Woodward M. Television watching during lunch increases afternoon snack intake in young women. Appetite. 2009;52:39-43.

[33] Boyland EJ, Nolan S, Kelly B, Tudur-Smith C, Jones A, Halford JCG et al. Advertising as a cue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and non-alcoholic beverage advertising on intake in children and adults. Am. J. Clin. Nutr. 2016;103:519-533.

2.1.3- Intensive screen-viewing has adverse effects on eyesight and could have worrying long-term consequences

The use of screens plays an established role in the onset and progression of different eye and vision disorders or pathologies, and children and teenagers are particularly vulnerable.

Indeed, a child's eye is still forming and its development ends around the age of 16. The eyeball grows until the age of four. Neuronal maturation of the visual system then continues until adolescence, around 13 to 15 years of age. Light plays an essential role in the maturation of the eye and the development of visual functions.[34]

Screens are thought to contribute to the myopia epidemic affecting modern societies. The prevalence of myopia has been increasing since the mid-20th century and has accelerated in recent decades. Worldwide, there are now more myopic individuals than emmetropic people, i.e. people with normal vision without any disorders. It is estimated that by 2050,[35] half of humanity will be suffering from myopia, with 10% at a severe stage.

The situation is already very worrying in Asia, where the prevalence of myopia among 6-19 year-olds is estimated at 60%, and particularly in South-East Asia (up to 73% of 12-18 year-olds in South Korea). In France, where trends follow those observed in Asia with a few years' lag, about one in three people in the general population (compared to 20% in the 1970s) and 42% of 10-19 year-olds[37] are myopic. In the United States, 42% of 10-15 year-olds are affected. This situation has led several Asian countries to introduce proactive public health policies (in particular, a structured plan in China involving more than one hour of outdoor physical activity every day at school for primary and secondary school pupils; experimental rollout of devices to test the benefits for children of exposure to a specific low-intensity red light; or, in other countries, the installation of physical devices in schools to ensure the right distance between children's eyes and their learning medium).

In addition to being a vision disorder, myopia is an aggravating risk factor for other eye and vision diseases in adulthood. The risks of maculopathy, retinal detachment, glaucoma, early cataracts and blindness are significantly increased in cases of myopia.[38.]

From this point of view, childhood is a key moment since it is most often between the ages of six and 12 that one becomes myopic. Myopia then stabilises in young adults.

The causes of the myopia epidemic are diverse and linked in particular to several aspects of contemporary lifestyles, some of which predate the arrival of screens: urban living with less clear visual horizons, more time spent indoors (at home, at school) than outdoors (lower exposure to natural light and greater exposure to artificial light).[39]

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[34] ANSES reports. *Effets sanitaires potentiels des technologies audiovisuelles en 3D stéréoscopique*, 2014.

[35] https://www.sciencedirect.com/science/article/pii/S0161642016000257

[36] Andrzej Grzybowski, Piotr Kanclerz, Kazuo Tsubota, Carla Lanca, Seang-Mei Saw. A review on the epidemiology of myopia in school children worldwide. BMC Ophthalmol. 2020 Jan 14;20(1):27.

[37] Matamoros E, Ingrand P, Pelen F, et al. Prevalence of myopia in France: a cross-sectional analysis. Medicine. 2015;94:e1976.

[38] Haarman AEG, Enthoven CA, Tideman JWL, Tedja MS, Verhoeven VJM, Klaver CCW. The Complications of Myopia: A Review and Meta-Analysis. Invest Ophthalmol Vis Sci. 2020 Apr 9;61(4):49. doi: 10.1167/iovs.61.4.49.

[39] Jones-Jordan LA, Sinnott LT, Cotter SA, Kleinstein RN, Manny RE, Mutti DO, et al. Time outdoors, visual activity, and myopia progression in juvenile-onset myopes. Invest Ophthalmol Vis Sci. 2012 Oct 1;53(11):7169-75; Wu PC, Tsai CL, Wu HL, Yang YH, Kuo HK. Outdoor activity during class recess reduces myopia onset and progression in school children. Ophthalmology. 2013 May;120(5):1080-5.

Since they first appeared, screens have been suspected of heightening these trends and thus accelerating the myopia epidemic. Exposure to the artificial light emitted from screens, rich in wavelengths in the blue range and depleted of red, is implicated in the incidence of myopia. Similarly, continued accommodation efforts on small screens used close to the eye (tablets, smartphones, portable game consoles) could contribute to the onset and worsening of myopia in children. A meta-analysis of 33 studies examining the association between screen time and myopia in children showed that screen time – taken as a whole – is not associated with the risk of myopia, but that time spent on a smartphone or computer – screens used close to the eyes – is associated with an increased risk of myopia, by a factor of between 30% and 145%. The study also points out that the literature is still insufficient and contradictory, and that it is essential to improve the robustness of the studies in order to be more conclusive.[40.]

Lastly, it must be emphasised that regular outdoor activities, which expose people to natural light, are an effective measure to counter the development of myopia.[41]

Blue light emitted by the majority of screens and products using light-emitting diodes (LEDs) appears to have disturbing phototoxic effects on the retina at high doses.

At high doses, the phototoxicity of blue light emitted by LEDs on the retina has now been demonstrated. When it reaches the eye, that light triggers a chain of chemical reactions leading to the creation of toxic particles which damage the photoreceptor cells.[42]

According to the current state of knowledge, the retina is more sensitive to light exposure at night.[43] The eye is also more sensitive to blue light when you are young. The capacity of the crystalline lens to filter light is strongly linked to age: before the age of eight, the lens allows more than 80% of short wavelengths in the blue range to pass through, whereas from the age of 25, this passage is reduced to 50%, dropping to around 20% by the age of 80.[44]

The toxicity thresholds for blue light, on the other hand, remain to be determined. Real-life studies are needed to assess the long-term impact of low-level but frequent exposure to blue light, such as that emitted by smartphones, tablets, or computer screens.[45] It should be noted that the distance between the eye and the light source is also a determining factor for possible damage.

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[39] Jones-Jordan LA, Sinnott LT, Cotter SA, Kleinstein RN, Manny RE, Mutti DO, et al. Time outdoors, visual activity, and myopia progression in juvenile-onset myopes. Invest Ophthalmol Vis Sci. 2012 Oct 1;53(11):7169-75; Wu PC, Tsai CL, Wu HL, Yang YH, Kuo HK. Outdoor activity during class recess reduces myopia onset and progression in school children. Ophthalmology. 2013 May;120(5):1080-5.

[40] Association between digital smart device use and myopia: a systematic review and meta-analysis. Foreman J, Salim AT, Praveen A, Fonseka D, Ting DSW, Guang He M, Bourne RRA, Crowston J, Wong TY, Dirani M. Lancet Digit Health. 2021 Dec;3(12):e806-e818.

[41] Cao K, Wan Y, Yusufu M, Wang N. Significance of Outdoor Time for Myopia Prevention: A Systematic Review and Meta-Analysis Based on Randomized Controlled Trials. Ophthalmic Res. 2020;63(2):97-105. doi: 10.1159/000501937.

[42] Jaadane I, Boulenguez P, Chahory S, Carré S, Savoldelli M, Jonet L, et al. Retinal damage induced by commercial light emitting diodes (LEDs). Free Radical Biology and Medicine. 2015;84:373-84; Eells JT, Gopalakrishnan S, Valter K. Near-Infrared Photobiomodulation in Retinal Injury and Disease. Adv Exp Med Biol. 2016;854:437-41

[43] Organisciak DT, Darrow RM, Barsalou L, Kutty RK, Wiggert B. Circadian-dependent retinal light damage in rats. Invest Ophthalmol Vis Sci. 2000 Nov;41(12):3694-701; Ribelayga C, Cao Y, Mangel SC. The circadian clock in the retina controls rod-cone coupling. Neuron. 2008 Sep 11;59(5):790-801; Ribelayga C, Mangel SC. Circadian clock regulation of cone to horizontal cell synaptic transfer in the goldfish retina. PLoS One. 2019;14(8):e0218818.

[44] Artigas JM, Felipe A, Navea A, Fandino A, Artigas C. Spectral transmission of the human crystalline lens in adult and elderly persons: color and total transmission of visible light. Invest Ophthalmol Vis Sci. 2012 Jun 26;53(7):4076-84.

[45] ANSES report. *Effets sur la Santé Humaine et sur l'Environnement (faune et flore) des Diodes Electroluminescentes (LED).* 2019.

Prolonged use of screens may also be associated with various symptoms, referred to as "digital eye strain",[46] the prevalence of which is estimated to be at least 50% among computer users, such as an increase in the sensation of dry eye,[47] sensations of visual fatigue and visual blurring. Stopping screen use and resting the eyes are usually sufficient to correct these symptoms. Although they are benign, their functional and economic impact requires them to be identified, in order to be dealt with appropriately in terms of prevention and treatment.

2.1.4- Reasoned vigilance must be exercised regarding the possible or suspected existence of other effects of electronic devices on health

The possible or suspected health effects of electronic devices are potentially numerous. The main points raised in connection with the Commission's work and still the subject of ongoing research are the following:

- The possible existence of effects linked to exposure to radiofrequency radiation:
  - o In 2016, ANSES published a report concluding that there were possible effects on cognition in particular, and on children's well-being, with recommendations in terms of limiting risks.[48]
  - o Another recent report from this agency,[49] reproducing its 2013 findings, states that there is limited evidence concerning:
    - ▪ "on animal models": sleep, male fertility and cognitive performance
    - ▪ in humans: gliomas for intensive users and vestibuloacoustic nerve neurinoma in epidemiological studies, as well as with a sufficient level of evidence, a short-term physiological modification of brain activity during sleep
  - o The agency stresses the lack of data on the possible long-term effects of chronic and prolonged exposure and the need "to continue monitoring exposure to electromagnetic fields and to adapt technical standards for measuring exposure to technological developments".

- The possible existence of effects such as "hormonal disruptors" or "endocrine disruptors":
  - o Association between excessive use of screens and an advance in the pubertal tempo in girls:
    - ▪ via a disturbance of the circadian rhythm[50]

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[46] Sheppard AL, Wolffsohn JS. Digital eye strain: prevalence, measurement and improvement. BMJ Open Ophthalmol. 2018 Apr 16;3(1): e000146.

[47] Miura DL, Hazarbassanov RM, Yamasato CK, Bandeira e Silva F, Godinho CJ, Gomes JA. Effect of a light-emitting timer device on the blink rate of non-dry eye individuals and dry eye patients. Br J Ophthalmol. 2013 Aug; 97(8):965-7.

[48] OPINION and REPORT from ANSES on the expert report on radiofrequency exposure and children's health. 2016.

[49] ANSES opinion on guidelines to limit the exposure of people to electromagnetic fields (100 kHz – 300 GHz). 2023.

[50] Bartholomew J, Gilligan C, Spence A. Contemporary Variables that Impact Sleep and Development in Female Adolescent Swimmers and Gymnasts. Sports Med Open. 2021 Aug 9;7(1):57.

- - - through sedentary lifestyles that encourage excess weight or obesity[51]
  - - - more recently, a direct effect of prolonged exposure to blue light has been suspected. At the end of the recent periods of lockdown, a link was found between the duration of exposure to screens and the advancing age of puberty in young girls. Animal studies suggest a causal link with blue light exposure, but this will need to be confirmed.[53]
  - o the toxicity of some of the materials or substances used in the manufacturing of screens and digital terminals with which users are in contact, including physical contact (smartphone screens, computer keyboards, etc.), sometimes several hours a day, and which may be released when the device is used and/or when the equipment deteriorates with effects, particularly on cognition, which may be possible over several generations.[54]

- The possible existence of musculoskeletal disorders, or other disorders of the hand, wrist, back, neck and joints related to postures associated with intensive use of screens. The Commission has received warnings on this subject but has not been able to obtain sufficient information in three months to assess the issue.

On all these topics, the Commission recommends that research be continued and expanded in order to reach clear scientific conclusions on the safety or hazardous nature of the technologies, processes, materials or substances concerned on the various aspects mentioned above.

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[51] Chioma L, Bizzarri C, Verzani M, Fava D, Salerno M, Capalbo D, Guzzetti C, Penta L, Di Luigi L, di Iorgi N, Maghnie M, Loche S, Cappa M. Sedentary lifestyle and precocious puberty in girls during the COVID-19 pandemic: an Italian experience. Endocr Connect. 2022 Feb 14;11(2): e210650.

[52] Gnocchi M, D'Alvano T, Lattanzi C, Messina G, Petraroli M, Patianna VD, Esposito S, Street ME. Current evidence on the impact of the COVID-19 pandemic on paediatric endocrine conditions. Endocrinol front (Lausanne). 2022 Aug 5; 13:913334;

[53] Uğurlu AK, Bideci A, Demirel AM, Kaplanoğlu GT, Dayanır D, Özlem Gülbahar O, Deveci Bulut TS, Döğer E, Çamurdan MO Blue Light Exposure and Exposure Duration Effects on Rats' Puberty Process ESPE 2022, Abstract P1-361; Kılınç Uğurlu A, Bideci A, Demirel MA, Take Kaplanoğlu G, Dayanır D, Gülbahar Ö, Deveci Bulut TS, Döğer E, Çamurdan MO. Effects of Blue Light on Puberty and Ovary in Female Rats. J Clin Res Pediatr Endocrinol. 2023 Nov 22;15(4):365-374.

[54] Abdallah, M. A. and Harrad, S. (2018). Dermal contact with furniture fabrics is a significant pathway of human exposure to Brominated flame retardants. Environment International, 118, 26–33; Gallen C, Banks A, Brandsma S, Baduel C, Thai P, Eaglesham G, Heffernan A, Leonards P, Bainton P, Mueller JF. Towards development of a rapid and effective non-destructive testing strategy to identify brominated flame retardants in the plastics of consumer products. Sci Total About. 2014 Sep 1;491-492:255-65; Hammel SC, Hansen KK, Madsen AM, Kolstad HA, Schlünssen V, Frederiksen M. Organophosphate ester (OPE) exposure among waste recycling and administrative workers in Denmark using silicone wristbands. Chemosphere. 2023 Dec;345:140449; Ni, H.-G., and Zeng, H. (2013). HBCD and TBBPA in particulate phase of indoor air in Shenzhen, China. Science of the Total Environment, 458, 15–19; Skogheim TS, Weyde KVF, Aase H, Engel SM, Surén P, Øie MG, Biele G, Reichborn-Kjennerud T, Brantsæter AL, Haug LS, Sabaredzovic A, Auyeung B, Villanger GD. Prenatal exposure to per- and polyfluoroalkyl substances (PFAS) and associations with attention-deficit/hyperactivity disorder and autism spectrum disorder in children. Approx. Res. 2021 Nov;202:111692; Sun, J., Chen, Q., Han, Y., Zhou, H. and Zhang, A. (2018). Emissions of selected brominated flame retardants from consumer materials: The effects of content, temperature, and timescale. Environmental Science and Pollution Research International, 25, 24201–24209; Svendsen, M., 2021. Occurrence of Legacy and Novel Per- and Polyfluoroalkyl Substances (PFAS) in , E-Waste Plastics and Mobile Phone Waste. Master thesis. Norwegian University of Science and Technology (NTNU); Tansel B. PFAS use in electronic products and exposure risks during handling and processing of e-waste: A review. J Environ Manage. 2022 Aug 15;316:115291; Wang J, Lou Y, Mo, K, Zheng X and Zheng Q (2023). Occurrence of hexabromocyclododecanes (HBCDs) and tetrabromobisphenol A (TBBPA) in indoor dust from different microenvironments: levels, profiles, and human exposure Environ Geochem Health (2023) 45:6043–6052; Yang C, Harris SA, Jantunen LM, Siddique S, Kubwabo C, Tsirlin D, Latifovic L, Fraser B, St-Jean M, De La Campa R, You H, Kulka R, Diamond ML. Are cell phones an indicator of personal exposure to organophosphate flame retardants and plasticizers? Approx. Int. 2019 Jan;122:104-116; Zheng X, Sun R, Qiao L, Guo H, Zheng J, Mai B. Flame retardants on the surface of phones and personal computers. Sci Total About. 2017 Dec 31;609:541-545.

In the meantime, while taking care not to be excessively alarmist, it suggests that we adopt conservative and common-sense attitudes, as has already begun to be done on the issue of electromagnetic waves with the formulation of recommendations by the public authorities on optimum conditions of use to limit the occurrence of suspected risks.

The Commission recommends increasing vigilance in all these areas during pregnancy when it has been established that the foetus is highly vulnerable, and for vulnerable populations such as new-born babies especially if they are premature, and more generally, children and teenagers.

2.2- With regard to the development of children and their brains, it is important, as a matter of priority, to be vigilant about the effects of screens on the youngest children and the risk of "technoference" which can have a lasting effect on them

As a preliminary observation, the Commission would like to return to the overall limitations of the scientific literature on the subject of the links between screens and neurodevelopment in children:

1) The methodological quality of the studies varies. It is therefore not possible for both ethical and practical reasons to conduct randomised double-blind studies. In addition, family-related social factors are often poorly taken into account even though they play a decisive role in educational and health behaviour. Secondly, cognitive development measures are sometimes reported by parents or teachers and not assessed by tests administered by psychologists. Lastly, there are more cross-sectional studies than longitudinal studies, and more smaller numbers than large samples. However, it is clear that these studies show associations that are most often negative or neutral, rarely positive. The effects, whether negative or positive, are small.

2) Most studies conclude that there is an association, but cannot demonstrate a causal relationship. On topics such as this, demonstrating causality requires a large body of converging evidence, which is time-consuming and costly, and is all the more complex as developmental traits are multifactorial.

3) The effects observed are of small clinical magnitude, whether positive or negative, but such effects can be significant at a population scale. Take the example of the Intelligence Quotient (IQ):
    - At the extremes of the Gaussian curve: a drop of one to two IQ points places certain individuals "in the low standard" in the "intellectual disability" category or "in the high standard" in the "higher intelligence" category
    - A decline in the average IQ of a country's population has consequences in terms of quality of life and productivity in particular

In addition to this scientific approach, it is also necessary to consider the feedback from professionals, mainly in the healthcare and education sectors, although these observations are also limited by the fact that the healthcare sector has little contact with the general population.

Having established these methodological aspects, the Commission set out incentives to limit the exposure of children under six years of age to recreational screens, in line with the recommendations of the WHO[55] and several learned societies, including the American Academy of Pediatrics (AAP)[56] and the French Ambulatory Pediatrics Association (AFPA)[57.]

On the one hand, many "weak signals" have been emerging in recent years. The interviews conducted by the Commission allowed several contacts to mention these signals. For example, some paediatricians, speech therapists and maternal and child protection doctors who monitor children under the age of three with language, eating and communication issues, and who are found to have been and are severely overexposed to screens (sometimes more than five to six hours a day since the first months of life), pass on these alerts. Similarly, some nursery school and elementary school teachers are concerned that their pupils seem to have more difficulty concentrating and less vocabulary. Some professionals point out that these trends seem to have become more pronounced as a result of the COVID-19 pandemic-related lockdowns.

On the other hand, the scientific literature on the links between the predominantly recreational use of screens and the cognitive development of children under six years of age has grown steadily since the 1970s and the first studies on exposure to television.

As already mentioned above, it should be reiterated from the outset, that while the reported effects are mostly negative or neutral, they are rarely positive in the general population. Moreover, the observed effects, whether positive or negative, are rather low on an individual basis in all the studies.

It should also be noted that occasional videoconferencing, a few minutes once or twice a week, does not appear to be cognitively problematic in children over 18 months of age.

Lastly, it should be noted that we are not considering the use of digital technology by children with special needs, for whom it can be a tool for compensating for disability and for learning, in association of course with strong human support (teacher, psychologist, occupational therapist, speech therapist, parents in particular).

The main principles of neurodevelopment in children

From the intra-uterine period until around the age of 25, the brain is developing and has great plasticity to assimilate all useful information. During the early years, the fundamental functions of the human being develop, including sensorimotor skills, socio-emotional skills and language, and later, school learning. The last functions to reach maturity are high-level ones: executive functions, impulsivity control, planning, etc.

While during this period the whole process is influenced by genetic factors, it is also massively influenced by interactions with the environment in which the individual evolves.

During this phase of development, there are a number of "sensitive" periods, during which certain functions (the development of the senses, walking, language, social cognition, discovery of reading, acquisition of writing, etc.) will be all the better acquired as they have been during these periods.

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[55] The WHO published the first guideline on digital health interventions. Press release:
https://www.who.int/en/news/item/17-04-2019-who-releases-first-guideline-on-digital-health-interventions, 2019.
[56] Reid Chassiakos YL, Radesky J, Christakis D, Moreno MA, Cross C; Council on Communications and Media. Children and Teenagers and Digital Media. Pediatrics, Nov; 138(5), 2016.
[57] https://afpa.org/folder/screens

For many, these moments occur during childhood but also, for high-level functions, during adolescence. These "sensitive" periods are characterised by a greater plasticity of the brain and therefore, at the same time, by an even greater vulnerability to adverse environmental events.

Disturbances that may occur during key moments in the development of perceptual systems, especially in very young children, will sometimes lead to irreversible consequences. By way of illustration, significant uncompensated hearing impairments occurring during language development will have definitive consequences on language and/or hearing itself. Similarly, a significant weakness in one of the two eyes at an early age, if not dealt with, may lead to a permanent loss of vision in that eye, as the connections necessary for its proper functioning for the rest of life are not made. In addition, exposure to psychoactive substances (alcohol, cannabis and other drugs) in young adolescents before the age of 15 produces non-reversible effects on the brain and impulsivity-regulating systems.

On the other hand, these "sensitive" periods are also windows of opportunity to intervene in the environment and to take positive action in favour of the health and education of children and teenagers.

2.2.1- Many arguments highlight the negative effect of certain uses of screens on the neurodevelopment of young children and lead to the recommendation of caution until the age of six

The Commission wished to draw attention first to the phenomenon of technoference. It is a neologism for ***interference in the parent (or appropriate adult)-child/teenager relationship, caused by the use of screens by the parent in the presence of the child/teenager.***

A television turned on in the background was the first type of technoference described, although it was not called this at the time. By decreasing the quality and quantity of parent-child interaction, it impairs language development and socio-relational skills.

The widespread use by adults of mobile devices, mainly smartphones since 2007, has led to an exponential increase in these disruptions in interaction. This is an emerging field of scientific research, and recent studies and clinical observations suggest that this new technoference is at the root of:

- on the parent's side:[58] altered sensitivity, support, availability and responsiveness of the parental response

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[58] Braune-Krickau K, Schneebeli L, Pehlke-Milde J, Gemperle M, Koch R, von Wyl A. Smartphones in the nursery: Parental smartphone use and parental sensitivity and responsiveness within parent-child interaction in early childhood (0-5 years): A scoping review. Infant Ment Health J. 2021 Mar; 42(2):161-175.

- in children:[59,60] impaired language development, regulation of emotions and socio-relational skills

This is a particularly critical issue in the 1,000 days of a child's life (from pregnancy to the child's second birthday). Although the studies still need consolidating and, from an ethical standpoint, they come up against the possibility of "testing" hypotheses on children by adopting experimental approaches capable of establishing links between cause and effect, the Commission considers that the mechanistic effects associated with the use of screens in young children's relationships with adults constitute sufficient grounds for **calling for extreme vigilance, at least up to the child's fourth birthday, in the use made of the tools by parents in their presence but also, more generally, by professionals working with young children (child minders, creche staff, nannies, etc.), especially at key moments in the relationship (meals, care, play, etc.).** Vigilance is also required during adolescence (see below).

<div align="center">*</div>

In addition to the use of screens by adults in the presence of children, the Commission was keen to take stock of current studies into the links between screen time and neurodevelopment in young children.

While these studies do not establish a causal link as such they show, on the whole, a slightly negative or neutral association between this screen time and neurodevelopment.

The current consensus comes from the meta-analysis by Madigan et al. (2020)[61] which integrates 42 studies on language development. It shows that, overall, the shorter the screen time and the later the age of first exposure, the better the language skills. However, viewing programmes of high educational value and/or interactive co-viewing with parents were associated with better language development (see box below presenting the main benchmarks in the language learning process). A recent review on this subject for children under the age of five also takes stock of this.[62]

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[59] Corkin MT, Henderson AME, Peterson ER, Kennedy-Constantini S, Sharplin HS, Morrison S. Associations between technoference, quality of parent-infant interactions, and infants' vocabulary development. Infant Behav Dev. 2021 Aug; 64:101611.

[60] McDaniel BT, Radesky JS. Technoference: Parent Distraction With Technology and Associations With Child Behavior Problems. Child Dev. 2018 Jan;89(1):100-109.

[61] Source: Madigan S, McArthur BA, Anhorn C, Eirich R, Christakis DA. Associations Between Screen Use and Child Language Skills: A Systematic Review and Meta-analysis. JAMA Pediatr. July 2020.

[62] Massaroni V, Delle Donne V, Marra C, Arcangeli V, Chieffo DPR. The Relationship between Language and Technology: How Screen Time Affects Language Development in Early Life-A Systematic Review. Brain Sci. 2023 Dec 25; 14(1):27.

Main benchmarks on the key moments in the language learning process

- Between three and six months: the child "gurgles", communicates by smiling, crying and vocalising.

- Between seven and 10 months: the child babbles, modulates the intensity of their voice, understands intonations and imitates them, responds with vocalisations. Understands everyday phrases ("it's time for lunch!"), intonations. First syllables.

- Around 12 months: the child pronounces their first words and understands simple instructions.

- Around two years: the child understands about 300 words and pronounces about 50.

- At three years: the child uses the "I", conjugates verbs, uses articles, knows their surname and first name.

- At four years: the child can speak fluently in their mother tongue.

- At six years: the child has a vocabulary of approximately 2,500 words.

Another longitudinal study by Madigan et al.[63] monitored 2,241 Canadian children aged from 24 to 60 months. High levels of exposure at 24 months and 36 months are associated with poorer cognitive performance at 60 months.

In the French context, there are two studies of preschool children (under six years of age) which are among the most robust in the literature and whose conclusions confirm this consensus and provide new evidence:
- Based on monitoring more than 1,500 children in the "Eden cohort", the 2021 study by Martinot et al. shows that the context of use is thought to play a more significant role than screen time alone: between two and five years of age, the more frequently children were exposed to television during meals, the lower the development of language.[64]
- These findings are corroborated by Yang et al.'s 2024 study of nearly 14,000 children in the "Elfe cohort", in which turning on the television during meal times was associated with lower cognitive development, particularly language, between the ages of two and five and a half. [65] In this study, at three and a half and five and a half years old, there was a negative and dose-dependent correlation between screen time and overall cognitive performance as early as 30-60 minutes of daily exposure. However, the correlations are not longitudinally significant, i.e. in this study, screen time at a given age is not associated with neurodevelopment at a later age.

These two studies also highlight the fact that social inequality plays a major role during early childhood, and accounts for a significant proportion of the differences in language performance. In France and most comparable countries, the fact that screens are used much more by children of disadvantaged families[66] is a factor in increasing developmental inequality between children from different social backgrounds.

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[63] Madigan S, Browne D, Racine N et al. Association Between Screen Time and Children's Performance on a Developmental Screening Test. JAMA Pediatr 2019 Mar 1; 173(3):244-250.

[64] Martinot P, Bernard JY, Peyre H, De Agostini M, Forhan A, Charles MA, Plancoulaine S, Heude B. Exposure to screens and children's language development in the EDEN mother-child cohort. Sci Rep. June 2021.

[65] Yang S, Said M, Peyre H, Ramus F, Taine M, Law EC, Dufourg MN, Heude B, Charles MA, Bernard JY. Associations of screen use with cognitive development in early childhood: the ELFE birth cohort. J Child Psychol Psychiatry. 2024.

[66] Poncet L, Saïd M, Gassama M, Dufourg MN, Müller-Riemenschneider F, Lioret S, Dargent-Molina P, Charles MA, Bernard JY. Sociodemographic and behavioural factors of adherence to the no-screen guideline for toddlers among parents from the French national Elfe birth cohort. Int J Behav Nutr Phys Act. August 2022.

Several factors have been put forward to explain this negative effect.

First of all, it has been generally established that, until the age of approximately 24 to 30 months, children learn less well through a screen than through actual human interaction:[67] this is known as a video transfer deficit. In other words, very young children do not need screens in order to learn.

One explanation is that very young children have difficulty processing information perceived on a two-dimensional screen and then transposing it into the real world, in three dimensions. In addition, in order to understand and learn, young children need sensory information and repeated experiences. Real and real-time interaction with the parent or appropriate adult is essential,[68] and screens cannot provide this.

In addition, screens stimulate a network known as the "reward system"[69] in various ways, particularly by providing novelty, resulting in the release of large quantities of dopamine. The prospect of a long-term reward also triggers the release of dopamine but in lesser amounts. When the amount of dopamine released is high, the reward system is more sensitive to the prospect of a short-term reward. When a dopamine level is kept high for a long time, for example by repeated pleasurable stimuli, the connections with long-term reward structures degenerate, in favour of short-term ones.[70] It should be reiterated that this is a mechanistic explanation that could explain certain behavioural phenomena observed in connection with screens but that, to date, there is no scientific study that has highlighted this effect in connection with screens. It should also be noted that the reward network is activated in all the activities that give us pleasure from food, board games and sport, but that stimulating it through screens requires little effort compared to sport for example.

In addition, the use of screens in the evening, in particular in the hour before bedtime, alters the quality and quantity of sleep, which can have cascading effect on neurodevelopment and learning (see the section on sleep above).

> ### 2.2.2- With regard to the neurodevelopment of older children and teenagers, questions focus on access to written language, academic performance and symptoms of depression.

The acquisition of reading skills is based on the quality of oral language, and requires regular and repeated effort and work throughout elementary schooling. In Quebec, a longitudinal study of children

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[67] 1. Barr R. Transfer of learning between 2D and 3D sources during infancy: Informing theory and practice Dev Rev 2010 Jun 1;30(2):128-154.

[68] Strouse GA, Troseth GL, O'Doherty KD et al. Co-viewing supports toddlers' word learning from contingent and noncontingent video. J Exp Child Psychol. 2018 Feb; 166:310-326.

[69] The reward system refers to a network of neurons whose activation leads to a sensation of pleasure. As such, it plays an essential role in motivational processes, and is strongly implicated in the onset of compulsive and/or addictive behaviours. The key neurotransmitter is dopamine.

[70] Lachaux, JP *Le cerveau attentive*, Edd Odile Jacob, 2011; Lachaux, JP *Le cerveau funambule*, Edd Odile Jacob, 2015.

aged six to 12 revealed a negative and weak association between time spent watching television and time spent reading at six years of age, but that the time spent watching television at six years of age does not have an effect on reading performance at eight and 10 years of age. [71] This study also shows that time spent watching television is not a substitute for time spent reading, or very marginally. However, another study flagged up links between poorer reading performance at 10 to 11 years old and spending more than two hours a day watching TV at eight to nine years old, and poorer numeracy skills at 10 to 11 years old and spending more than an hour in front of a computer at eight to nine years old. No effect was observed for video games.[72] In France, in the "Elfe cohort",[73] more screen time at two to three and a half years old is associated with lower literacy grades in years one and two although studies still diverge on this issue. However, as reading is a determining factor and one of the key factors in academic success throughout schooling, data from the "Elfe cohort" calls for a certain amount of vigilance.

For pre-adolescents aged nine to 10 years old and for teenagers up to 17 years old, certain studies, including longitudinal ones, suggest that recreational screen use time exceeding current recommendations (two hours per day) or higher, is associated with lower overall cognitive performance and poorer academic performance.[74,75,76,77] However, one of the latest longitudinal studies, a functional, anatomical and diffusion imaging study on the ABCD cohort that monitored 13,000 teenagers over 15 years as from eight years of age, found no effect of time spent on screens at a given age on the brain development of adolescents aged nine to 12.[78] Whether the results are negative or null, these studies do not establish causal links and the effects remain low. On the other hand, as with younger children, social background is the variable that best explains the differences observed in the cognitive domain, and screen time can have positive effects on the quality of peer interactions. It should also be noted that screen time may reflect very different uses of digital technology which are often more explanatory of the effects observed. For example, the use of video games could have positive effects on the development of intelligence between the ages of eight and 10, whereas social media is thought to have zero effect. Lastly, in adolescence, the effects of screens and in particular social media must be interpreted in the light of pre-existing neuropsychological vulnerability.[80] One study suggests in particular that activity in certain structures of the prefrontal cortex in response to social rewards and their development between the ages of nine and 12 are risk factors for excessive use; excessive use is a risk factor for the development of symptoms of depression in girls but not in boys. The relationships between screens and the cognitive and emotional development of adolescents are therefore complex and use-dependent.

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[71] Supper W, et al. The Relation Between Television Viewing Time and Reading Achievement in Elementary School Children: A Test of Substitution and Inhibition Hypotheses. Front Psychol. 2021.

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[78] https://doi.org/10.1016/j.cortex.2023.09.009

[79] https://doi.org/10.1038/s41598-022-11341-2

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In adolescence, technoference once again plays a role in the relationship between parents and young adolescents and could be associated with poorer mental health.[81.]

2.2.3- With regard to the specific issue of attention, the scientific literature suggests a link between excessive use of recreational screens and impaired attentional abilities apart from video games on the visio-spatial level

Screens offer access to a variety of recreational content, all of which relies on the use of "exogenous" or automatic attention in many ways (particularly sounds, rapid movements, colour contrasts for small children; novelty, random reward, infinite scrolling and other "addictive" designs later on). This is effective very early on in the first months of life, unlike "endogenous" or voluntary attention that must be trained and worked on to become effective.

Over-stimulation of the former could be to the detriment of the latter, which in the long term could potentially have effects on concentration. The most anterior regions of the brain are involved in these processes and continue to develop throughout adolescence.

A recent review of the literature[82] including 11 studies, some of which involve imaging and electrophysiology, shows that prolonged exposure to screens by children under 12 years of age, beyond current recommendations (zero before two years, less than one hour before five years, less than two hours thereafter) may be associated with lower attentional capacity. A longitudinal study looking at smartphone use by 2,587 teenagers aged 15 and 16, who were monitored for two years, found a weak association between symptoms of inattention and hyperactivity/impulsivity at the end of the monitoring period for adolescents reporting a high frequency of consultation (several times a day) versus low (twice a day or less, twice a week or less) of social media, active use of them, watching videos, listening to and downloading music, but not with use of messaging and texting, taking into account the usual confounding factors (sleep, socio-economic level, etc.).[83] Media multitasking is a major factor in disrupting attentional processes and memory.[84]

It should be noted that the widespread use of screens in the evening or at night alters sleep quantitatively and qualitatively, potentially affecting attentional and impulsive control abilities (see the discussion in 2.1 relating to sleep).

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[84] Madore KP, Khazenzon AM, Backes CW, Jiang J, Uncapher MR, Norcia AM, Wagner AD. Memory failure predicted by attention lapsing and media multitasking. Nature. 2020 Nov;587(7832):87-91.

On the other hand, one of the latest published meta-analyses reports low to moderate positive effects, associated with playing action video games on endogenous visual-spatial attention in intervention studies[85]. However, there is no consensus on the transferability of those skills to tasks other than those similar to those offered by the practice of gambling.[86, 87, 88]

> ### 2.2.4- Screens are not the cause of neurodevelopmental disorders (NDDs), ADHD (attention deficit disorder with or without hyperactivity) or autism spectrum disorders (ASDs) but vigilance is required in relation to their excessive use to avoid heightening the symptoms related to these NDDs

The Commission would like to point out that neurodevelopmental disorders (NDDs), including ADHD or autism spectrum disorders, cannot be attributed to screen use. These disorders are multifactorial and present from birth and cannot in any logical sense be caused by exposure, necessarily later, to screens.

However, it should be noted that excessive exposure to screens can worsen symptoms related to these disorders in children who suffer from them. By way of illustration, a recent review[89] and meta-analysis[90] found a significant association between screen use and ADHD in the population aged zero to 18 years, this association probably being two-way, i.e. subjects with ADHD also tend to use screens more. Great care should therefore be taken when monitoring children with these NDDs to ensure that the severity of symptoms is not increased by excessive screen use.

Summary of suspected effects of screens in children and teenagers

- before two years of age, the effects of exposure to screens are associated with poorer performance in terms of language and attention span.

- From two to six years of age, screen time of more than one hour per day or television time of more than 30 minutes per day is often associated with poorer overall cognitive, attentional, language and socio-emotional performance.

- from six to 17 years of age, screen time of more than two hours per day could be associated for some uses with a reduced attention span and poorer reading and academic less performance, but this remains to be confirmed.

- between 15 and 18 years of age: high-frequency smartphone use (several times a day) has been associated with an increase in symptoms such as inattention, impulsivity and hyperactivity.

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[85] https://tmb.apaopen.org/pub/qj0c4ij2/release/3

[86] Oei AC, Patterson MD. Are videogame training gains specific or general? Front Syst Neurosci. 2014 Apr 8; 8:54.

[87] Bavelier D., Green C. S., Pouget A., Schrater P. (2012b). Brain plasticity through the life span: learning to learn and action video games. Annu. Rev. Neurosci. 35, 391–416 10.1146/annurev-neuro-060909-152832

[88] Green C. S., Pouget A., Bavelier D. (2010b). Improved probabilistic inference as a general learning mechanism with action video games. Curr. Biol. 20, 1573–1579 10.1016/d.cub.2010.07.040

[89] Beyens I, Valkenburg PM, Piotrowski JT. Screen media use and ADHD-related behaviors: Four Decades of Research. Proc Natl Acad Sci U S A. 2018 Oct 2;115(40):9875-9881.

[90] Nikkelen SW, Valkenburg PM, Huizinga M, Bushman BJ. Media use and ADHD-related behaviors in children and adolescents: A meta-analysis. Dev Psychol. 2014 Sep;50(9):2228-41. doi: 10.1037/a0037318.

2.3- With regard to mental health, particularly depression and anxiety, the use of social media seems to be a risk factor when there is a pre-existing vulnerability

The issue of young people's mental health has been a growing concern since the end of the COVID-19 pandemic, with indicators that have generally evolved unfavourably, particularly among young girls.

Adolescence, in particular, is a time when young people face many changes, pressures and challenges that can make them more vulnerable in terms of mental health. It is during this period that the first signs of anxiety, depression or suicidal behaviour may appear.

Santé publique France warned the public authorities that the mental health of young people was still deteriorating in France in 2023, a trend that has been constant since September 2020. This deterioration particularly affects adolescents (11 to 17 years) and young adults (18 to 24 years). As a result:

- use of emergency care for mood disorders, suicidal thoughts and gestures increased sharply in 2021 and 2022 and has remained at a high level ever since. Among young people aged 18 to24, the increase even continued significantly in 2023

- 20.8% of 18-24 year-olds were affected by depression in 2021, compared with 11.7% in 2017

- among 17 year-olds, 9.5% were affected by severe anxio-depressive symptoms in 2022 compared with 4.5% in 2017 and 18% had suicidal thoughts during the year compared to 11% in 2017

In April 2024, *Santé publique France* also published the mental health results of the national survey of adolescents in lower and upper secondary schools (EnCLASS). The study, based on data collected in 2022 from 9,337 secondary school pupils in mainland France, shows that the mental health of lower and upper secondary school pupils deteriorated significantly between 2018 and 2022. This deterioration is more pronounced among young girls, and widens the gap between boys and girls that had already been observed until then. In particular:

- While the vast majority of pupils polled expressed satisfaction with their current lives and perceive themselves as healthy, only half had a good level of mental well-being. There is a significant proportion of young people at risk of depression who report feelings of loneliness, psychological and/or somatic complaints or suicidal thoughts.

- About a quarter of the pupils interviewed had experienced a feeling of loneliness in the last 12 months, with more upper secondary school pupils than lower secondary school pupils feeling lonely (27% vs. 21%).

- More than half of the young people questioned (51% of lower secondary school and 58% of upper secondary school pupils) make recuring psychological or somatic complaints (i.e. at least two complaints more than once a week in the last six months). The most frequently reported complaints are difficulty falling asleep, nervousness, irritability and back pain.

- 14% of lower secondary school pupils and 15% of upper secondary school pupils are at significant risk of depression. Lack of energy, feeling discouraged and having difficulty thinking are the three main depressive symptoms reported by teenagers.

- Suicidal behaviour was also measured, but only among upper secondary school pupils. A quarter (24%) reported having had suicidal thoughts in the last 12 months. Girls are significantly more affected than boys (31% vs. 17%), regardless of class. About one in ten upper secondary school pupils said they had attempted suicide in their lifetime.

*

Faced with these warnings, which are not specific to France, the question of the responsibility of screens, and in particular social media, has emerged strongly in the public debate.

With regard to screens, and mobile phones more specifically, some young people, like the rest of the population in general, may suffer from "nomophobia", that is to say they consider being separated from their phones, not being contactable or being deprived of an Internet connection as a frightening prospect. The prevalence of this phobia is extremely variable, as it is difficult to define and therefore to estimate it. According to the information available to the Commission, it varies from 6% to 73% of the population studied, depending on the survey.

Screens can also sometimes be associated with shutting oneself away and cutting oneself off from reality. Examples have been reported of young people preferring the "virtual life" of their avatar on the Internet or in a video game rather than their real life.

But most of the attention is focused on social media. These can have contrasting effects and scientific studies are currently failing to establish a causal link between these platforms and the mental well-being of young people, especially since this well-being is always multifactorial and depends on individual, family and environmental factors.

However, the Commission considers that there is sufficient evidence to indicate that excessive use of social media is an aggravating risk factor for vulnerable young people and that it is essential to support research to shed more light on this, as well as to act on platform design to reduce potentially harmful effects (see below).

The link between social media and mental health does not appear to be unequivocal. Indeed, science suggests that there are several ways in which social media could improve the lives of young people, including by providing opportunities for more marginalised young people to connect with communities and access to leisure in a wide variety of ways. Conversely, it suggests that some social media features may be detrimental to the mental health of some young people. This includes algorithms highlighting inappropriate content, leading to excessive distractions when time could be spent on activities that are beneficial for well-being, and the increased possibility of children being abused. It should be noted that sleep debt encouraged by the use of screens in the evening and at night represents an independent risk factor for anxiety and depression.

This debate is not unique to France. In October 2021, the American Academy of Pediatrics (AAP) declared a "national emergency for children's mental health" and the US Centers for Disease Control and Prevention (CDCs) sent out a similar message in 2022. The role of social media has been widely debated in the United States. Some researchers, such as Jean Twenge and Jonathan Haidt, argue that

social media provides the most plausible explanation for problems such as increasing adolescent loneliness. Other researchers, such as Jeff Hancock, are less categoric, pointing to a limited association (not causality) between social media consumption and increased depression and anxiety, and mostly emphasise the positive effects in the sense of belonging and connection to communities, as well as in the creation of new spaces for expression. Amy Orben and Andrew Przybylski in the United Kingdom suggest that while a link exists between social media and depressive symptoms, it is extremely limited and does not require a public health policy at this stage.

This debate is at the heart of the relationship between social media and mental health. Some users may have their mental health negatively affected, others will not experience such adverse effects, while others will ultimately have a supportive and positive experience for their mental health. It is therefore difficult to deduce an average overall effect for the population as a whole.

The influence of social media on young people's mental health is dependent on several complex factors, including individual strengths and vulnerabilities, which are themselves based on socio-economic, genetic, cultural factors, etc. These factors also include the time spent on the platforms, the nature of the content consumed, the level of disruption caused to other essential activities such as sleep and physical activity. However, these factors are adversely affected by predatory designs that specifically aim to maximise the time spent online, and to lock teenagers into filter bubbles, and as such increase the risks to the mental well-being of young people who are already vulnerable.

Amnesty International's report "Driven into Darkness: How TikTok's "For You" Feed Encourages Self-Harm and Suicidal Ideation" explains how the platform's strategy to get users' attention risks exacerbating mental health problems such as depression, anxiety and self-harm. The technical study is based on more than 30 automated accounts that have been set up to represent 13 year-olds in Kenya and the United States to measure the effects of this social media's recommendation algorithm on young users. A second simulation, run manually, was performed on an account in Kenya, one in the Philippines and one in the United States. The technical study revealed that:

- after five or six hours spent on the platform, almost one video in two was related to mental health and was potentially harmful, a volume 10 times larger than that presented to accounts that indicated no interest in the subject

- the "spiral effect" was even faster when the research team manually reviewed mental health videos that had been suggested to the study's accounts simulating the behaviour of 13 year-old children

- between three and twenty minutes after the start of the manual study, more than half of the videos in the "For You" feed thread were related to mental health problems, and many of the videos recommended within the space of an hours idealised, trivialised or even encouraged suicide

In addition to these observations relating to the algorithmic construction of certain networks, there is the debate on whether or not they are addictive (see the box on addiction below).

> **The addictive process and the reward system (from the article "*L'addiction expliquée par les neurosciences*" in MAAD-DIGITAL[91] (*Arbre des connaissances* system))**
>
> *When it works under "normal" conditions, a healthy brain is in principle able to react to various stimuli and disturbances from the external environment and maintain its homeostasis (or "equal state"). But when it is confronted with the effects of psychoactive products (drugs, alcohol, etc.), it is then severely disrupted to the point of making homeostasis more difficult to achieve. Taken repeatedly, these products become part of the very workings of the brain. Without their input, the brain will then be "distressed" and will no longer be able to carry out its functions properly. This is how the phenomenon of addiction begins.*
>
> *During its activities, our brain looks for rewards (often in connection with vital needs: eating, drinking, etc.). When these rewards are close, there is a strong release of dopamine, the reward neurotransmitter and with it comes the pleasure phase.*
>
> *Brain imaging studies have established that psychoactive products cause a much greater and faster release of dopamine than that achieved by natural rewards. However, the release of dopamine plays a major role in the development of addiction, but also in the onset of psychiatric diseases such as schizophrenia or attention disorders. This mass release in the prefrontal cortex appears to directly contribute to the delusions and hallucinations characterising psychoses.*
>
> *The release of dopamine, in turn, causes a strong craving for the product and impulsivity, i.e. the difficulty for the individual to control themself. The repetition of these stimuli leads to the signal spreading to the compulsivity circuit which corresponds to a loss of control and a repeated taking of the product despite awareness of its undesirable effects, and despite the reduction or even the disappearance of the pleasure related to its consumption. The brain areas responsible for rewards, impulsivity and compulsivity are indeed very similar.*
>
> *At the same time, the intensity of the response to the stimulus decreases. The brain performs various actions to protect itself from the effect of the products, such as "internalising" the receptors inside the neurons so that they are no longer exposed to the stimulants, or changing the structure of the receptors so that the stimulant no longer triggers an action. The subject is then required to increase their consumption to achieve the desired effect. This tends to over-activate the neurobiological stress circuit and encourage the emergence of negative emotions. The initial homeostasis is broken, the product is integrated as a necessary element for brain functioning, and the brain is trapped.*
>
> *Once an addiction has taken hold, little is known about the reversibility of changes in neurobiological circuits caused by psychoactive products (...) It appears, however, that the longer the duration and frequency of exposure, the more severe and lasting the disturbances will be.*

While video game disorders are already internationally recognised, this is not the case for social media. Yet social media has addiction-type design elements which, according to some authors, should lead us to recognise the existence of addiction to social media.

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[91] This box is based on the following source: B. Nalpas & S. Elmestikawi. "*L'addiction expliquée par les neurosciences*", article in three parts published on MAAD-DIGITAL.fr (https://www.maad-digital.fr/dossiers/laddiction-explaine-par-les-neurosciences-13).

International classification is often lengthy and evidence will need to be bolstered to support the dialogue, but there is little doubt that this recognition will be achieved, with platforms functioning constantly, within a few years. Addiction, which is the repeated inability to control behaviour that provides pleasure, and that provides an escape from psychic discomfort, is also multifactorial; it is always part of a complex relationship between the individual and their environment. But again, the attention-capturing economy is harnessing addictive "reflexes" that heighten these pre-existing risks, and it is important to protect the youngest and most vulnerable from these risks.

These findings are all the more important as they come during the period of adolescence which is a particularly critical time when high-risk behaviour peaks, when mental health problems such as depression emerge, when identity and self-esteem are formed; during which brain development is particularly "sensitive" to social pressure and peer opinions. In this respect, the most harmful algorithmic models carry strong risks, such as increasing sensitivity to social rewards, for example, and being prescribing a declining satisfaction in the development of young girls.

As adolescence is a critical period in many respects, and as children and young people do not have the luxury of waiting for us to understand everything through science, we need to start to find ways of better protecting teenagers, and especially girls, from unethical social media, in particular the use of addictive and confining processes. Indeed, while it is essential to galvanise and support research to better document these effects, the scientific community agrees that social media has the potential to both benefit teenagers and harm their mental health. However, while the use of social media is now almost universal, the negative impact, even limited, can affect a very large number of vulnerable teenagers, and social media may represent an additional risk factor for them from which they must be protected.

2.4- Uncontrolled access by minors to screens exposes them to insufficiently regulated content, which is sometimes traumatic and which may jeopardise their balance, health and safety

During its work, the Commission found that inadequate regulation of access, on the one hand, and of the content that screens allow access to, on the other, and the lack of information, training and support for both children and teenagers and their parents and educators, meant that they were exposed to inappropriate content (2.4.1) or content likely to threaten their safety (2.4.2).

2.4.1- The level of exposure of children and teenagers to inappropriate content is alarming

Based on the evidence it has gathered, the Commission deplores the fact that minors too often have access to content that is offensive and/or inappropriate for their age.

According to a survey made public at the beginning of 2023, seven out of 10 young people aged 11 to 18 considered that they had already been exposed to "offensive content on the Internet or on social media". [92]

Among the various inappropriate content to which minors have access via screens, the Commission has mainly noted:

- exposure to pornographic content. The above-mentioned early 2023 survey of 11-18 year-olds shows that 36% of children in this age group have had access to pornography. When a child is exposed to pornographic content, the average age at which they are confronted by it, even accidentally, is now estimated to be 10 or 11 depending on the sources (compared to 14 in 2017). An ARCOM study in March 2023 specifies that 2.3 million minors in France visit pornographic sites every month (10% of young people under 18 visit these sites daily), half of whom are boys aged 12 and over and two thirds are boys between the ages of 16 and 17.[93] This data has risen sharply (+600,000 in five years, i.e. up 36%). For 75% of those under the age of 18, content is viewed on a mobile phone. It should be emphasised that such content is increasingly shocking, violent and uncontrolled, and is therefore all the more unsuitable for minors who may not have explicitly sought out this content and have had it imposed on them, or have accessed it whilst searching for information on sexuality.

- significant exposure of young people to violent content. The above-mentioned February 2023 survey of 11-18 year-olds showed that 47% of these young people had been exposed to scenes of animal abuse, 42% to scenes of fighting or violence and 26% to very violent content such as war, torture or execution scenes. The testimonies of minors interviewed by the Commission often referred to exchanges between them of extremely violent content, including through messaging systems that had silently evolved into social media models.

- exposure via screens to hate speech or content. For example, 48% of young people say they have been insulted and 25% have been mocked on the Internet.[9] A survey by the *Génération numérique* non-profit, carried out in partnership with the DILCRAH, and released in March 2024, reveal that online hate is becoming commonplace. Around 30% of 11-18 year-olds say that they have seen racist comments circulate online (up nine points compared to 2020) and 26% have seen insulting or hateful comments related to religion (+ eight points compared to 2020).

There are several reasons why minors have so much access to content to which they should not be subjected:

- Websites reserved for adults, despite recent developments (see section 1.3 below*),* remain too easily accessible to minors who can easily bypass entry filters. As regards, for example, pornographic sites, the above-mentioned ARCOM study indicates that minors account on average for 12% of the audience of adult websites (and up to 17% for one of the pornographic websites studied).

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[92] Source: *Génération numérique, Enquête sur les contenus choquants accessibles aux mineurs*, February 2023.
[93] Source: ARCOM study on the use of adult sites by minors - March 2023, data based on Médiamétrie's Internet audience measurements.
[94] Survey "*Les pratiques numériques des 11 – 18 ans*", presented by the *Génération numérique* non-profit - February 2022.

- Parental control devices intended to regulate access by minors are insufficiently enabled and have too many limitations.

- Many websites and social media platforms do not moderate their content sufficiently. For example, pornographic, violent or inappropriate content can be posted and circulate for several hours on certain media before being effectively removed. However, many children and teenagers are present on these websites or platforms, including those under the age of 13 for whom registration is not normally possible, which raises the question of the conditions for verifying access to these websites or platforms.

- To a lesser extent, Internet users under the age of 18 may sometimes be subjected to inappropriate content via online advertisements or even in the public space (e.g. large retail chains broadcasting videos or video games that are not suitable for minors on screens that are visible to all).

2.4.2- Children and teenagers may be exposed to serious threats to their own safety

The extent to which minors use screens, inadequacy of supervision and support systems for their use and the lack of regulation of content mean that they run a high risk of being exposed to abuses that could jeopardise their own safety.

For example, 19% of 11-18 year-olds say they have already "encountered a problem on the Internet". These "problems" can vary in nature and seriousness, ranging from a simple "argument" (58% of 11-18 year-olds say they have quarrelled on the internet) to extremely worrying situations.

The hyper-presence of screens in the daily lives of minors means, for example, that these tools are now a channel for, or even an amplifier of, harassment. While this problem of harassment is not new, and harassment is never inherently digital, the possibility of massively increasing dissemination of these messages without any respite for the victims (including at night or when the victim is no longer close to their abusers) is facilitated by the place occupied by screens and their main uses. Cyberbullying is therefore a very real problem for minors. A study carried out by the e-Enfance 3018 non-profit and Caisse d'Epargne reveals that 24% of families have already experienced cyberbullying at least once. And according to surveys by the *Génération numérique* non-profit, 6% of young people admit to having perpetrated cyberbullying or taken part in it, even involuntarily. In some cases, this relentless harassment can lead to dramatic situations for young people who fall victim to it.

The exposure of minors to screens and the lack of fully effective protection measures at this stage expose them to other types of extremely serious situations, including online sexual exploitation and abuse. The Commission was able to note in the course of its work:

- the sharp rise in "sex extortion" (or sextortion) aimed at minors, and sometimes even between minors themselves, consisting of obtaining a compromising sexual image or video from the minors concerned and blackmailing them in return for not distributing this content (12,000 incidents recorded in 2023 in France – probably much more if we take into account the fact that many victims probably do not file a complaint – compared to 1,400 in 2022).

- The explosion in online grooming of minors (techniques whereby a malicious adult attempts to contact a minor under a false identity in order to make a sexual proposition).

- Cases of the dissemination of pornographic deep fakes, the number of which is increasing, while the production of such visual or sound content is now facilitated by the democratisation of generative artificial intelligence systems.

- The high vulnerability of minors to paedophile crime, including via websites, forums or online video games that appear harmless but which, because they bring together large numbers of children, are ideal phishing spaces for paedophiles.

In total, according to data provided by the Minors Office (OFMIN),[95] which reports to the National Criminal Investigation Directorate, 318,000 reports of paedophile content (downloads, dissemination of content, etc.) were recorded in 2023 in France (including the 12,000 reports of sextortion mentioned above). More broadly, according to a 2021 worldwide study,[96] 54% of respondents had experienced at least one online sexual assault during their childhood.

2.5 – Beyond the issues of public health and individual integrity, what is the societal impact?

In addition to the individual issues set out above, the Commission wished to examine the more systemic societal impact of exposure of children and teenagers to screens.

This is not intended to be an indictment of digital technology in general, as it can open up the horizons for children's exchanges, help them maintain links with their families when they are faraway, nurture their need to socialise with peers, especially around the age of 13 when young people begin to emancipate themselves from the family sphere, make this social link "plural", break them out of isolation when they are trapped in it, provide access to support when they are confronted with difficult personal or family situations and offer them opportunities for creativity and self-fulfilment.

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[95] The Minors Office, which reports to the National Criminal Investigation Directorate, was established in 2023 to respond to the increase in offences against minors and to improve the effectiveness of the judicial treatment of such violence.
[96] We protect-Global Alliance - Global Threat Assessment, 2021.

To mirror this notion of empowerment, we need to be collectively vigilant about the mechanisms that, conversely, work fundamentally against this freedom to fulfil one's own choices and that could be detrimental to "living together".

While there is little evidence to establish the causality between certain uses of digital technology and social behaviour, or the level of intensity of the effects, it is apparent from the various studies that the excessive and highly-targeted use of a limited number of services carries with it the seeds of heightening ethically and democratically questionable representations. Digital life then becomes an extension and a resonance chamber of toxic content, leaving no respite for a child or teenager subjected to it.

2.5.1- What collective imagination?

The intensification of social media consumption, using algorithmic processes that digest users' preferences in order to present them with "liked" content, leads to a hyper-individualisation of the digital experience. This targeting dynamic, coupled with an increase in the amount of content viewed over a given period of time, means that young people's digital experience is very different from that or their family and friends. Everyone finds themselves "side by side", as they were when they were together playing a board game, or even watching a television programme. This differentiation also occurs, albeit to a lesser extent, between young people themselves. In the absence of counter-proposals, this movement raises the question of the collective imagination that can be built, in this hyper-fragmentation of tools, uses and individuals, including within the younger generations, while this imagination is a critical point of the articulation between individuals and the collective, and it constitutes an unsurpassable horizon for creating cohesion and a common societal project.

2.5.2- The increase in representations and stereotypes that can be stimulated by digital life must be the subject of constant vigilance with regard to children.

Although difficult to enforce, there is a legal arsenal against fake news and advertisements.

On the other hand, it is much more difficult to act against the "representations" conveyed by the consumption of social media or by listening to influencers, which can shape children's and teenagers' view of social relationships, gender relations, work, etc. in ways that are ethically questionable. These representations spread quickly and non-profits and educational communities must find a space for listening and monitoring to ensure, discuss and, where appropriate, deconstruct toxic representations with the support of all stakeholders in contact with children and families.

As such, many interviewees raised extremely serious concerns about gender stereotypes, the objectification of women and men's ever-increasing adherence – particularly post-adolescence – to masculinism.[97] The latest 2024 annual report of the High Council for Gender Equality is particularly alarming, stating that sexism "begins at home, continues at school, and explodes online".

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[97] A conservative or reactionary social movement that claims that men suffer from an identity crisis because women in general, and feminists in particular, dominate society and its institutions.

The Internet makes it possible to relay women's struggles, but also, in its most popular content, conveys stereotypes and gender-based and sexual violence. More than half of the population considers that women and men are treated differently on social media (up to 72% for women aged 15 to 24). Again, according to the High Council, digital platforms are a "genuine sounding board for gender stereotypes": "women are under-represented in both professional environments and outdoor public places, while they are over-represented in private, intimate settings. At the centre of a highly heteronormative family structure, which reinforces the gender roles traditionally attributed to them, they are often presented in a maternal role, pregnant, young mothers, devoted to their pregnancy or their young children, roles which sometimes form the exclusive basis for the activity of the most popular influencers in France". For young girls, for their development, for their relationships with men, these developments are "extremely serious", and the Commission totally agrees with the High Council's term. Indeed, in the face of sexism, nine out of 10 women have already given up actions or changed their behaviour according to the High Council.

Sexism is also at the root of a continuum of violence, from the seemingly insignificant to the most serious, and "it is precisely for this reason that it must be tackled". According to Plan International's 2020 annual report, 39% of women report having been victims of body shaming and 73% of online violence. Algorithmic recommendations contribute to and heighten this phenomenon.
"Women are the first victims of this mechanism: according to the sexism barometer, almost one in two young women aged 15 to 24 (45%) say they have been treated less well on social media. Sexism in content is reproduced at high-speed making it commonplace and deeply-rooted in society. The High Council warns that these stereotypes are even more prevalent on services dedicated to children, running the risk of long-term representations among them. Lastly, the High Council puts the spotlight on the digital distribution of pornographic content, warning that "early exposure to pornography appears to have real effects on men's representations of women in the sexual relationships they may have". And, again according to IFOP, the earlier young men are exposed to "hardcore" content, the more they adhere to violent representations.

These are major issues for children, who must not be left alone in the face of this shaping of their social realities and behaviour. It is imperative to be able to deconstruct these representations in real time, and to have an objective commensurate with these educational warnings.

2.5.3- "Algorithmic bubbles" and the risk of reduced access to pluralistic information

The advent of digital technology is an opportunity in that it offers unparalleled freedom of access to knowledge (although it may lead to the temptation to outsource "memories" and knowledge online).

As such, a 2024 study by the Pew Research Center indicates that people in emerging countries are particularly inclined to positively value access to social media for the vitality of democracy. However, France stands out in this study, like other EU countries and the United States, by the majority feeling that social media is more of a "bad thing" than a "good thing" for the functioning of democracy.

In the space of 25 years, the digital giants have totally invaded the information space without assuming legal editorial responsibility for the content they publish. While some social media platforms have chosen to set aside information spaces in accordance with guidelines, the algorithms of social media feeds are built with the sole objectives of time spent online and satisfying preferences. Their aim is not to present relevant information, nor to sort information or diversify it, but to choose the information that will most capture the user's attention, which leads to highlighting messages that provoke strong emotional reactions.

Confinement in hyper-personalised "algorithmic filter bubbles" using increasingly refined processes has been at the heart of the debate over the last 10 years. In a world awash with information, service interface designs have indeed acquired an essential role, as their model is precisely to present a reduced and automated selection of information. Eli Pariser, who coined the term "filter bubble" in 2011, proposed defining algorithmic confinement as a form of prison in which the possibility of a chance discovery is excluded. The question this raises, particularly for young people, is that of access to pluralistic information: do the models of certain major platforms, which do not allow users to know what content the algorithms have excluded, mean that we are moving from a culture of searching for information to one of "confirming' one's own opinions?" Some people are talking about the risk of communities being locked in their own convictions, and refusing to "form a society" (Morin, 2021).

Today, studies are still failing to precisely classify the intensity of these risks and to establish whether it is human bias or algorithmic bias that bears the primary responsibility for this limitation of information. However, the amplifying effect of algorithms seems to have been clearly demonstrated and this effect, even if limited by the use of several platforms, is particularly sensitive for children and teenagers who are in the process of building their identity and their relationship with the world.

In addition to these confinement issues, there are ongoing debates about the impact of digital uses on the virality of fake news and the dissemination of conspiracy theories. In 2020, the Higher Audiovisual Council published a study on the spread of fake news on Twitter. It shows that the number of subscribers to so-called "unreliable" accounts is significantly lower than that of the majority of so-called "reliable" information accounts. On the other hand, these "unreliable" have an equivalent amount of "retweets" in numerical terms, with subscribers to these accounts having a much higher propensity to disseminate information. The study shows that these "unreliable" accounts largely focus on topical and divisive topics, such as politics, immigration, healthcare, religion or terrorism. Quantitative analysis shows an over-representation of topics related to crime, immigration, Israel and Palestine, paedophilia and Islam. All the fake news studied shows a high concentration of tweets over a very short period of time, and when the level of retweets is high, the fake news is not driven out by the "real" news. It should be noted that 20% of subscribers to these accounts are not also subscribers to so-called "reliable" accounts.

Several studies also show that fake news of a political nature or in a crisis context is consumed almost exclusively by people who are in agreement with the point of view it expresses.

So, while the level of virality of "infoxes" encouraged by the ease of clicking and while the amount of that information and its harmful effects are currently uncertain in the absence of sufficient hindsight, that fact remains that the objective of combating these phenomena in order to protect the balance is not disputed.

It is difficult to determine whether young people are more or less sensitive and drive these phenomena. Several studies show that senior citizens are more active in the virality of fake news. An IFOP poll in March 2024 found that 46% of 18-24 year-olds had already relayed fake news in 2024, less than 50-64 age group (77%) but more than the average French person (31%). Whatever the actual level of sensitivity of children and adolescents, it is the responsibility of adults to build the right dams in terms of critical thinking, and to raise awareness of possible cognitive biases in the processing of information, so as to better thwart them.

Lastly, over and above the issues associated with the virality of fake news in the common sense of the term, the Commission wishes to draw attention to the development of deepfakes, through use of artificial intelligence. A recent IFOP survey in March 2024 indicates that only 33% of French people feel able to identify an image/video generated by artificial intelligence, although the proportion is higher among 18-24 year-olds (55%). As a result, 57% of French people and 64% of 18-24 year-olds fear becoming victims of image manipulation, and 62% fear that deepfakes will disrupt the next presidential election. In line with these findings, the IFOP survey shows that 90% of French people would like deepfakes to bear a specific reference to their origin.

The Commission also emphasises, as a follow-up to the National Digital Ethics Pilot Committee, the need to assess the risks that the implementation of virtual universes or metaverses could entail, in particular for children, in terms of heightening the disinformation, confinement or manipulation mechanisms referred to above.[98]

2.5.4- Digital experiences alone can never explain serious acts of violence, but they can contribute to a form of desensitisation that should call for vigilance.

With regard to the dissemination of violence, there is a wealth of literature on the impact of the dissemination of violent content on television (films, series) or in certain video games.

Under no circumstances is it demonstrated, for example, that violent content is solely responsible for violent behaviour. In particular, there is clearly no proven link between video games and violence in real life and, all the more, with serious acts and crime. Many other variables are much more decisive.

However, meta-analyses show that, even if the presence of violent content on screens is one factor among others, there can be an increase in aggressive thoughts and behaviour that may escalate, albeit in limited proportions, in the short term, at most ten minutes after the video game has been stopped.

Lastly, it is above all this accumulation of confrontations with violence through the various media, in particular with highly violent content on certain social media platforms, as has already been pointed out in this report, that could raise fears of desensitisation in the face of violence due to these repeated and multiple confrontations.

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[98] CNPEN , Opinion no. 9, *Métavers: enjeux d'éthiques*, April 2024: https://www.ccne-ethique.fr/en/publications/avis-9-du-cnpen- metavers-enjeux-dethique

2.5.5- Use of digital technology, in order to promote equality among children, must be accompanied.

The Commission considers that the main point of concern is that digital technology runs the risk of making social equality issues invisible among children and, more broadly, between families. The digital divide is not just about access or not to equipment, or access or not to knowledge. These issues must not obfuscate the illusion of equality, as real equality lies in the ability of families to support children in their practices and usages.

2.5.6- With the acceleration in usages and the growth in equipment it generates, digital technology must be fully integrated into an environmental approach.

While this is not the core of its work, the Commission did not want to overlook the environmental impact of the information and communication technologies (ICT) economic sector, as the future and health of our children, future generations, and the ecosystem depend on the quality of the environment.

It should be noted that the figures below relate only to so-called terminal equipment (smartphones, tablets, televisions, screens, etc.), servers and network equipment (antennas, boxes, routers, etc.), excluding all electronic components and boards integrated into equipment whose main function is not data processing, such as electric and connected vehicles, medical equipment, etc.

It should also be noted that we will only detail the direct effects, but we will briefly mention its indirect effects because, while they are difficult to quantify, they are considerable. Firstly, digital technology is also, and above all, a catalyst: it optimises all the systems to which it is applied. It speeds up production and consumption in all sectors, makes relocation possible, generates "rebound effects" and induces lifestyle changes that are not environmentally neutral.

The digital sector's carbon footprint now accounts for 3% to 4% of global GHG emissions,[99] at least 2.5% in France. This is comparable to emissions from civil air traffic or from the overall treatment of all waste. Most importantly, this digital carbon footprint is growing by an average of 6% per year: it is currently the fastest growing industrial sector in all respects.

A recent Shift Project[100] report illustrates the link between infrastructure and usage in rebound effects. It points out that "**in France, the electricity consumption of the four main operators posted an average growth rate of 6% per year between 2017 and 2021** (...), 60% of which is for the mobile access network alone, i.e. the consumption of approximately three million households. These network-specific dynamics are part of a systemic logic: the rollout choices made at network level have an impact on the entire digital system, while being the result of the overall trajectory given to the system and its uses. **Rollout choices aim to adapt infrastructure to anticipated changes in digital uses (usage effect). Once the infrastructure has been rolled out, uses develop according to new dynamics (supply effect)**

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[99]Theshiftproject.org/wp-content/uploads/2021/03/Note-danalyse_Numerique-et-5G_30-mars-2021.pdf. Global Digital EnvironmentalFootprint | GreenIT

[100] Synthese-Reseaux-The-Shift-Project.pdf (theshiftproject.org

until the next levels are reached, calling for new capacities and new needs".

According to the projections for 2030 in the Arcep-ADEME study,[101] compared to 2020: "if the current trend continues on the same upward trajectory, the digital carbon footprint in France will increase by around 45%". According to the same projections, "the consumption of abiotic resources at the manufacturing stage will increase by 14%".

In addition to the GHG emissions associated with the manufacturing, transportation, use and end-of-life management of equipment, account must be taken of other categories of environmental and social repercussions that are no less significant: the depletion of non-renewable resources such as metals and pollution of soil, water and air responsible for ecotoxicity in the living world.

The issue of the criticality of certain metals is obviously linked to geostrategic issues but also to energy issues and access to fresh water in view of the depletion of deposits of a number of metals that are used in digital technologies.[102] The problem of access to water has also become a major issue around certain mines, for example for copper mines in Chile.

As *France Stratégie* also points out in its above-mentioned report "metal mining and production activities, when insufficiently controlled, can be the source of intense pollution, affecting various aspects of the environment. This pollution affects surface and groundwater resources, air and soil quality and destabilises fauna and flora". The term "eternal pollution" is used because of the nature of the pollutants, some of which are bioaccumulative and persistent. Similar pollutants are found in so-called "informal" recycling sites where electronic waste is piled up in landfills pending "manual" recycling without any health and environmental safety. The recent E-waste monitor report[103] indicates that the global situation has unfortunately not improved in recent years, with an increase in the volume of waste electrical and electronic equipment, and a decrease in the percentage of waste treated within the right sector.

The Commission would also like to draw attention to humanitarian disasters in mining sites or informal recycling sites. The figures quoted above do not give the full measure of their scale. Human rights abuses by the mining industry have been denounced by the UN for decades. John Ruggie, then Special Representative of the UN Secretary-General, wrote in 2006: "The mining industries are also accused of most of the worst abuses, which can go as far as complicity in crimes against humanity. Such abuses include acts by public and private security forces responsible for protecting corporate property, widespread corruption, the violation of workers' rights and a wide range of abuses affecting local communities, in particular indigenous peoples".[104]

Moreover, strategic minerals used in particular in digital technologies (e.g. coltan, cobalt) have been fuelling war and massacres for more than 20 years in the Democratic Republic of Congo: armed conflicts resulting in a considerable number of deaths (more than six million in the DRC), displacement of populations, inhumane working conditions inflicted on children, women and men, unbearable sexual violence. The speech by Dr Denis Mukwege[105] and his call to build a fairer world at his Nobel Prize ceremony in 2019 was widely publicised but was rapidly replaced by another piece of news.

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[101] *Etude Numérique et Environnement* – Summary memorandum from Arcep to the government, March 2023.

[102] https://www.strategie.gouv.fr/publications/consommation-de-metaux-numerique-un-secteur-loin-detre-dematerialise

[103] https://ewastemonitor.info/wp-content/uploads/2024/03/GEM_2024_18-03_web_page_per_page_web.pdf

[104] Rapport d'étude | Controverses minières · Volet 1 - Caractère prédateur et dangereux · Techniques minières ·Déversements volontaires en milieux aquatiques · Anciens sites miniers | SystExt.

[105] https://www.youtube.com/watch?v=whsRdYLvMw4

Faced with all these environmental and social repercussions, and given the trends that have been observed and anticipated, if nothing is done to reverse the trajectories, the authors of the Arcep-ADEME report conclude that **(...) The first measure to limit the impact of digital technology is the implementation of digital sustainability policies, starting with a review of the scale of development of new products or services and a reduction or stabilisation of the number of devices. (...) To achieve the objective of the Paris Agreement by 2050, digital technology must play its part: a collective effort involving all stakeholders (users, terminal and equipment manufacturers, content and application providers, network and data centre operators) is therefore needed.**

It is now that we can limit our strict dependence on digital technology and design a form of digitisation that is resilient, more territorial and more frugal, with less indiscriminate implementation and less widespread adoption. At the very least, we need to systematically question our requirements and the methods chosen for our uses (several low-impact gestures are unfamiliar to adults and children alike). It is urgent and necessary to think about the place we want to give to digital technology, the latest technology to be widely adopted. And, we must do so in the light of all these considerations.

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[105] https://www.youtube.com/watch?v=whsRdYLvMw4

PART 3 – EXPOSURE OF CHILDREN AND TEENAGERS TO SCREENS: WHAT HAS BEEN DONE THUS FAR?

Several of the findings presented in the previous section concerning the health effects of screen exposure and the risks associated with minors' access to insufficiently regulated content, without appropriate support or prior training, have already been identified as the role of screens in society has expanded. This has led to the gradual implementation of a framework seeking to regulate, contribute expertise on and ensure the safety of minors' screen use. Accordingly:

- a legal framework has begun to be designed, with a strong acceleration in recent times, to try to regulate the practices most harmful to minors and to improve the safety of their access to screens, digital technology and content; but it has not yet been used to its full potential, remains incomplete in some respects or lacks effectiveness in others (3.1);

- strategies advocated by experts, public policy guidelines and tangible actions to prevent and inform about risks and excesses, raise awareness about best practices and support minors and society at large in the reasonable and safe use of screens have been established and resulted in the engagement of many stakeholders but they too often lack coordination, clarity or even the means to be truly decisive (3.2);

- moderation, reporting and enforcement tools have been gradually put in place, in particular to protect young people online, but they still appear to be inadequate in view of the scale of the issues at stake (3.3);

- efforts have been made to make Big Tech firms more accountable and involved, but their effects remain very limited at this stage (3.4);

- childcare facilities, including schools in particular, have begun to provide a framework on the role and use of screens and digital technology but which still needs to be developed further (3.5);

- a draft digital governance framework has started to take shape but it remains very insufficient and can be improved at this stage (3.6).

3.1- An EU and national body of law is already planned or being rolled out to protect the youngest children and provides a useful framework that still needs to be fully developed in many respects

The online protection of minors has led to the development in recent years of a substantial legal framework, both at EU and national level.

In its Recommendation of 23 April 2024 on developing and strengthening integrated child protection systems in the best interests of the child, the European Commission reiterates that "children have to be protected in both physical and digital environments from risks such as (cyber-)bullying and harassment. This is notably emphasised in the Council conclusions on digital empowerment to protect and enforce fundamental rights in the digital age[106] and on supporting well-being in digital education.[107] The European Strategy for a Better Internet for Kids Plus[108] (BIK+) aims to ensure that children are protected, respected and empowered online in the new digital decade, while protection of minors is a key concern in the legislative and policy framework, for example the Digital Services Act, the Audiovisual Media Services Directive, the General Data Protection Regulation and the EU initiative on Web 4.0 and virtual worlds".

Among the main elements of the European legal framework is the General Data Protection Regulation (GDPR) of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, which aims to strengthen and harmonise the protection of individuals' data within the European Union. The GDPR lays down a number of principles designed specifically to strengthen the protection of minors,[111] in particular online. It thus provides for a "double consent" mechanism when the minor is under 15 years of age (consent to the processing of personal data must in this case be given by the minor and their representative). This applies in particular to the processing of young people's personal data for marketing/advertising purposes or for creating user profiles on social media services and online video game platforms. The consent of the holder of parental authority is not necessary in certain highly specific situations (preventive or counselling services offered directly to children, such as contraception).

The Audiovisual Media Services Directive of 14 November 2018 provides that video-sharing platforms and social media services put in place specific measures to combat incitement to hatred and to combat the apology of terrorism, in particular with regard to the protection of minors.

The Digital Services Act (DSA), adopted on 19 October 2022, which aims to regulate online access is also a major step forward in European Union legal protections for young people.

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[106] Council conclusions on digital empowerment to protect and enforce fundamental rights in the digital age, 14309/23, 20 October 2023.

[107] Council conclusions on supporting well-being in digital education, 14982/22, 28 November 2022.

[108] Communication on a Digital Decade for children and youth: the new European strategy for a better internet for kids (BIK+) COM(2022) 212 final.

[109] Communication on an EU initiative on Web 4.0 and virtual worlds: a head start in the next technological transition COM(2023) 442 final.

[110] European Commission Recommendation on developing and strengthening integrated child protection systems in the best interests of the child, C(2024) 2680 final.

[111] By way of illustration, recital 38 of the GDPR thus states that "children merit specific protection with regard to their personal data, as they may be less aware of the risks, consequences and safeguards concerned and their rights in relation to the processing of personal data".

With regard to the main measures directly or indirectly targeting minors, the following should be mentioned in particular:

- increased accountability of digital platforms for the implementation of effective moderation measures against illegal or harmful content (cyberbullying, online hatred, child pornography, etc.) and graduated and cumulative requirements depending on the size and audience of these platforms;

- changes in the terms and conditions of use of online platforms in order to make them easily understandable for children (Article 14);

- a strengthening of the recommender system transparency requirement (Article 27);

- the requirement for platforms accessible to minors to take all appropriate measures to ensure the highest level of privacy, security and safety of minors by providing suitable interfaces. They are also prohibited from presenting minors with targeted advertising based on their personal data (Article 28);

- the requirement for platforms to assess each year the "systemic risks" stemming from the design and functioning of their services and to adopt measures accordingly to remedy the serious negative consequences to the physical and mental well-being of minors (Articles 34 and 35);

- priority treatment, in a timely manner, of content reported by trusted flaggers (including children's non-profits);

- a ban on platforms using deceptive and manipulative interfaces (Article 25);

- the requirement for very large online platforms to provide an option for a "neutral recommender system" that is not based on profiling, which would reduce the occurrence and effects of possible "filter bubbles" linked to very extensive customisation of content feeds (Article 38).

The DSA therefore represents an important step for protecting the youngest children. Although the new framework, which entered into force on 23 August 2023 for the largest digital services and only on 17 February for all the services concerned, is still too recent to be assessed, it offers, from the Commission's point of view, the prospect of interesting policy tools to develop and test at both national and EU level.

3.1.2- France has also worked to protect the youngest children by establishing a specific legal framework, but the effectiveness of several provisions remains insufficient

A first set of provisions aims to explicitly limit minors' access to websites or content that are inappropriate for children or young people. Accordingly, French law:

- lays down the principle of the responsibility of pornographic websites for minors' access to their content. The progressively rolled out framework has resulted in these websites requiring users to confirm before they can view their content that they are of age or the blurring by default of the images and photos of these websites when they are accessed from search engines. However, this framework remains largely insufficient, as shown by the statistics presented earlier on the viewing of adult websites by minors. Since age verification is based on a simple declarative system, it is very easy for minors to circumvent the system. The Act of 30 July 2020 to protect victims of domestic violence has strengthened ARCOM's powers, as it can now issue formal notices to pornographic websites that do not comply with the Act's requirements and refer them to the French courts of justice to request their banning. The Security and Regulation of the Digital Space Act (SREN Act), which was formally adopted on 10 April 2024, and at the time of writing of this report submitted to the Constitutional Council, rounds out the framework by further bolstering the powers of ARCOM (which can now issue formal notices and has the power to issue injunctions against websites without going through the courts) and the development of a binding reference framework determining the requirements that age verification systems must meet in order to be reliable while respecting the privacy of users. However, work will probably have to be continued to ensure that these provisions are genuinely effective and to protect minors from accessing pornographic websites and content;

- requires gambling operators to prevent minors, even emancipated minors, from participating in the gambling and betting activities they offer (Act of 12 May 2010).

With regard to social media, the Act of 7 July 2023 (the Marcangeli Act) sets the age of digital consent at 15 for the registration and use of social media. Children under 15 may only register for a social media account with the express permission of one of the holders of parental authority. However, this important principle has not yet been implemented in France, in particular because of a consistency issue with EU law. Incidentally, with regard to the conditions of access to social media, it is worth noting the influence of US law. Indeed, the age rules for registration determined by the social media platforms themselves are usually set at 13, which corresponds to the requirements of US law (COPPA Act, 1998).

Also, the Act of 9 June 2023 aimed at regulating commercial influence and combating the abuses of social media influencers defines and regulates **the activity of social media influencers, whose audience is often young.** The objective is to better combat certain abuses and scams (e.g. incitement to engage in dangerous diets, cosmetic surgery and excessive betting, and the promotion of counterfeits). Specific measures increase protections for child influencers, such as extending the labour rules for child influencers on video-sharing platforms, set by the Act of 19 October 2020, to all online platforms (social media such as Instagram, Snapchat and TikTok). Commercial child influencers will be protected by the Labour Code. Their parents will have to sign their contracts with advertisers and set aside a portion of their income.

More generally, measures have been taken to strengthen parental control and limit young people's access to inappropriate content. Provisions had already been in place since the mid-2000s and parental control tools already created. But as of 2019, only 44% of parents had set up their child's device, and only 38% used parental control systems, making it necessary to strengthen the requirements in this

regard. This was recently done by the Act of 2 March 2022 (the Studer Act), which now requires manufacturers of connected electronic devices to install a parental control system and offer its free activation when the device is first put into service. It is still too early to assess the consequences of these new provisions but, according to feedback from the Commission, they still do not ensure an optimal level of protection for the youngest children.

Regarding combating online hatred, the previously referred to Marcangeli Act of 7 July 2023 and the recently adopted SREN Act, which is currently being examined by the Constitutional Council at the time of writing of this report, aimed to boost the arsenal under, in particular, the SREN Act by providing that individuals convicted of online hatred, cyberbullying or other serious offences may be banned from social media by a judge for six months and for one year in the event of a repeat offence.

Echoing these provisions, the Act of 19 February 2024 aimed at **safeguarding children's image rights amends** the Civil Code to introduce the concept of privacy into the definition of parental authority. It is a matter of expressly enshrining the requirement that parents safeguard their child's privacy, including their image rights, as part of their prerogatives related to the exercise of parental authority; of allowing the family court judge (JAF) to prohibit a parent from publishing or disseminating any image of their child without the consent of the other parent; of enshrining that parents jointly protect the image rights of their minor child and that parents involve the child in the exercise of their image rights, according to their age and degree of maturity.

3.2- Rules, awareness-raising campaigns and support tools have gradually been rolled out, but their impact on practices remains limited due to a lack of knowledge of the recommendations and no harmonised framework for action

Experts have gradually laid down rules for the appropriate use of screens, some of which date back many years.

One of the best-known recommendations is the "3-6-9-12" rule proposed in 2008 by psychiatrist Serge Tisseron. In practical terms, this rule is as follows: no screens before the age of three; no portable gaming consoles before the age of six; no internet use before the age of nine (then supervised internet use until the child enters secondary school); unsupervised internet use possible from the age of 12, but with guardrails in place. Since 2011, this rule, which has the merit of being clear and easy to understand, has been strongly supported by paediatricians and maternal and child protection services (PMI), and has established itself as a reference.

Another recommendation is the "four-step" rule put forward by clinical psychologist Sabine Duflo: no screens before going to school, no screens in the bedroom, no screens before going to bed and no screens during meals.

Recommendations on screen time by age have also been proposed. However, the different sources on this matter have diverse, insufficiently harmonised views. Thus, Serge Tisseron, stating that the "3-6-9-12" rule is necessary, but that it is not sufficient on its own, also recommends supervising screen time for children of all ages and, in particular, prohibiting screen time exceeding 90 minutes per day for children aged three to five and two hours for children over six. For its part, the French Association of Ambulatory Paediatrics (AFPA) does not set time limits by age but advises parents to refer to the average attention span of their child's age group (i.e. 20 minutes from age three to six, 30 minutes from age six to eight, 45 minutes from age eight to ten and one hour after age ten). At international level, the WHO issued its first guideline on digital health interventions in 2019 in which it recommends

not exposing children to screens at all before the age of two and exposing them to "no more than one hour" per day, stating that "less is better", between the ages of two and five.

Concomitantly, communication campaigns and support tools, including for parents, were rolled out under the aegis of the public authorities. Regarding the most recent initiatives:

- an action plan entitled "For the sensible use of screens by young people and children" was launched in February 2022 as part of a partnership between different ministries and authorities (ARCOM, French Digital Council, Interministerial Task Force for Combating Drugs and Addictive Behaviours (MILDECA), French Public Health Agency, etc.) to promote information, education and support for children, parents and professionals on screen use issues. It provides, in particular, for parents to be educated about children's exposure to screens and their impact on children's development;

- a website for the general public, "Je protège mon enfant", was created.[112] However, it remains relatively unknown to the general public and has fairly low traffic, according to the feedback received from the Commission.

In parallel, many national and local initiatives led by non-profits or other groups, with the support of the Family Allowance Fund (CAF) and local authorities, round out the institutional campaigns and tools provided through tangible actions in France's different regions. The Commission has obviously not been able to have an exhaustive view of the many steps taken to support young people and their families in using screens and digital technology, to share best practices, to disseminate useful advice, to promote sensible practices and to propose alternatives to the preventive approach promoted by the "*Guide de la Famille Tout-Ecran*". However, it was able to interview a number of community representatives and local project promoters whom it considered to be very interesting and useful. However, it noted that many of the proposed initiatives were often too limited to the local level.

In summary, the Commission's findings show that:

- there are recommendations and advice on best practices for children's use of screens (whether according to their age, time spent, quality of content, etc.). Their diversity and a lack of harmonisation and coordination of the information disseminated, however, lead to their unclear communication. Ultimately, these recommendations appear to be insufficiently known to the general public and, when they are, appear to be poorly implemented;

- many of the proposed rules indicate what should not be done, but do not always adequately explain the how and the why;

- interesting local initiatives to implement some of the recommendations are put forward, but they are still very isolated and/or local in scope;

There is a need for information to be clarified and for a large-scale communication campaign to ensure that useful recommendations are disseminated widely.

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[112] Many other websites also offer advice and recommendations on the use of screens by children and young people, such as the National Union of Family Organisations' (UNAF) website "*Mon enfant et les écrans*".

3.3- To address the most serious situations, tools for moderation, reporting and enforcement exist but struggle to keep pace with the surge in offensive content

Recent initiatives for a better legal framework to tackle offensive and illegal content bring potential improvements for the protection of minors. As mentioned above, the DSA establishes in particular a clear principle of accountability for platforms and requires transparency about the resources allocated.

Faced with an exponential growth in social media use and an increase in the rate at which content is made available, systems for managing offensive content (moderation, reporting, enforcement) are necessary but have a number of limitations. In particular, they intervene after children have had a negative or even traumatic experience; they almost systematically miss exchanges on private messaging services largely used by child sex offenders and drug dealers; they are not calibrated to meet ever more dynamic needs; and lastly, they do not provide sufficient room for dialogue with children who are part of the process and risk being discouraged.

Insofar as content is not dealt with at source for children, and platforms, in particular, are not responsible for the content they disseminate, there is no other possible outcome, despite the increasing use of tools and the reputational pressure for firms, than to go after the gaps in and imperfections of these systems.

A radical improvement in the situation, under a consistent framework, warrants a commitment of resources that seems difficult to achieve. Up until now, progress has been made through strong and assertive political motivation, but this is often difficult to sustain (see The Christchurch Call initiative, launched following the terrorist attack of 15 March 2019 in Christchurch, New Zealand, which the perpetrator had premeditatively livestreamed on social media). The DSA offers an opportunity to do more, provided that the response chain necessary for informing regulators is safeguarded.

The following section addresses issues related to the specific ways of combating the most serious situations through moderation, reporting and enforcement.

3.3.1- Moderation: tools are now everywhere on major websites, platforms and social media

The DSA, applicable since 17 February 2024, provides for measures to enhance users' understanding of how moderation works. The terms and conditions of use must therefore be adapted and easily understandable for children (Article 14). The DSA also provides (Article 28) that platforms accessible to minors will have to take appropriate and proportionate measures to ensure the highest level of privacy, safety and security of minors.

While the effects of the DSA on moderation can hardly be known at this time, its effectiveness seems to be faced with a number of realities in the long term:

- in substance, moderation is organised according to platform-specific criteria. As such, some social media platforms accept, for example, pornographic content;

- in terms of organisation, artificial intelligence is very widely used, and the number of human moderators is difficult to ascertain and is declining. In addition, the number of French-language moderators appears to be lower than for other languages and even lower given the number of users and content exchanged every day.

3.3.2- Reporting: all websites and platforms have processes for reporting the most serious abuses that are also structured through trusted national entities

All social media services have undertaken to identify reporting procedures available to users. However, many of the reports made by individuals are in fact an expression of dissatisfaction or disagreement and much of the content that should be reported is not actually reported. This is either because the reporting tools are not known or because users do not trust them, have concerns for their anonymity or consider reporting pointless. The 2024 *Génération numérique* survey found that only a quarter of children aged 11 to 18 have made a report.

The number of reports is already too high to ensure their processing, but it is clear that the system does not fully cover the reality of the situations young people face.

Public- and private-sector organisations, including non-profits, have developed reporting initiatives on behalf of minors in order to improve the effectiveness of platforms' processing of reports. The platforms trust these organisations and give priority to the processing of their reports.

In France, the *Point de Contact* organisation states in its latest annual report that it received 25,977 reports in 2023. Just over half (13,972) of these reports were actually classified as relating to illegal content; and among them, child sexual abuse content counts for half. The government platform Pharos recorded 92,221 reports in the first half of 2023 alone, including nearly 12,000 relating to offences against minors. Furthermore, the Office for Minors (OFMIN) registers almost 700 online reports of child sexual abuse content every day.

The initiatives of these trusted third parties are now recognised and regulated by the EU Digital Services Act (DSA), which includes them in the regulatory exercise: trusted flaggers qualified as such by the competent authorities (ARCOM in France) will have to issue a report that will be useful in the regulatory exercise. For example, if there is a significant discrepancy between the content reported and the content removed on a given platform, the attention of the national competent authorities and the Commission will be drawn and they will be better able to choose the measures and possibly the penalties to be imposed.

While anticipated changes in the application of the DSA are a step in the right direction, several structural limitations will nevertheless have to be removed to strengthen the effectiveness of this system in combating offensive content:

- one available route is to use reporting systems on platforms, video games, etc., but, on the one hand, they tend to be insufficiently visible; on the other hand, they are structured by a technical and legal vocabulary that is difficult for the wider public to understand and find accessible. Misuse of reporting processes, including making inappropriate reports (e.g. targeting an individual via mass requests to close an account), contributes to a rapid saturation of reporting systems.

In addition, users are only rarely informed of the follow-up given to their report, which may discourage young people from repeating the process:

- as regards the reporting processes provided by the French government and trusted entities currently being designated by ARCOM, their effectiveness should be enhanced by the requirement imposed on the largest platforms, under the DSA, to process reports as a matter of priority and in a timely manner. However, these reporting processes are not sufficiently known, and at the same time organisations are already unable to form fast enough to keep up with demand. Ultimately, they are forced to limit their communication outreach about their work for young people. Similarly, the 3018 hotline set up by *e-Enfance*, an organisation working to protect children online, which provides children with a way to have their voices heard, is unable to meet all the demand.

3.3.3- The means of enforcement are fairly well defined from a legal perspective, but given the extend of the issues, implementation on the scale required is a challenge

On the whole, there are tools for **punishing** the most serious offences involving minors (child crime, cyberbullying, etc.), with the notable exception of the particularly impactful offence of rapes of avatars of minors that are beginning to be observed in metaverse universes and video games. Above all, the exponential growth in requests (e.g. 12,000 reports of sextortion were made in 2023 to the Office for Minors, as mentioned above) also raises the question of how to deal with them.

Furthermore, the Commission welcomes the creation by the SREN Act of new offences relating to sextortion[113] and the dissemination of deep fakes of a pornographic nature.[114] However, it notes that these provisions can only be fully effective if the necessary resources are put in place to facilitate contact with victims and their filing of complaints, and to conduct thorough investigations. This will require prosecutors' offices to be encouraged to respond quickly, systematically and effectively, and to provide adequate training for judges in this area.

3.4- There are firms that do not join forces to protect children, instead putting the responsibility on parents

The Commission heard from many representatives of the digital sector and covered all the professions associated with screens: electronic device designers and manufacturers; operating system producers, internet service providers (ISPs) and content providers (websites, platforms, social media, etc.).

Existing law provides for a strengthening of the requirements imposed on each of these stakeholders. Discussions are now focusing on the issues surrounding their implementation:

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[113] According to Article 5 bis A of the SREN Act, Article 312-10 of the Criminal Code has been amended to impose a penalty of seven years' imprisonment and a fine of €100,000 for any blackmail carried out via an online communication service "by means of sexual images or videos" (1°); "for the purpose of obtaining sexual images or videos" (2°).

[114] According to Article 5 ter of the SREN Act, a new Article 226-8-1 of the Criminal Code has been introduced to punish with two years' imprisonment and a fine of €60,000 the act of publishing, without the person's consent, by any means whatsoever, a montage made using the words or image of a person, and of a sexual nature. Publishing, by any means whatsoever, visual or audio content generated by algorithmic processing and reproducing the image or words of a person, without their consent, and of a sexual nature, shall be treated in the same way as the offence referred to in this paragraph and shall be punishable by the same penalties.

- In terms of the technical standards imposed on **device manufacturers,** the area seems to be rather a blank slate, especially when it comes to protecting the somatic health of users (standards relating to the light emitted by devices, screen reading distance, the positioning of components according to the "sweet spot", etc.).

  The latest regulatory developments have focused on parental control. From July 2024, under the Studer Act of 2 March 2022, as mentioned above, manufacturers of terminal equipment sold in France must provide for the integration of parental control software and enable it to be activated free of charge when the device is first put into service.

  The implementing decree of 11 July 2023 specifies the requirements applicable to terminal equipment manufacturers and sets out the minimum functionalities and technical characteristics that parental control systems installed on their equipment must comply with. Parental control systems must, as a minimum, allow the blocking of downloads of content made available by app stores or access to pre-installed content, access to which is legally prohibited to minors. Parental control systems must make it possible to block access to content prohibited to minors, such as pornography. However, the decree does not contain any specific provisions on limiting the amount of time minors can use screens, but does allow for additional (optional) functionalities to be provided.

  The decree also clarifies the requirements for economic operators with regard to the marketing of parental control systems on terminal equipment and extends the supervisory powers of the National Frequency Agency to include the monitoring of these requirements on terminals placed on the market.

  The SREN Act goes further by requiring service-providing platforms to report annual statistics on the use of parental control systems in France. The Commission was unable to obtain these figures from all the hearings, which certainly conceals the low take-up of these tools at present.

- **Operating system producers** are effectively involved in the implementation of the Studer Act's provisions through equipment suppliers, who are turning to them to handle operational compliance with the new requirements, with specific related challenges in terms of the collection of children's data by these operating systems.

- **Internet service providers are required to** provide free child protection systems for fixed equipment (desktop PCs and Mac computers). They have also pledged to provide, when a child gets a mobile line (subject to declaration by the parent), a transparent system for families to protect children very effectively.

  They have also long been identified as partners by public and judicial authorities in combating illegal practices on the internet. As such, they cooperate to help identify the perpetrators of online offences or to implement, at the request of the administrative and judicial authorities, measures to block websites throughout France in order to protect the public, particularly minors (blocking access to child pornography and terrorist websites, websites hosting

hateful content, gambling, counterfeiting, etc.). However, these blocking measures can still be technically circumvented by various methods, including the use of VPNs.

- Most **large online platforms** fall under the scope of the DSA. While we are not in a position to anticipate the level of intervention that will ultimately be imposed on them under this new regulation, we can highlight various initiatives taken by social media platforms to make progress in protecting children. For example, these initiatives make it possible for users to access a summary of their screen time, set time limits and fine-tune suggested content. However, these initiatives pursue objectives that are generally at odds with attention-capturing strategies, which may explain why the systems are still limited, non-user-friendly and difficult to access. We can anticipate the continuation of a very low level of use of these systems (no data has been provided on their actual use). Moreover, it seems unlikely that the industry will promote, against its short-term interests, systems that give users extensive control over their use of social media services. Regulatory intervention seems unavoidable for this to be achieved.

All in all, child protection issues are not ignored by platforms, but their interest in them is largely motivated by image and reputational concerns and tends to be limited to virtue signalling without any commitment to the actual implementation of the measures introduced; firms unanimously focus on the responsibility of parents, who are obliged to resolve the negative externalities of the system for their children, and as such place great value on the efforts they are making in terms of outreach and preventive measures aimed at parents, although these efforts have thus far been fairly ineffective. The sector also values working with child protection organisations which, largely dependent on their funding in the current state of affairs, allow them to influence the narrative.

The Commission was struck by the fact that no stakeholder in the chain felt that they had a special responsibility to provide a high standard of child protection and that they systematically placed this responsibility on others in the name of technological or economic constraints presented as difficult to overcome. In addition, they were aligned in placing the burden of managing the complexity and negative externalities generated by business models that are based on capturing children's attention.

It is unfortunate that the best interests of children do not form the basis of a collective and productive commitment to the emergence of new, more systematic and easily accessible solutions for families. In particular, no coalition of private-sector stakeholders has emerged to design a robust age verification system. Although this has not yet been formally required under the DSA, it would prevent access to certain content and address critical risks to children's development.

3.5- A reference framework for digital education that better integrates social and health issues, and includes families

Digital technology is a major issue in the early childhood field, yet there is no real substantive debate on the practices to be promoted to ensure that the youngest children are protected. The challenge lies in identifying and implementing a widely visible and known reference framework. While exposure to screens in day nurseries seems to be fairly well under control, the question of the use of screens in a way that interferes with adult-child relationships is perhaps more problematic for childminders or nannies recruited by families.

In the education field, in the absence of debate and consultation, there is no shared and explicit consensus among stakeholders (families, education communities, local authorities, carers) on the right level of digital interaction to use for different age groups, the contribution of digital tools to learning or their impact on the relationship between teachers, parents and pupils.

In terms of digital equipment, the situation at schools today varies.

The level of public digital equipment remains very uneven from one region to another, and generally lags behind that of our European neighbours. However, some systems have become more widely deployed in the last 20 years, such as interactive digital whiteboards in primary schools. According to the Department of Evaluation, Forecasting and Performance (DEPP),[115] the number of interactive digital whiteboards increased from 2 per 1,000 pupils in primary schools in 2009 to 17 per 1,000 pupils in 2019. In lower secondary schools, it rose from 3 per 1,000 pupils to 17.7 per 1,000 pupils over the same period. According to the DEPP, the number of pupils per computer thus increased between 2009 and 2019, from 25.3 to 15.9 pupils per computer in nursery schools, from 11.6 to 6.9 in primary schools and from 8.1 to 3 in lower secondary schools. In upper secondary schools, where the equipment rate was initially higher, the number of pupils per computer fell from 3.1 to 2.3 between 2010 and 2019.

Local and regional authorities, which are responsible for digital equipment policy as part of their shared responsibilities with the French government, are the driving force behind the rollout of digital work environments, in particular, which set up the digitalisation of the relationship between parents, teachers and educational teams (messaging services, communication and notetaking spaces, and online textbook reading) and provide access to online educational resources. They have also initiated and funded, via the 2015 Digital Plan and a post-COVID boost, individual equipment policies (tablets, laptops) for pupils and the rollout of virtual classrooms. These initiatives are often carried out in collaboration with the academic authorities (more rarely with the schools themselves), but all too often they are still rolled out without any structured dialogue with the education community, systematic training for teachers and parents or discussion with parents' association representatives. In addition, there is no shared framework on the expected benefits and risks of such initiatives. The result can be a high budgetary and environmental cost, given the planned obsolescence of equipment and the lack of support for its installation.

Schools and families also face gaps in security and protection for children who use the equipment provided, as no universal standards exist and children may misuse it.

Significant progress has been made, however, in reining in the use of smartphones by primary and lower secondary school pupils, with the implementation of the Blanquer Act, which lays down a general principle of banning mobile phones, tablets and smart watches from school premises. Mobile phones must be turned off and put away, with schools being responsible for determining the practical arrangements for implementing the Act. The people interviewed (teachers' unions, parents' associations, school leaders' union) gave a generally favourable assessment of the implementation of this legal framework and did not highlight any particularly critical points in the relationship with pupils in enforcing this requirement. However, the assessment on secondary school pupils brings some nuance to this observation: phone use is mostly taking place in school toilets, huge amounts of content

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9 "Le numérique éducatif : que nous apprennent les données de la DEPP ?" – Série Synthèses, August 2021

are exchanged on what is happening on or near school premises (e.g. fights breaking out). Phones are not always switched off during class (pupils justify their phone use during school hours by saying they want to check the time, for example, or have to reply to messages from their parents).

<p style="text-align:center">*</p>

The use of **digital educational solutions** has increased in recent years, both within schools and at home for homework assignments.

In terms of teaching practices, again according to the DEPP, a large number of French teachers frequently use digital tools to prepare their lessons (94% for primary education and 88% for secondary education). The majority use digital resources to guide classroom sessions (50% and 70% respectively), but fewer do so to let pupils use information and communications technologies (ICTs) for projects or assignments during class (14% and 36% respectively). Only 40% of pupils are proficient in digital literacy skills[116] in their third year of lower secondary school, and their fluency largely depends on their social background.

The implementation of digital resources is organised, in particular, under the impetus of the Ministry for Primary and Secondary Education's Digital Education Directorate (DNE) and through EdTech funding programmes, which make resources available to the education community. For a long time, this large-scale provision of resources was orchestrated without any systematic assessment of how teaching benefits from them and without any support or training for staff. In addition, these resources did not highlight the issues associated with teaching methods or the school environment.

The experimental rollout in 12 *départements* of the Digital Educational Territories (TNE) scheme aims to improve the educational quality of digital resources, coupled with systematic teacher training. But the planned full rollout must not overlook the issue of the progressive and desired level of children's access to digital resources, both in terms of equipment and educational and teaching uses. The Commission therefore considers that the dialogue between the General Directorate for School Education and the Digital Education Directorate would benefit from being structured and bolstered, to ensure that the scheme systematically helps the public and meets the needs of children and teachers alike, while advancing learning progress.

Contrary to this general observation, using digital solutions to foster learning for children with special needs, first and foremost children with learning disabilities, seems too uncertain and complex for families and the education community, even though these solutions can provide real support for the children concerned, who represent around 10% of pupils. If properly supported by the education, carer and family communities, digital mediation in learning can help to restore equal opportunities for all pupils.

Digital technology use is spreading during extracurricular periods, especially at lunch time, despite parents being told that limits are being put on screen use. While there is a lack of data to get an accurate picture of the use of digital devices during breaks, the hearings raised this issue at length, against a

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[116] Digital literacy is an individual's ability to use digital technologies to collect, manage, produce and exchange information.

backdrop of difficulties in recruiting and retaining staff to monitor children during these extracurricular periods.

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Lastly, **pupils' digital training** is still too fragmented and insufficient in terms of content and time spent, given how essential of a skill it is. The efforts made through the Pix certification programme, which is expected to be further developed in the near future, should be continued to better take these issues into account. However, Pix alone cannot meet the challenges of digital literacy and digital support for children at school, the only place capable of ensuring equitable access to such support. Surveys of schoolchildren have largely shown that this certification programme has no impact on their day-to-day use of technology and that they do not see the link between Pix and their practices, difficulties or even the dangers they encounter in their everyday experience with technology.

Similarly, a media and information literacy (MIL) curriculum has been built into the recently revised moral and civic education programmes, the bolstering of which has just been announced. A Media and Education Week, the first educational initiative carried out by the Ministry for Primary and Secondary Education, is held once a year and involves nearly 22,000 schools and 280,000 teachers, mostly at the secondary level.

However, the Commission's view is that the MIL curriculum does not go far enough in integrating the key aspects of the curriculum into pupils' routines. It takes a long time to properly teach about and become proficient in topics like critical thinking, the media landscape and media business models. In this respect, the MIL curriculum often remains structured around a traditional approach to knowledge, one that even promotes traditional media, which overlooks the issues specific to children and their digital environment, the way their brains work and their relationship with information, and the reality of their everyday use of technology and their needs. In 2023, for example, only 19% of the MIL events held during Press and Media Week were devoted to the use of social media.

All in all, while the Ministry for Primary and Secondary Education has formalised its digital strategy, it continues to be both incomplete and insufficiently shared with all stakeholders in school and society.

In particular, consultation on the deployment of equipment policies by local and regional authorities and digital education solutions should be organised among stakeholders' representatives and based on the educational issues raised by the teaching teams, take account of the impact on health and the environment and of the need for consistency in action taken and messaging between the education field and other public policies, and include support for families. Digital education should be given a clearer place, with coordination between aspects relating to moral and civic education and MIL (which need to be strengthened), and digital science and technology education and Pix.

3.6- All stakeholders are inadequately governed so long as there is no systemic, collective and interministerial strategy

In terms of ministerial organisation and political communication, the issue of digital technology and children is split between different fields of intervention: health, family and child protection, while digital technology policy falls under the remit of the Ministry for the Economy, the Ministry for Primary and Secondary Education, the Ministry of Justice, etc. Behind these multiple entities lie various central government agencies and operators, independent bodies that play a key regulatory role (ARCOM, the French Data Protection Authority (CNIL), Defender of Rights), agencies responsible for producing studies (including ANSES and the Environment and Energy Management Agency (ADEME)) and the Interministerial Task Force for Combating Drugs and Addictive Behaviours (MILDECA).

The Commission would like to underscore the quality of the commitment and the willingness of all the institutional stakeholders interviewed. However, the overall impression is one of greatly fragmented energy so long as there is no defined and directed collective strategy.

Some areas of work are well anchored in the administrative structures (for example, data protection and the regulation of broadcast television). Others are much more recent and, as a result, require greater maturity and ownership. Other areas still are less deeply rooted within organisations and compete with an already plentiful number of ministerial roadmaps (e.g. health).

For these reasons, all institutional stakeholders are calling for stronger coordination of work and for this work to be linked to a comprehensive, yet-to-be produced strategy. While some attempts have been made to improve cross-functionality, under recent impetus of the minister for child protection and the digital affairs minister (e.g. minister-led steering committee on combating pornographic and child sexual abuse content), they have not survived changes in government, creating a stop-and-go effect that government departments legitimately find unfortunate.

The launch of the *Je protège mon enfant* child protection website is a critical example of this, as it has been discredited by firms and non-profits: work has not been put into it since its creation and launch, making it a little-used informational website about children's screen use. In addition, a discussion is needed on its funding, with tech companies themselves contributing to it in exchange for having their logos displayed.

Similarly, communication initiatives are multiplying in all spheres of government. This is a positive sign of the major commitment to addressing the digital technology issues facing children and families. However, these efforts could become less effective without shared branding and a standardised editorial policy, given the different approaches adopted and the fact that budgets are ultimately dispersed. This leads to communication initiatives that are not sufficiently sustained over time to have an impact.

Various government departments have also organised discussion forums with firms and members of civil society. But here again, there are a number of limitations, as these forums struggle to give a voice to the smaller players operating in the shadow of Big Tech firms. Additionally, they segment discussions and commitments and they do not always have adequate political support to obtain firm commitments from their discussion partners.

What's more, these national structures are not necessarily mirrored at regional and local level. In particular, the role of local elected officials and grassroots organisations is not yet well established, even though they should be playing the role of catalyst, multiplying the levers of action and heightening the

visibility of messages, without which it will be difficult to bring about changes in behaviour and promote alternatives to screen use.

Lastly, the Commission would like to stress how this public policy should be funded. So long as there is no permanent funding earmarked for it in the government budget – with contributions potentially coming from the companies responsible for the negative externalities of screens – institutional stakeholders and, above all, non-profits (including those appointed by the authorities to handle specific remits, such as reporting) have a dependent relationship with the Big Tech firms themselves. This situation is questionable in terms of ethics and efficiency: it generates insecurity for the players involved, it sends the message to companies that they can neglect to perform their responsibilities and it can create conflicts of interest that hinder outreach to minors. In this respect, the protection of children online breaks with the traditional patterns that prevail for other issues, such as anti-smoking campaigns and, more broadly, anti-drug initiatives, which are funded through a government fund.

PART 4: EXPOSURE OF CHILDREN AND TEENAGERS TO SCREENS: WHAT GOALS TO PURSUE AND HOW TO ACHIEVE THEM

In view of the issues identified above, the Commission has been working on putting forward proposals to meet three main goals, all guided by children's best interests:

- protect young people from the harmful effects of screen exposure on their health and from inappropriate and dangerous content;

- build and promote an ambitious and progressive training and support framework for the use of digital technology by young people, and communicate about its benefits;

- create a wider awareness of how children function and the essential needs for their development, and dare to make emancipatory organisational and societal changes for children.

These goals involve making tools beneficial for people again by avoiding lasting impacts on children's health, taking into account the vulnerabilities that make them more exposed to the risks of screen exposure, organising dialogue with children – both within and outside the family sphere – about their practices, supporting the potential benefits in terms of socialisation and peer-to-peer discussion, and giving a strong and visible role to alternative and collective interactions.

In order to live up to these goals, the Commission firmly believes that we need to restore everyone's ability to act and choose: young people themselves, families and parents, education communities, all the professionals who work with them, institutions and non-profits.

The resulting action strategy is underpinned by several principles that Commission members think are key to bringing about the anticipated changes:

- we must put an end to the feeling of powerlessness that paralyses action and leads us to adopt the most immediately accessible solutions, sometimes against the interests of children themselves, or to put the responsibility on parents alone. High-level political leadership can have an impact. It must be sustained over time at three levels: global, EU and national. It will be strongest if it can be backed by an agile and robust organisation within government, integrating all aspects of the project for children;

- the impacts will be large scale if they are backed by transpartisan public discussions, which is the only way to create the collective, shared vision necessary to strengthen the narrative and thus change behaviour;

- the need to rebalance dialogue with Big Tech companies will be met through political pressure as well as by building action coalitions that bring together researchers and good Samaritans from civil society, with absolutely no direct links to digital-sector funding.

This action strategy consists of some 30 guiding principles, presented in the form of proposals, themselves informed by recommendations for operational measures. These principles/proposals and operational measures form a system; only their concurrent and consistent implementation will make it possible to have a real impact on children's lives.

In formulating its recommendations, the Commission focused on:

- having a child-friendly approach, differentiated according to their stage of development, needs and vulnerabilities;

- giving appropriate attention to the challenges of children's somatic health;

- recasting responsibilities in the right direction, in order to put an end to the mounting negative externalities of services that are deployed without the informed consent of their users, and that pursue ethically questionable objectives even if they prop up their business model;

- promoting support for and dialogue between parents and their children;

- believing in adults' ability of to bring about change, including in their own relationship with digital technology, for the benefit of children;

- giving undivided attention to children who are vulnerable, including those with disabilities.

These recommendations are organised into six clusters:

- Tackle, with a view to their ban, the addictive and enclosed nature of certain digital services in order to restore young people's choice (Cluster 1) (4.1);

- Protect, rather than control, children: a battle that must be fought and won with Big Tech firms (Clusters 2) (4.2);

- Devise and establish a progression in children's use of screens and digital technology according to their age (Cluster 3) (4.3);

- Carefully prepare young people for their autonomy when using screens, empowering them and, at the same time, giving children and young people their rightful place in community life (Cluster 4) (4.4);

- Better equip, better support and provide better digital education for parents, teachers, educators and all those who work with children, while building a society that puts screens and the digital world back in their rightful place (Cluster 5) (4.5);

- Put in place an ambitious governance system allowing the public authorities to define a proper strategy, have oversight capabilities, be equipped to better support stakeholders interacting with young people and families and provide information to citizens (Cluster 6) (4.6).

4.1- Cluster 1: Tackle, with a view to their ban, the addictive and enclosed nature of certain digital services in order to restore young people's choice

The Commission has deliberately chosen to begin its recommendations with this imperative, in order to place responsibility where it lies first, i.e. with the Big Tech firms themselves, some of which produce predatory services designed to be harmful to children. The DSA is an initial recognition of this responsibility, even if it leaves it largely up to firms to assess the effects of their services.

The Commission considers that this is a development that should be clearly rejected for children, who should under no circumstances become the commercial product of strategies to dominate markets and maximise the time they spend online.

It is up to us to create the conditions for protecting children. In light of these findings, the Commission considers that there is an urgent need to have an offensive strategy at the highest political level on the global, EU and French stage, so that we no longer have to endure this situation and be forced to find costly, imperfect and rapidly obsolete ways of adjusting. Resolving risks at source, in the very design of products and services, is a requirement that must be at the forefront of our commitments.

This strategy, which will need to be supported by a growing network of players in the field of ethical design, could be based on the following guiding principles:

- resuming responsibility for public order in the digital space, in particular by taking on a more injunctive role with regard to the design of available products and services, especially those for children, and by bringing about more protective standards of physical health;

- encouraging the emergence of ethical private-sector firms, offering young people counter-models;

- creating the conditions for productive dialogue with the major Big Tech firms.

4.1.1- Restoring choice to users of digital services

While intensive use of screens necessarily has several drivers, one of them is both well-known and has become its raison d'être: the attention economy. Many of the platforms we use every day are structurally designed to build their technical and algorithmic architecture in such a way that users stay as long as possible on their service.

The Commission is promoting the need to create counter-models to the attention-capturing model and to encourage uses that give full and transparent space to the expression of and respect for the intentions of users, especially young people. This applies in particular to the content presented to them and the time devoted to their digital activities.

In this respect, the Commission believes that an initiative is needed now to make the most of the potential offered by the DSA and to take a more outspoken stance against addictive models.

Several fields of action should be pursued in this direction, in a cumulative manner, given the time that will be needed to bring some of them to fruition.

The European legal framework has largely left it up to the platforms themselves to assess the systemic risks of their services on the health and safety of children and to take mitigation measures, while at the same time harnessing an active regulatory strategy to take advantage of these provisions.

As this is a public health issue, the model used for medicines, for example, could be enlightening in this respect, i.e. requiring companies to demonstrate, before marketing a given service, that it has no harmful effects and that there is a favourable risk-benefit balance.

Given that digital services are continuously evolving, it is certainly not possible to reproduce the system in force for medicines exactly, but the Commission considers that it is possible to come closer to meeting its goals by adapting these arrangements. In particular, and in line with the requirements imposed by the DSA on very large online platforms to carry out risk assessments (Article 34) and adopt risk mitigation measures (Article 35), informed by recitals 81 and 83, platforms could be required to carry out regular comparative tests (or even before any new functionality is developed), in accordance with A/B testing processes, in order to assess the effects of the various components of the algorithms, particularly on the nature of the user's involvement, so as to measure any harmful impact and to force the most protective choices for the health of individuals and young people in particular. Also, now that the data sharing requirement is imposed on qualified persons (government officials, researchers), the audit system provided for by the DSA should be strengthened to ensure that it is regular and independent, by linking the EU and national levels: the aim is to avoid the tunnel effect of investigation procedures, which are certainly powerful in terms of penalties, but take a long time to complete.

Proposal 1: Reverse the burden of proof to tackle the harmful designs and algorithms of social media services and to develop regular independent audit capabilities

Examples of operational measures to be implemented:

- Deploy virtuous A/B testing processes, i.e. integrating and prioritising end-user well-being criteria established on the basis of safeguarding their interests;
- Have independent third parties conduct regular audits of platforms.

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Research on platform design and addictive algorithmic content is progressing rapidly, in particular under the impetus of academics and non-profits. Members of the European Parliament addressed the issue by the near unanimous adoption of a resolution in November 2023 on the addictive design of online services and consumer protection in the EU single market. In this resolution, the European Parliament denounces the business model whereby digital services, such as social media, streaming services, dating apps and web shops, generate profits by developing psychological tricks designed to keep users online. It therefore calls for legislation to provide a high level of consumer protection, on the understanding that individuals themselves, let alone children, cannot be expected to resist these attention-capturing mechanisms, nor can firms be expected to self-regulate against their private interests. At a time when the European Commission has undertaken to review consumer law and unfair practices in response to these expectations, there is undoubtedly scope for promoting, with the support of the European Parliament, much more protective legislation.

While progress still needs to be made in assessing interfaces and algorithmic mechanics, the members of the Commission feel that this should not hinder strong action that is already putting an end to the most harmful design features, and there is a consensus among academics in this respect. Teenagers understand fairly well that social media platforms are purposefully building an environment of digital passivity. But, this awareness can hardly on its own lead to a change in consumption behaviour.

This is particularly true given the sensitivity of teenagers' brains to the reward system.

It is uncontroversial that design features such as infinite scrolling, the automatic and continuous play of videos and excessive notifications pose ethical difficulties, as they remove the possibility of the user to have choices and encourage effortless content consumption without the user's active involvement.

It seems feasible to come up with an initial list of design features to be prohibited, even in a minimal form, and it could be added to regularly to ensure a high level of consumer protection. In this respect, in-depth studies should be carried out rapidly on:

- algorithms based on addictive feeds, i.e. where content is chosen and recommended for a specific user on the basis of their past behaviour;

- designs favouring the adoption of compulsive behaviours, defined as any response stimulated by external factors which leads an individual to adopt repetitive behaviour likely to cause psychological distress, loss of control, anxiety or depression, and this without any connection time limit;

- engagement baiting, including exposure to likes and comments.

In the same vein, the Commission recommends setting the stage for the introduction of an "ethics by design" standard alongside committed stakeholders. Some platforms already stand out from the most addictive and thus most widely used models; it would be useful to encourage, through this reference framework, innovation that advances these more ethical models.

Given the opacity of social media algorithms and the harmful impacts they can have on users, we need to restore users' power to choose and act. One way to achieve this and to develop more ethical proposals is to consider the service offered by these platforms not as a whole but as a sum of distinct features (hearing of the French Digital Council and its two latest publications released[117] at the beginning of the year in a follow-up of its report on the attention economy).[118] These features can then provide the user with a wider set of choices according to their intentions, needs and capabilities, including technical capabilities. Additionally, each of these features (recommendation, moderation, etc.) can be provided by a third party to the proprietary social media platform. In this way, users can be offered alternatives to each of these features. Each of them becomes an area for development in its own right, enabling innovations to emerge for the benefit of users and possibly the platform itself, as recommended by the French Digital Council. This opening up of social media platforms to third parties, which may go as far as unbundling platforms, requires oversight and regulation to determine the conditions for it, which will need to be defined. This also means ensuring the interoperability of services and the portability of user data.

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[117] French Digital Council, "Cultiver la richesse des réseaux", 2024: https://cnnumerique.fr/nos-travaux/cultiver-la-richesse-des-reseaux – "Assurer notre liberté à l'heure de l'Intelligence artificielle", 2024: https://cnnumerique.fr/assurer-nos-libertes-lere-de-lintelligence-artificielle.

[118] French Digital Council, "Votre attention, s'il vous plaît !", 2022: https://cnnumerique.fr/nos-travaux/votre-attention-sil-vous-plait-quels-leviers-face-leconomie-de-lattention.

It is essential to give users the opportunity to regain control over their use of social media. With this in mind, the Commission recommends that action be taken to open up social media and provide a way to customise settings, in line with the proposal made by the European Parliament in December 2023 in its resolution on addictive design.[119]

Proposal 2: Prohibit harmful design and develop an EU ethical standard

Examples of operational measures to be implemented:

- Support EU-wide legal action to ban addictive design features;

- Make it compulsory for firms to declare whether they are an online messaging service or a social media platform: too many messaging services have been operating like social media platforms, without informing users or asking for their consent. This has made extremely offensive content available to young people (e.g. images of Mexican violence sent en masse to children on a Russian messaging network);

- Develop a French and/or EU ethical design reference framework to restore choice to the user experience, provide transparent, easily understandable information on how algorithms work, ensure ecodesign, and secure the availability, accessibility and effectiveness of user control over settings and analytics and reporting tools;

- Encourage the creation of more child-friendly services by implementing the interoperability of social media platforms and considering the possibility of unbundling them.

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The need to protect minors and adults alike on social media could serve as a lever for a new settings-related requirement that could restore freedom to users, and therefore their power to act and decide. In this respect, the Commission wishes to support the recommendation, already made by the French Advisory Commission on Human Rights,[120] the French Digital Council,[121] envisaged by the *Conseil d'Etat*[122] and currently being worked on by the Ministry for the Economy, to grant end-users of social media platforms the right to configuration. This should lead to platforms being required, when the application is opened, during the first key activities (adding contacts, posting, etc.) and from time to time thereafter, to provide users with a section reserved for configuring features (i.e. the home screen). This section should be easily visible and accessible on the interface, understandable and designed in such a way as not to discourage users from configuring settings by making the process overly complex or tedious.

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[119] European Parliament, Addictive design of online services and consumer protection in the EU single market, 12 December 2023 (2023-2042 (INI)).
[120] CNCDH, Opinion A-2021-9 on combating online hate, July 2021.
[121] French Digital Council, "Votre attention, s'il vous plaît !", 2022.
[122] *Conseil d'Etat*, annual study 2022, "Réseaux sociaux : enjeux et opportunités pour la puissance publique".

It would also be advisable to offer users the possibility to set their selections so that they do not have to repeat the process every time they sign in, for example by providing a "set this list as a default value" option. This would enable users to be informed about their use of the service in terms of content consumption and screen time, and to be able to configure the types of content they wish to see and the way in which they are shown it, without this being imposed on them. Users would also be able to set the amount of time they spend on the service on a granular basis and adjust the times they use it.

In addition to this requirement to improve the user-friendliness of social media services, platforms should be required to strengthen default settings to limit the sphere of children's outgoing and incoming content in order to fully ensure that children's privacy, safety and security are protected, in accordance with the requirements set out in Article 28 of the DSA, in particular those pertaining to controlling and limiting the content that children can send and receive. There could be an additional requirement to provide a minimum level of advanced settings options.

Such avenues could be explored at EU level in line with the DSA Regulation. These measures are in line with Article 28, which is worded in broad terms, stating that "1. Providers of online platforms accessible to minors shall put in place appropriate and proportionate measures to ensure a high level of privacy, safety, and security of minors, on their service". They would also extend the requirement for very large online platforms to offer content recommender systems that are not based on profiling (Article 38) and to take corrective measures if systemic risks are identified (Articles 34 and 35).

Proposal 3: Restore users' power by recognising a new right to configuration

Examples of operational measures to be implemented:

- Enshrine in our body of law a right to configuration for users of digital services;

- Turn this right to configuration into a set of specifications that include the following:

  - a default page appearing systematically on the settings interface before any first browsing and key activity on a social media platform; and, at any time, easy, visible and accessible one-click access to a dashboard directly from the service interface; the design of these features must be clear to allow efficient freedom of choice and so that users can easily configure settings based on their interests and needs;

  - a child-friendly explanation about how algorithms and their related settings work, and their underlying business models;

  - a default setting of a regular interruption of service after a period of time to be determined;

  - a default setting ensuring the protection of the sphere of outgoing and incoming content of end-users in the case of minors.

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By providing a range of gaming practices and experiences for leisure and social purposes, video games have become an important cultural medium in our societies. Used in various forms and contexts, video games have been shown to have many positive impacts for players, including the development of visuospatial skills in first-person shooters, training in problem-solving skills in role-playing games and, more generally, combating anxiety, improving self-confidence and enhancing creativity.

Currently in France, 72% of the general population and 93% of children aged 10 to 17 say they play video games at least occasionally, with this practice accounting for 19% of screen time among children aged 4 to 10 and 31% among those aged 14 to 18 (SELL study forthcoming). Given this widespread use and the broad range of games on offer, the question of how to regulate them is becoming more pressing, particularly for young people, some of whom are developing problematic gaming behaviours that can go as far as addiction.[123]

As with any addictive behaviour, problem gamers are generally vulnerable, while psychiatric co-morbidities are more the rule than the exception. For some, gaming can mask this fragility and become an attempt to find an inappropriate response to their comorbid disorder. All the psychiatric pathologies of children and teenagers may be involved. Behaviour is also sometimes associated with disorders linked to teenagers' family environments (e.g. dysfunctional parental relationships and parenting practices). Even if the prevalence of these disorders is limited, it is useful to bear this possibility in mind in order to identify them, take action and put in place measures to regulate these activities.

For this regulation, the approach to take does not mean questioning the very principle of gaming, but teaching young people to adopt healthy video-gaming practices and to protect them effectively against the harm that could be caused by improper use of video games (inappropriate content, addictive behaviour) and the development of new business models.

As far as content is concerned, the PEGI label, developed by the industry itself and recognised by French law, is recommended in Europe to indicate the age below which content is unsuitable and to describe problematic game content using pictograms: sex, violence, coarse language, etc., and, more recently, microtransactions. However, this labelling is not mandatory and when it is present, it is merely an indication for families, with no automatic consequences. As a result, many children play games that are not suitable for their age.

The growing convergence between certain video games and gambling, sometimes with deceptive designs, the ongoing use of new technologies such as the metaverse, and the release of online games all pose new risks in terms of the protection of minors, which must now be taken into account when regulating use.

The unregulated development over the last few years of more aggressive business models means that the use of games based on these models is tending to resemble that of gambling. This raises fears of

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[123] Internet gaming disorder was included in the latest International Classification of Diseases and in the DSM-V (American Psychiatric Association (APA), Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition Text Revision DSM-5-TR (appi.org). Gaming addiction accounts for 1% of addicts in France, i.e. around 380,000 players.

increased risks for the most vulnerable young people, who could be led to make excessive and compulsive purchases or develop addictive behaviours such as gambling.

At the same time, the inclusion of randomness in in-game purchases can also contribute to excessive gaming behaviour and psychological over-investment. The case of loot boxes (items that can be purchased in-game but give a random reward of an uncertain value) raises questions, but considering them as associated with gambling is still controversial, particularly in terms of the value (for players) of the reward obtained.

Game labelling has introduced information indicating the presence of in-game purchases and purchases that include random items, but there is still a lack of transparency about when loot boxes occur, their cost, the likelihood of winning, whether they influence gameplay or are purely cosmetic, and whether they can be sold to another player.

Deceptive designs and the lack of transparency around microtransactions pose a risk to players. Appropriate regulations need to be put in place to protect minors. As video games are complex artistic creations in a variety of genres (role-playing games, platform games, battle royale games, etc.), in a variety of forms (single-player or multi-player, online or local, skill-based or luck-based, etc.) and with a range of business models, they are difficult to define simply. In order to establish effective regulations capable of anticipating developments in the various media and their uses, we need a tool for assessing potential harm based on their structural characteristics.

This goal of new regulation could thus be based, at national and EU level, on the following principles aimed at better protecting young people from inappropriate content and behaviour by:

- standardising the labelling of films and video games;

- introducing rules prohibiting sales by age category and enforcing them (visibility, clarity and supervision); following the UK model, the Commission supports going as far as prohibiting the sale of games to underage children. Admittedly, this ban would have limitations (the presence of siblings makes it more difficult to regulate access to games in households according to age, the age barrier can be circumvented if games are bought by another child/adult, etc.), but there is no doubt that it will have an effect and that it will send a strong signal to families and society;

- organising a campaign to relay information to families, in particular by promoting parent-child dialogue in order to establish rules of use together and by widely disseminating best practices guides (see, for example, the project *Civisme et jeux vidéo : réinventons les codes* led by the Interministerial Delegation for Combating Racism, Anti-Semitism and Anti-LGBT+ Hate (DILCRAH)).

While video games are built on a logic of player commitment, young people must be protected from a drift away from this commitment in certain games towards more harmful mechanisms for capturing attention and capturing the time spent playing (e.g. the practice of banning players if they withdraw, peerstripping, etc.).

To counter such practices effectively, we recommend:

- developing, under the aegis of researchers, an effective way to assess the risk of harm related to gaming design and business models; supporting research in this area;

- making major video game companies more accountable, in the same spirit as the DSA, by committing them to conducting a systemic risk assessment concerning their underage users and to taking measures to reduce the risks identified, particularly with regard to gaming designs and business models;

- ensuring that deceptive and manipulative gaming designs are effectively punished;

- regulating, in particular, the development of microtransactions, which abound in a business model that runs counter to the interests of minors and their families. The use of loot boxes should be thoroughly assessed along these lines. The Commission already recommends setting a maximum spending limit per game, so as to limit excessive spending, whether solicited by children or incurred directly by them without the help of adults (when bank cards can be activated, without constraint, from the game account);

- better safeguarding children from the risks associated with online gaming, and in particular strengthening reporting requirements to combat predation by paedophile networks on these spaces where children are present;

- organise specific monitoring of ongoing technological developments in the gaming world, from the perspective of children's interests. In this respect, immediate action should be taken 178neufon the development of the metaverse, which exposes children to worlds where traumatic acts can occur, as highlighted by the French Steering Committee on Digital Ethics. The Office for Minors has also asked the Commission about new cases of rape of minors' avatars in these worlds, with very significant traumatic effects, especially on the youngest children. The creation of a specific offence in the Criminal Code would make it possible to punish the perpetrators.

This strengthened and adapted approach to regulation cannot overlook the need to support young people and families in the video gaming community. The Commission therefore recommends increasing the number of physical places where young people can play together under the supervision of an adult in a position to take preventive action. It also supports the inclusion of video game education in schools and cultural centres, and the provision of more information on content and ecosystems. It also recommends that extra efforts be made to inform and support families, as it is key for children to understand games and their associated topics of discussion.

Proposal 4: Strengthen the safeguards in video games to make the experience safer for young gamers, so as to better protect them from inappropriate content and combat the development of deceptive microtransactions and designs.

Examples of operational measures to be implemented:

- Better protect minors from inappropriate content by:
  o standardising the labelling of films and video games;
  o introducing rules prohibiting sales according to age group and enforcing them (visibility, clarity and supervision);
  o strengthening reporting standards to combat paedophile networks;
  o taking account of the most harmful developments associated with the release of the metaverse and online games; in particular by recognising under the law an offence of rape of minors' avatars, an act highly traumatic in nature;
- Promote new French and EU regulation of in-game microtransactions and combat deceptive designs:
  o support research to develop an effective way to assess the risk of harm related to gaming design and business models; and force companies to be more transparent by making them responsible for assessing and mitigating systemic risks to the health and safety of minors, based on the DSA model;
  o ensure that deceptive and manipulative designs are effectively punished;
  o promote and support the development of and compliance with an ethical design charter;
  o regulate microtransactions, paying particular attention to loot boxes in order to prohibit any unfair use of them, and cap the amount that can be spent during video game play to reduce the pressure to consume that is exerted on young gamers (pay-to-win, pay-to-skin, etc.);
- Make these issues more visible to young people and families by:
  o improving information for families through targeted, recurring campaigns (game labelling in particular);
  o strengthening support for young gamers by developing a range of venues where young people can play together, alongside adults and students;
  o enhancing media literacy with a video game component (diversity of content, best practices, ecosystems) in schools and cultural mediation centres.

4.1.2- Create coalitions with researchers and civil society organisations to support dialogue with digital stakeholders and support an appropriate action strategy

To achieve the goals outlined above, and more generally make the overall action strategy a success, it is essential to be able to amass conclusive evidence on exposure to screens, and at the same time to be able to equip regulators and the courts, both at French and EU level. In this respect, as mentioned above, the DSA imposes new data transmission requirements for very large online platforms, both for public data and for less directly accessible private data.

However, both researchers and specialised non-profits are now too heavily dependent on funding from the digital sector itself, which undermines the sustainability, intensity and independence of action.

At a time when opportunities are opening up to challenge the business models of platforms, both in terms of the increasing number of investigations and lawsuits brought against social media platforms at EU and global level, and changes in the legal framework to strengthen regulation, the Commission believes it is essential to unleash the complementary forces that provide vital support for government action. These players' backing appears to be central to strengthening regulators' own power to act.

In this respect, for example, the law already enshrines the role of trusted flaggers, which firms must take into account, as a priority, in application of the DSA. It is unfortunate, however, that this recognition and the requirement for independence associated with it, currently being implemented by ARCOM, has not (yet) been accompanied by a review of the conditions necessary for their work (level of resources required to meet demand, funding arrangements ensuring that their work is independent of the firms being regulated, whereas non-profits are currently largely funded by the private sector).

In these circumstances, the Commission considers that France faces a short-term challenge in further addressing this issue of national resources at EU level, a position also supported by the French Digital Council. The DSA provides that very large online platforms contribute to funding EU regulatory work through the charging of supervisory fees. These fees are expected to amount to an estimated €45m annually, a sum that will be substantially higher in the future. At this stage, only the European Commission is identified as benefiting from these amounts, while the effectiveness of its action will depend on the strength of national actors and networking with all civil society organisations active at EU level. We should therefore discuss the need to increase financial resources for national, public-sector and private-sector forces, through dedicated EU programmes, whether in terms of the research work to be promoted or the support needed by non-profit actors. Thus far, such discussions do not seem to have been raised by a coalition of EU Member States or by France in particular. At a time when the arrangements for implementing the DSA are being discussed in various areas (forthcoming Delegated Act on Data Access, work on age verification, tools for investigative work by the European Commission, etc.), the Commission recommends that the spotlight be turned on this issue of sharing resources from the firms targeted by the DSA. In addition to the supervisory fees provided for under the DSA, the strategy could also usefully encompass the proceeds of fines, whether notified by regulators or resulting from actions brought before the court. This could be a relatively quick way to support and achieve the goals of the systemic strategy proposed by the Commission and to be implemented nationally, in a French context that is also very restricted in terms of public finances.

In addition, given the stakes involved, the Commission considers that it would be useful for the government to help organise the priority areas of intervention and the complementarities to be fostered between academic, private-sector and non-profit players, so as to maximise their impact.

Finally, the Commission would like to point out that the previously cited SREN Act provides for the creation of a digital citizens' reserve, the purpose of which is to help transmit French values, respect for public order and the combat of hate in digital interfaces, as well as initiatives related to education, inclusion and the improvement of online information. To this end, it is intended to welcome volunteers on the basis of their skills, experience or interest in digital issues, for a one-year renewable commitment after explicit agreement between the parties. Mobilising citizens in this way could prove to be a virtuous circle when it comes to protecting children, young people and those most exposed to the risks posed by certain uses of digital technology, provided, however, that this mobilisation is well

supported by the government, managed, accompanied, nurtured and made visible, and that government department teams are specifically appointed to support this initiative. The benefits of this commitment to citizen involvement could be significant, not only in terms of ensuring stronger democratic ties throughout the country, but also in terms of involving the entire population, ensuring a collective increase in skills and, ultimately, better understanding and therefore better protection.

Proposal 5: Secure, organise and amplify civil society action, as an essential channel for managing the negative externalities of platforms.

Examples of operational measures to be implemented:

- Set up a citizens' watchdog reserve on new uses and new practices to be taken into account in a proactive manner and provide for strong support and organising on the part of government departments;
- Encourage collective action and complementarity by helping to organise the action of non-profits and NGOs;
- Remove the risks associated with their funding and sustainability, and take account of the exponential needs that non-profits have to meet.

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In the same vein, the Commission believes it is essential to resolutely support independent research into all the issues raised by the development of digital technology and the growing role it now plays in our daily lives, particularly for children and teenagers.

This kind of support is vital if we are to have the studies and analyses we need to understand the phenomena underway and their effects. But it is also necessary to gain a better understanding of the precise conditions under which the digital sector operates and, in so doing, to support regulatory authorities' dialogue with major Big Tech firms.

This research must be intensified in each of the disciplines in which this rise in digital technology is accompanied by questions or profound changes (health, education, law, sociology, etc.). But it also needs to be conducted from a truly multidisciplinary perspective, so that approaches and analyses can be cross-cutting.

To support this goal, the Commission stressed the need to commit appropriate resources. These resources may, naturally, relate to funding. On this point, the Commission considers that part of the contributions made by platforms under the DSA could help to build a research programme, primarily at EU level, on the systemic risks of social media, which platforms are now required to assess and mitigate. Over and above the question of funding, these resources should also concern the possibility for researchers to access, in compliance with the fundamental rules governing the communication of automated and personal data, the data they need to carry out their work and base their analyses on.

Data access represents a real challenge, if only to implement the provisions of the DSA. Access to private data from very large online platforms is essential for assessing the processes at work and for measuring the impact of the amplification of algorithms and captology phenomena. At French level, a dedicated and well-known channel for reporting denials by platforms of data access requests made under the requirements set out in the DSA should be developed along the lines of what is being done in Germany, for example.

Proposal 6: Send a clear signal of investment in multidisciplinary research and the opening up of data in order to strengthen the regulator's position in dialogue with powerful firms.

Examples of operational measures to be implemented:

- Support and fund research and epidemiological studies, in particular the creation of cohorts, to address the health and education issues associated with the use of screens (with a focus on the issue of data interoperability in the context of cohorts: reducing the complexities/constraints of access to public data (public statistics), removing the obstacles to data collection for research recognised as being of public interest, in particular in the field of health and education;
- In order to support the EU regulator's position, organise a dedicated, well-known channel in France for reporting denials by platforms of data access requests made under the requirements set out in the DSA;
- Make available to researchers, in compliance with the rules governing the communication of automated and personal data, data allowing independent and objective analysis of the processes at work;
- Support programmes to assess the benefits/opportunities/risks of digital technology and low technology (low-tech) in education, including through experiments;
- Support and aggressively promote at EU level the use of part of the platforms' contributions under the DSA to build a research programme, particularly at EU level but also at national level;
- Build a national framework of regular surveys to monitor different uses.

4.2- Cluster 2: Protect, rather than control, children: a battle that must be fought and won with firms

4.2.1 Amplify the goal to protect minors from inappropriate content by mobilising third-party actors dedicated to this task

As far as protecting minors is concerned, firms kept shifting responsibility during the hearings, seeing it only as a brake on the development of their business and a cost centre.

Parental control is a catch-all term in which each of the firms associates something different depending on what serves their business objectives.

Firms are proposing parental control as a way of entering families and reassuring parents, but they are not necessarily considering its actual effectiveness. We were unable to obtain any data on the use of

these solutions, which suggests that their use is very limited.

Putting everything on parental control, which all firms tend to advocate in order to distance themselves from their own responsibilities, can be deceptive. This runs the risk of exempting digital service companies from the protection requirements and standards that exist in any other sector (e.g. gambling, television production, toy manufacturing, road safety, etc.).

As far as their operation is concerned, these solutions place the onus on parents to set parental controls on each of the platforms (YouTube, Instagram, TikTok, etc.) and devices used by their child, and they have to navigate the complexities of compatibility and operating limits specific to each of these control systems. Whatever may be said, parental control systems, which take various forms in all aspects of digital life, shift the burden of managing complexity onto families due to the lack of interoperable systems. Moreover, not all families are equally equipped to deal with this complexity.

What's more, when parental control systems are used on devices, it often deprives children of the more in-depth dialogue with their parents that is so necessary when it comes to their uses and practices. We need to be able to tell parents that they will not be able to resolve the issues surrounding their child's digital life and their parental authority in just a few clicks. All the more so when we know that children quickly learn to undo the restrictions imposed on their own devices.

Children prefer to be protected and supervised, but not to be controlled, especially when their parents have not even told them that they have activated one of these solutions on their device, nor shared with them the restrictions that have been put in place, which seems to be an essential component in children's understanding of the environment in which they can evolve.

Parental control has existed for over 20 years now and cannot be said to have produced results. The amount of time children spend online has continued to rise and their exposure to inappropriate content has skyrocketed. The Commission notes that parental control in its current state is not the solution and must not in any case overshadow looking for more effective solutions.

Thus, by relieving parents of this expectation to alone bear the burden of managing their children's use of digital technology, we are in fact committing them to re-engaging with their children.

Lastly, parental control tools are mainly developed today by Big Tech, with no monitoring of their use or effectiveness.

On the basis of these findings, the Commission believes that it would be in the public authorities' interest to take a different route by opting for ethical, interoperable technological solutions that are not tied to a single platform or operating system, thereby eliminating the complexities generated by varying parental control systems from one platform or operating system to another. The idea would be for a single interface to be used to configure all the parental controls available to support and protect your child.

This solution would provide a more transparent approach to child protection for families and children themselves.

In particular, supporting the emergence of alternative solutions would make it possible to stop entrusting the protection of children to Big Tech, who in exchange for providing their free solution are thus transferred all the data on children's use, which may enable them to pursue objectives other than protection alone.

The involvement of innovative players that aim to protect children would make it possible to change doctrine by no longer leaving Big Tech the keys to children's well-being, nor leaving frazzled parents with the task of absorbing and managing the complexity of platforms' user experience and business model.

We also need to focus on protecting children from illegal content, not by forcing them to do so, but by making them active participants.

Minors' access to illegal content is alarming, as attested by every survey. Younger and younger children and teenagers are accessing offensive and traumatic content, which in some cases can have lasting effects. Children and teenagers themselves are very keen to be protected from such content. This protection must be effective in all areas and is one of the prerequisites for positive use of digital technology.

Massively protecting children in their digital lives from illegal content requires the mobilisation of everyone: the central government, local and regional authorities, and the private sector. We need to promote proportionate and effective solutions that safeguard children's interests, i.e. both in terms of shielding them from illegal content and protecting their privacy and freedom of expression and information, as well as their freedom of thought and opinion.

This protection could also be extended to the social media platforms themselves, on condition that they provide this ecosystem with APIs or virtuous entry points enabling them to know when a child signs in to their platform and to adjust the content accessible in real time. Given the framework of requirements set by the DSA and the expectations of social media, we could imagine that, given a political impetus, certain platforms would be prepared to work on this idea and ultimately create a ripple effect in the system. This method would have the advantage of being quicker and could be tested before embarking on the legal route of a requirement to make these child protection APIs available in the event of failure.

A number of obstacles need to be overcome if this market is to be freed up from private third-party players, and it would be useful to entrust the resolution to an agile task force bringing together the public and private sector to:

- ensure the interoperability of systems and remove the barrier currently posed by the closure of APIs as deployed by certain firms for their sole benefit; there is a significant risk, in terms of competitive advantage, of the market being closed, which runs counter to the objective of designing and producing solutions that are effective because they are systemic; the guarantee that the market will be opened up must be an objective of economic regulation on the part of the public authorities;

- support the business model of innovative players to strengthen their freedom to act and ensure the systematic deployment of protection measures for parents, at no additional cost to users; draw up a set of ethical reference specifications to authorise this support;

- encourage the emergence of virtuous players, both in the field of technological protection solutions and in the field of uses that benefit of children.

Proposal 7: Develop and promote more efficient and accessible private protection solutions, particularly for families.

Examples of operational measures to be implemented:

- Encourage the development of a market for ethical solutions for the protection of minors by ensuring the interoperability of systems and by taking responsibility for the general opening up of a market that is tending to close in around Big Tech;
- Support the development of a viable business model, guaranteeing families access to protection solutions that are neither burdensome nor complex;
- Reinforcing all-round protection:
    - For families:
        - At the network backbone, to protect browsing from individual devices for all mobile lines when subscribed to by a minor declared as such by parents or third parties;
        - Team up with internet service providers, in conjunction with mobile operators, to offer the same protection via Wi-Fi;
        - Ensure that telecom operators communicate twice a year to their subscribers the availability of the child protection solutions that they provide against illegal content;
        - Open up the Edu-Connect authentication system, if legally possible, to ensure the identity of children and the obtention of parental consent;
    - For schools:
        - Protect internet access in primary, lower secondary and upper secondary from illegal content;
        - Ensure the same protection against illegal content from the individual equipment made available to pupils by local authorities;
    - For public places:
        - Organise, for public or publicly accessible Wi-Fi points, the implementation of default protection against illegal content for minors;
    - More specifically for social media and platforms:
        - Undertake resolute action with regard to social media platforms, with the aim of ensuring that they provide APIs for child protection.

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Access to pornographic content by increasingly young minors is certainly one of the most critical aspects of young people's digital experience to address, given all the factors described above. While such access is prohibited by law for those under 18, all that is currently implemented by pornographic websites is a self-declaratory age verification, which is by its very nature highly imperfect.

Faced with online access to pornographic content, the public authorities find themselves in a completely defensive position, having to deal with the sector's legal evasions and technological arguments in the absence of precisely established countermeasures. The recent referral to the Court of Justice of the European Union by the *Conseil d'Etat*, at the urging of pornographic websites, attests to this: it seeks to verify the compliance with EU law of the decree dated 7 October 2021 that gives the chair of ARCOM the power to issue formal notices and refer matters to the courts to ensure compliance with the ban on posting a pornographic message that could be seen by a minor online.

Under pressure from companies, the obligation to achieve results for digital services themselves has been replaced by an obligation for EU Member States to define the technological means.

Access to pornography is certainly the area in which information asymmetry is greatest.

In this respect, it remains difficult to measure the actual impact to come of the implementation of the DSA, which requires major pornographic websites to assess the systemic risks of their services for minors and take mitigation measures; as well as the impact of the law on securing the digital space and the technical reference framework for age verification currently subject to consultation by ARCOM. These developments are a step in the right direction and it will be important for France to play its part in supporting the European Commission to take advantage of the new regulations and transfer the burden of age verification to the websites concerned.

This Commission would therefore like to draw the authorities' attention to the fact that, while the fight against pornographic websites must continue, including by means of sanctions, it must not overshadow the underlying issue. Young people today have very little or no access to content that meets their needs to discover and learn about sexual and emotional life. Their only option is often to consult pornographic content. There is no in-between: young people can access very trashy pornographic websites but find a total void when it comes to spaces where they can get answers to their legitimate questions, in particular during adolescence. We therefore need informational countermeasures to disseminate various content on emotional life, love, sexuality and consent (see below for the measures envisaged on the issue of emotional and sexual life). Replenishing libraries with novels and educational books; making resources available to young people online, on television, in series, on podcasts: these are all steps that should help young people move away from frequently viewing pornographic content, so as not to leave such websites as the exclusive authority on these matters.

Proposal 8: Support the firm implementation of the DSA with regard to pornographic websites, to force the adoption of currently available age verification tools and at the same time invest in the production of resources tailored to children's legitimate questions about their emotional and sexual lives.

Examples of operational measures to be implemented:

- Have an offensive strategy to support the EU's approach to implementing solutions to protect against pornographic content that are compatible with fundamental rights and freedoms;
- At the same time, we need to mobilise the public and private sectors to provide content that is appropriate and accessible to young people when it come to their legitimate questions about emotional and sexual lives, so as to create alternatives to the pornographic content that tends to be the only currently available option.

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While young people find themselves captive to toxic content online, they have little confidence in reporting tools, if they are even aware of them. Reporting tools are not sufficiently effective to date and only account for a small proportion of online content moderation. Although the entry points in the

reporting process are diversifying (platforms themselves, the Pharos online reporting portal for illegal content, the courts, trusted flagging organisations, etc.), which is conducive to greater impact, it is important to take action in several areas to ensure greater effectiveness. These include improving the accessibility of the reporting process, by adapting the language to children and facilitating the user experience in as uniform a way as possible to make reporting an automatic habit; keeping users informed about the consequences of reporting, without which young people are very likely to become discouraged by considering the process to be pointless; strengthening information sharing between all social media platforms; and implementing the DSA's requirements for platforms as strictly as possible.

Proposal 9: Ensure that reporting policy is scaled up to make it a major lever for action with regard to platforms.

Examples of operational measures to be implemented:

- Draw up a set of guidelines on the best user ergonomics and user experiences for reporting, with a view to standardising and increasing visibility of the processes integrated into platforms and video games (positioning of reporting buttons, accessibility of the language used with young people, simplification of legal steps and specifications by category, etc.);
- Arrange assessments of the effectiveness of reporting processes to be fed back to the EU level, to support monitoring and any penalties related to the requirements imposed on platforms under the DSA;
- Accompany these actions with enhanced training for children and digital mediators on online rights and duties, on the players involved in reporting and on legitimate cases of reporting (see below).

4.2.2. Promote research and innovation to develop the best standards for the protection of physical health and for the ecodesign of digital services

The point here is not to make a recommendation aimed solely at children, but to consider that the issues at stake, particularly the preservation of their physical health and the prevention of severe chronic diseases in adulthood, further justify the introduction of standards and norms for the digital sector that protect human health.

To these considerations must be added those of environmental challenges, as digital services must play their full role given that they profit, in a distinctive way compared to other sectors, from growth in the use and high consumption of resources. Until now, the digital sector has been integrated as a component of other economic sectors in the EU and global governance of environmental issues. A more specific approach is needed.

Work on all these issues is either inadequate or too confidential. It is important that research and innovation are harnessed to reduce the risks to human health and that of developing children in particular. Through support for virtuous behaviour, through the emergence of new, more protective technological standards, through the strengthening of the commitments associated with the ecodesign guidelines for digital services, through the resolute commitment to controlling the number and useful life of digital equipment in public places, and ultimately through an approach that puts

needs and usefulness at the centre of considerations, regardless of the place concerned (work, school, family, government department, etc.).

Proposal 10: Actively promote the highest standards of physical health and environmental protection for digital technology tools and digital services.

Examples of operational measures to be implemented:

- Support research and innovation programmes to develop new technological standards that are more protective of physical health (e.g. alternatives to blue-light-emitting LEDs);
- Move towards a binding approach, along the lines of the GDPR, to ARCEP's new general guidelines on the ecodesign of digital services, at the very least in the short term by requiring systematic assessment of the usefulness of the digital service at the design stage, incorporating the environmental approach into this assessment (in that regard, the Commission draws attention to the recommendation made by ADEME to encourage changes in behaviour and the implementation of digital sustainability policies in order to reduce the amount of equipment used and to limit our uses by systematically questioning our needs;
- Look into the possibility of reinforcing default settings to enable more resource-protective behaviour (e.g. lower image and video resolution by default to consume fewer network operator resources);
- Support an increase in the useful life of equipment[125] through the development of repair services, product-service systems or the sharing or pooling of equipment;
- Prioritise funding for open digital solutions (shared, open-source data) to support the green transition, while ensuring that the benefits of the proposed solutions are quantified upstream (solid methodologies with a medium-term vision and taking into account rebound effects);
- Support the deepening of knowledge about the environmental impact of new technologies such as generative artificial intelligence (AI), immersive universes and quantum computing, in order to control the spread of their use.

4.3- Cluster 3: Devise and establish a progression in children's use of screens and digital technology according to their age

In the light of the various findings presented in the preceding sections, in particular on the proven effects of screens on health, the need to meet the essential development needs of children and teenagers and to protect them from the excesses and dangers to which they could be exposed, a consensus has emerged within the Commission on the importance of devising a genuine gradual

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[124] https://cheminsdetransition.org/les-ressources/defi-numerique/;
https://www.gouvernement.fr/upload/media/content/0001/06/b2be9a22d052f9e36065e4a6ad765c6536942939.pdf
[125] Seven years, for example, is the guarantee period obtained through the Matinfo public contract (https://www.matinfo-esr.fr/ecoinfo).

progression throughout childhood and adolescence in the use of screens and access to the content they allow.

The aim is to propose a number of rules and guidelines for the proper use of screens as part of a process that is as safe and instructive as possible, and adapted to the young person's level of maturity. This gradual approach is intended to support children and teenagers by preventing their premature exposure to screens at an early age and by allowing them to gradually achieve autonomy in terms of using digital technology and equipment.

The process proposed by the Commission is punctuated by stages at symbolic moments in the young person's life, to provide clear milestones to support parents in the necessary dialogue with their children on digital issues.

With this in mind, we propose defining a certain number of major principles to guide practices from early childhood through to adolescence (4.3.1) and, at the same time, to develop as appropriate and consistent a framework as possible for the use of screens and digital technology in schools (4.3.2).

4.3.1- Give young people gradual access to screens and certain uses of them

Among the various milestones proposed for defining the process of young people's gradual access to and use of screens, *a clear consensus was expressed within the Commission on the need to protect the youngest children from exposure to screens,* with particular care taken during their first years.

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On the basis of these benefit/risk considerations, the Commission proposes the following principles for action:

-   strengthen the current recommendation not to expose children under the age of three to screens;

- advise against the use of screens for children up to the age of six, or at the very least that it be very limited, occasional, with educational content and adult supervision;

- after the age of six, we recommend moderate and controlled exposure.

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Taking into account other activities considered necessary to promote health, development and learning, screen-based recreational activities have little place on school days. They are not necessarily essential at home either, as the idea is to achieve a fulfilling balance with varied activities. Screen use is not necessary for children's development and there are, on the contrary, stimulating alternatives: reading, but also audiobooks and interactive stories, free play, board games, role-playing games, creative, sporting and artistic activities, and discussions with peers.[126]

In the current state of knowledge, the Commission refrains from issuing recommendations on screen time, as it is a very imperfect variable for regulating digital activities, the effects of which often prove

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[126] L'importance de maitriser le temps d'écran des enfants - Dossier (afpa.org).

to be use-dependent. Moreover, still in the current state of knowledge, any threshold would necessarily be arbitrary and not based on conclusive evidence. Insofar as the public authorities decide to disseminate prevention messages with milestones linked to screen time, the Commission is in favour of abandoning the logic of maximum time per day, which insidiously delivers the message that using screens every day is acceptable for young children. The Commission suggests that a weekly time limit would be better suited to conveying the message that it is acceptable to watch age-appropriate programmes from time to time, at set times and with adult supervision.

This must be reflected, first and foremost, in appropriate behaviour from children's earliest days, when the bond they must build with their parents is essential and primordial. From this point of view, the Commission recommends limiting the use of mobile phones in maternity wards as much as possible and helping parents to use TV screens in their bedrooms as sparingly as possible, such as by avoiding leaving them turned on: a calm environment is vital for both newborns and their mothers.

The approach should be continued at home and within the family circle, where screens are not recommended until the child is six, with the exception of a few targeted and supervised uses involving high-quality content (specific actions, presented below, in terms of awareness, outreach and support for parents should therefore be considered for this). It should be noted that this recommendation of best practice, which has been made for a long time, does not of course mean that some one-off uses of limited duration should be prohibited, during which children could, for example, have a conversation with a family member via a digital tool with a screen (the example of a conversation with grandparents via video call often came up in the Commission's hearings and discussions). The Commission also proposes banning the use of smart toys intended for children under six, with the exception of smart storytelling toys.

Over and above the question of the situation of young children at home or in the family setting, one of the key issues arising from the findings on the state of practices concerns the need to further protect young children from screens in places where they are looked after outside the family home.

This is particularly true for young children between aged zero to three, whether they are cared for as part of a group, such as in an early childhood care establishment (EAJE) (day nurseries, including parent-run day nurseries, small day nurseries, drop-in day nurseries, kindergartens, etc.), or individually (by childminders, whether at their home, a childminder's facility or at the parents' home, by nannies, etc.). This issue has been taken up by members of parliament. Screens should be banned from children's areas in these childcare facilities (no screens in day nurseries, for example, apart from offices or administrative departments to which children are not supposed to have access). In situations where children are cared for in areas equipped with screens, for example by professionals who provide home-based care, these screens must not be used in the presence of children, either as a background or to keep them entertained. The Commission is therefore calling for more action to be taken with regard to childminders and nannies, via local authorities,[127] the Family Allowance Fund (CAF) and maternal and child protection services (PMI), to raise awareness among professionals of the

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[127] Some local and regional authorities, *départements* and municipalities have already planned to include regulation of the use of screens in childcare contracts with childminders (the Commission is aware, for example, of initiatives of this type in the Ain *département*).

dangers of screens for young children and the virtuous practices to adopt in this area.

Particular attention should also be paid to the use of their own personal screens (mainly mobile phones) by early childhood professionals, including those working in early childhood care establishments, when they are in contact with young children. These devices should not be used in the presence of children, both for safety reasons (the use of a mobile phone can consume too much of the professional's attention and distract them from their duty of care towards a child or children) and given the risk of "technoference" referred to above.

Along these same lines, when children grow up and enter nursery school, they should have as little exposure to screens as possible. TV and computer screens have no place in nursery classrooms. The use of cartoons instead of recreation time, such as in bad weather, or during certain times of the day, should be avoided. A few exceptions should be possible in certain situations, in particular for children with neurodevelopmental disorders for whom, on the recommendation of professionals from the coordination and guidance platforms, the use of adapted screens allowing access to appropriate content would be required.

Lastly, as in the case of early childhood care, and for the same reasons, all staff working in these establishments (teachers, specialised nursery school staff, cleaners, guests, etc.) should avoid using their personal telephones in the presence of children.

Proposal 11: Protect young children under the age of six from exposure to screens, particularly in childcare settings (day nurseries, childminders, nursery schools, etc.).

Examples of operational measures to be implemented:

- Regulate the use of screens in maternity wards;
- Completely ban screens from children's areas in group childcare facilities;
- Raise awareness, through local authorities, the Family Allowance Fund, maternal and child protection services, childminders and all those involved in home childcare, of the need to protect young children from screens, and include a clause in childcare contracts – or even in the approval clauses for childminders – on the non-use of screens in the presence of young children;
- Regulate the use of smartphones by early childhood professionals (childminders and childcare workers) when working with young children;
- Ban screens from nursery schools except for pupils with special educational needs, such as children with neurodevelopmental disorders, on the recommendation of professionals from the coordination and guidance platforms;
- Ban all smart toys apart from smart storytelling toys.

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A second important milestone from the Commission's point of view in the process of young people gradually gaining autonomy with regard to digital tools and practices and strengthening their protection against the threats to which they could be exposed concerns the issue of access to social media.

As mentioned in the section on findings, the current situation is completely unsatisfactory. Young people, including those under the age required by social media platforms to access their services (usually 13), are present in large numbers on social media and on platforms or messaging services that are unilaterally transforming themselves into genuine social media platforms (see above). However, several of these players use attention-capturing mechanisms that are potentially harmful and addictive, and their content is insufficiently regulated, leading many young people to be regularly confronted with images, videos, information, comments or situations that are offensive, inappropriate and sometimes dangerous for their own safety.

The new legal framework provided by the DSA and the above-mentioned regulatory measures proposed by the Commission (Cluster 1 and 2), should significantly improve the situation. However, in addition to this, the Commission considers it necessary to introduce a system to ensure that young people are no longer exposed to the risks that we have already extensively covered and condemned.

The Commission therefore recommends defining new rules on young people's social media account registration that are compatible with the process-based approach it wishes to promote. To this end, it proposes that, from now on, the possibility of registering for a social media account should be subject to compliance with two cumulative conditions:

- an age condition, as is already the case in principle, but with a stronger rationale: by setting this age at 15 (exemptions no longer possible before 15) and providing the means to enforce compliance with this condition;

- a condition linked to the very design of the social media platform, how its algorithms work and how its settings are defined. The idea would be that, for minors aged 15 and over, the possibility of registering for an account on a social media platform or other platform should be limited to those platforms considered to be ethical because they operate according to known principles and ensure the absence of addictive and confining mechanisms, as well as content that is harmful to young people.

The Commission considers that, while young people must be supported in their needs, particularly in terms of socialisation and exchanges with their peers, it is important that this experience should be safe for them. The Commission is therefore in favour of a clear and uniform rule allowing the use of social media from the age of 15, but only with virtuous platforms, not predatory ones.

With regard to the first condition, the Commission chose the age of 15 because it is consistent with both the current age of sexual consent and the age of digital consent introduced by the Marcangeli Act described above. The age of 15 also corresponds to an important age already set by the GDPR for the exchange of personal data. Lastly, and not incidentally, the age of 15 generally corresponds to the age of transition to upper secondary school, which represents an important stage in adolescence and in young people's journey towards gradual autonomy. Beyond the signal, which in itself can produce effects, one of the challenges will be the ability to enforce the minimum age of 15. From this point of

view, the Commission considers that current developments, with the implementation of the DSA and the measures proposed by the Commission above in Cluster 1 and 2, should strengthen the possibility of enforcing this minimum age.

With regard to the second condition, the Commission is naturally not in a position to draw up a white list of ethical social media platforms on which teenagers could register an account from the age of 15 and considers that, even if it were in a position to do so, this task could not fall to it.

However, it notes that, from the age of 15 onwards, the aim is to protect minors not from all social media but, more specifically, from certain content, features, models and environments that can generally be described as toxic,[128] in line with the provisions of the Digital Services Act (DSA) aimed at protecting minors online from certain behaviour identified as harmful (Articles 28, 34 and 35).

The primordial issue then is how to identify the services, environments and activities that are the most toxic for minors in order to impose strict age verification, in addition to the measures that can be adopted as part of the assessment of systemic risks under Articles 34 and 35 of the DSA, it being specified that age verification measures should meet the requirements of the proportionality test and therefore be the most likely to meet the desired objective while causing the least harm to the rights and freedoms in question.

In view of the judgment of 9 November 2023 of the Court of Justice of the European Union,[129] Member States may impose additional requirements in accordance with Article 3 of Directive 2000/31, known as the Directive on Electronic Commerce, on condition that these requirements do not cover entire categories of service providers but only specifically designated service providers. It should therefore be up to the national authorities to identify the social media providers that should be subject to a strict requirement to monitor accessibility. In France, this role could be entrusted to ARCOM, under the supervision of the courts.

A set of indicators could be defined for this purpose and include, for example, the following behaviours:

- harming children in general;

- causing children to suffer or be the target of harmful contact without activating the default safety settings for the sphere of outgoing and incoming content;

- subjecting children to harmful behaviour without effective recourse;

- exposing children to exploitation through harmful contact;

- collecting sensitive personal information;

- harming children through their advertising systems;

- harming children through their algorithms, especially those based on addictive feeds (i.e. where content is chosen and recommended for a specific user on the basis of their past behaviour);

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[128] On this need to target specific environments, features and models and not general categories of services, see the French Digital Council's report on the attention economy.
[129] CJEU, 9 November 2023, Google Ireland and Others, Case C-376/22.

- harming children through the use of engagement baiting, including exposure to likes and comments;
- causing children to use their services compulsively with no time limits in place.

More broadly, the Commission recommends that a convergence process be initiated at EU level, under the aegis of France and all Member States wishing to join, so that compliance with this two-condition system becomes the rule for young people's social media account registration throughout the European Union.

Lastly, the Commission stresses the importance it attaches to young people under the age of 15, who are still too young to access social media, being able, as far as possible, to benefit from prior support and preparation for their future social media experiences that cover the most important issues, so that they are not completely helpless when they reach the age of digital consent. This will have to be developed and proposed as part of the measures planned in terms of training, raising awareness and preparing young people for the digital world (see the measures on this aspect in Cluster 4 below).

Proposal 12: Allow access only to ethical social media platforms from the age of 15.

Example of operational measures to be implemented:

- Set the age of digital consent at 15 (proposal in particular to give symbolic significance to this 15-year milestone and to make it a special event, a rite of passage, under the aegis of the prefectures and/or town halls, where appropriate in conjunction with local networks);
- Create a reporting and referral system to reinforce the request to social media platforms to close the accounts of children under 15 and, where appropriate, to punish negligent platforms;
- Set up a system for selecting ethical social media platforms by entrusting ARCOM with the task of drawing up a list of non-compliant and harmful features and updating it annually, on the basis of criteria defined in accordance with the EU framework and the principles laid down by the law and regulatory authorities;
- Launch a French initiative at EU level to promote these new rules on young people's social media account registration as part of convergence.

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Lastly, as part of the process leading to gradual change in the use of digital technology and equipment according to age, the Commission has also looked at the issue of young people's use of mobile phones, and smartphones in particular, which we have seen crystallise a large part of the issues and thinking on screens. While the identification of age limits is necessarily an imperfect choice in the face of risks and uncertainties, it seems essential to the Commission, including in response to demand from parents who are sometimes looking for support in their decisions regarding their children.

From this point of view, the Commission considers that children under the age of 11 should be strongly discouraged from using mobile phones, especially smartphones. Ownership of such a device before the age of 11 overly exposes children to the various health risks mentioned above.

This is at an age when they are particularly vulnerable to the risks of myopia, exposure to blue light, sleep disorders and sedentary lifestyles. It also exposes them, when the phone provides internet access, to inappropriate uses and offensive content, which can create lasting problems.

A first stage is possible at the age of 11. This age corresponds to an important stage in a young person's life, as they gradually emerge from childhood and prepare to enter adolescence. This is the age at which they usually start lower secondary school. Their relationship with their parents is changing and they are beginning to enter a life cycle in which they will be a little more independent. The fact that secondary school is a long way from the family home, that they are using transport without being accompanied by their parents and that they are beginning to engage in certain activities independently (e.g. outdoor leisure or sporting activities) may mean that they have a greater need to be able to contact or be contacted by their parents, carers or even friends. For all these reasons, it would seem appropriate to propose that the age of 11 should come with the opportunity for young people to have their first mobile phone. However, this phone should be limited to the ability to make calls and send messages, with limited rate plans, but not yet to be able to go online independently. The Commission therefore recommends that basic or flip phones should be preferred at this age. It believes that the digital industry has a key role to play in offering adapted devices and plans that are limited to phone calls and text messages, and are therefore cheaper. A market exists and the implementation of this recommendation should bolster it. Strong political support is needed to help economic stakeholders invest in this market.

The question of at what age should the brakes on acquiring a first smartphone be lifted was widely discussed within the Commission. Given the current situation, the difficulty of protecting young people from addictive and toxic content, and the challenges of somatic health (especially visual health), the age of 15 for access to a smartphone could be defended; it is also consistent with the age of digital consent and the GDPR, which allows personal data to be shared without parental consent at this age; it would be consistent with the symbolic step of entering upper secondary school, whereas mobile phones cannot be used at lower secondary school; and lastly, it would significantly reduce the social pressure to buy a phone, expectations expressed by certain groups and civil society organisations.

But at the same time, by the age of 13, children have fully entered adolescence and have become even more independent. Their activities outside the home are more numerous, and while they naturally still need the support and guidance of their parents, the role of their peers and the information they can obtain on their own are becoming more important. Some argue in this respect that this age should be considered, provided that children are robustly prepared for the smartphone stage.

At the end of its deliberations, the Commission considered, without encouraging personal smartphone use from the age of 13, it could be deemed possible to provide young people with internet-enabled phones from the age of 13, on condition that they are not allowed to access social media and illegal content.

These age thresholds will need to be regularly reassessed to take into account the improvements that have been made in the protection of minors and to take advantage of the latest scientific developments.

Proposal 13: Plan gradual familiarisation with mobile phones:

- **under the age of 11: no phone;**
- **from the age of 11: phone without internet connection;**
- **from the age of 13: smartphone without access to social media and illegal content;**
- **from the age of 15: additional access to ethical social media.**

Examples of accompanying operational measures to be implemented:

- Provide for the systematic declaration of users' date of birth when purchasing a smartphone and subscribing to a mobile plan;
- All smartphones purchased in France should be labelled as "not suitable for children under 13";
- Encourage mobile phone service providers to offer entry-level plans adapted to children according to their age:
  - encourage mobile phone manufacturers to develop and market phones (not smartphones) that are suitable for young people, based on age-specific recommendations;
  - encourage mobile phone service providers to offer youth plans or adapted phone plans (without an internet connection, possibly with less capacity in terms of call time and a limited number of text messages, and therefore cheaper).

4.3.2- Have a consistent, controlled and tested strategy for digital technology in schools

The issue of the place of screens and digital technology in schools, both during and outside school, was a key point of debate within the Commission. In fact, the Commission was driven by the same questions and debates as those that affect society as a whole on this subject.

Health and environmental issues argue in favour of limiting the use of screens (particularly individual screens) in schools, as well as limiting the use of screens at home, including taking into account the risks associated with the difficulties in supporting parents and the potential for circumventing the use of screens.

In addition to these challenges, there are the equally strategic and pressing issues of the essential need to train pupils on using digital technology, progressively throughout their learning process, and to implement uses that can support the teaching process with high-quality standards, combining teacher training and taking account of the school context.

The Commission did not reach a general consensus on the ideal level of use of digital technology in terms of equipment and pedagogical uses. The Commission therefore recommends that society as a whole and the public authorities take greater ownership of the subject of education in and through digital technology.

With this debate in mind, the Commission wished to emphasise its agreement on the principle that it is absolutely necessary to regain control of the screens and digital technology provided to children, in terms of equipment and teaching methods. This has enabled it to present, in the sections that follow, four strong proposals on which there is complete consensus among the members, and which have enabled the Commission as a whole to come together over and above the divergences mentioned above.

A number of principles have guided the Commission's thinking on the place of screens in schools and led it to formulate its recommendations. Among these principles, priority should be given to:

- the fact that digital technology should not remain an unthought of issue, nor be viewed solely in terms of technological deployment. The issues of health, equal opportunities and pedagogy must be considered in order to build a structured reference framework shared by all school stakeholders: education communities, parents, pupils, local and regional authorities and administrations, in the interests of the children themselves;

- the strategy implemented in schools must be consistent with the messages sent to parents elsewhere on the uses to be made of screens and digital technology in the private sphere, in order to avoid confusion that creates inefficiency and to strengthen parents in their dialogue with children;

- in all cases, children must be supported in their use of digital technology and trained to enable them to develop sufficient critical thinking skills and to have the necessary understanding and distance from digital technology and the opportunities it offers.

Having set out these principles, ***the Commission first considered that it was important to clarify the framework within which school digital equipment policy should be defined.***

As noted above, the division of responsibilities between the various stakeholders (central government, local authorities, schools, etc.) leads to school digital equipment policies that are insufficiently coordinated, poorly linked to educational projects and uses that should be the driving force behind them, sometimes insufficiently supported in terms of training for their users (teachers and pupils) and costly in terms of public money when they are not linked to a proven need and actual uses, such as training.

The Commission is therefore proposing that the principles guiding the initiatives of all school digital equipment stakeholders should be thoroughly re-examined, so that each screen brought into schools is associated with identified educational purposes, is proportionate to needs and is accompanied by the information and training required for its use. At the same time, it is important that actual needs can be met and that the level of equipment is calibrated accordingly, with quality teaching resources that are equal to the challenges.

A set of general principles can already be mentioned regarding the overall strategy to be redefined in terms of equipment, and in particular the fact that this strategy must take account of health imperatives (the policy for deploying screens in schools must be defined taking account of health issues), pedagogy and education (the screens and digital devices used in schools must have a pedagogical purpose), but also in terms of the environment (taking into account the environmental impact) and even public money (the real usefulness of the digital technology and equipment deployed in relation to the costs incurred).

The Commission insists on the fact that, in all cases, the deployment of equipment must be carried out in conjunction with, and within the framework of, a school, educational and pedagogical project developed and shared with parents.

On a more operational level, while it is not up to the Commission to go into the details of what the future equipment strategy should be, it does propose that it should be based on the following considerations, which are consistent with the age-specific uses of screens that the Commission intends to promote:

- No screens in nursery school, in the classroom or during after-school care, or for occupational use during break times, except in special situations (e.g. to support children with special needs);

- No individual equipment given to children in primary school and avoid using screens as a fun activity (showing cartoons, for example) during after-school care;

- Guaranteed access, as soon as necessary, to appropriate equipment and materials for children with special needs (children with learning disabilities, sick children, etc.), without wandering and immediately for families.

The Commission notes in passing that this strategy will also need to clarify the role of interactive whiteboards, particularly in primary school, where it is essential to assess their effects on the health – and in particular the visual health – of children sitting near them, as well as the environmental aspects of their life-cycle assessment.

Proposal 14: Define and direct a digital equipment policy that respects children and reconciles health, pedagogy, education and environmental issues.

Examples of operational measures to be implemented:

- Establish a shared framework between the central government and local and regional authorities for the deployment of individual and collective equipment, as well as for the standards required of equipment, in schools and during extracurricular activities. Involve parents' associations in this work. This policy should be directed on the basis of common, shared principles (including those set out above);
- Oversee the deployment of digital teaching and learning tools in schools for the benefit of children:
    - o Establish a strict framework for the assessment of any new tool that is intended to be widely distributed;
    - o Systematically train the education community in the use of all new tools.

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In addition to the issue of screens as tools, the Commission looked at the educational and pedagogical digital content on offer, particularly in schools.

The findings regarding the content offered by the various digital educational programmes and resources are similar to those made above for equipment. Many things can be deployed, even though the framework and strategy that should guide this deployment were insufficiently defined, if at all, upstream. What's more, the contribution and added value of these digital programmes and resources are often insufficiently assessed and promoted by public policy-makers.

The Commission therefore recommends that any deployment of digital educational programmes or resources in schools should be based on a pedagogical approach and systematically linked to a prior trial in order to be able to assess, where appropriate, the educational contribution, benefits and risks of the tool. It also recommends that prior impact studies be carried out systematically in order to clarify and support the appropriateness of deploying a tool on a large scale.

The Commission is proposing to label digital educational solutions that have been scientifically validated for their positive impact on learning, and to make them available to teachers via a dedicated, secure interface.

Once the decision has been made to distribute a digital resource on a large scale, or even to make it widely available, it is probably even more important than for hardware to provide support and appropriate training for teachers, so that they can make the resource their own, assess its relevance to their own practice and derive maximum benefit from it for their pupils.

Lastly, it is specified that, as with equipment, it is essential that pupils with special needs (children with learning disabilities) or who live a long way from school have access to the resources needed to provide them with the best possible support. Similarly, the need for continuity in teaching (to cope with an episode such as a health crisis, for example) means that quality resources that are easy to use and fully understood must be available in all circumstances.

Proposal 15: Systematically link the deployment of digital educational programmes and resources in schools to a trial, a prior impact study before wider distribution and training for teachers in their pedagogical uses. Guarantee access to appropriate digital tools for pupils with special educational needs, children who are far from school or where there is a break in educational continuity. Label digital educational solutions that have been scientifically validated for their positive impact on learning and make them available to teachers via a dedicated, secure interface.

Examples of operational measures to be implemented:

- Undertake a detailed assessment of the place of digital technology in current teaching and educational strategy;
- Carry out systematic impact studies to assess, on a case-by-case basis, the actual pedagogical and educational contribution of digital teaching and learning resources before they are rolled out across the board;
- Ensure access to appropriate digital educational content for children with special needs;
- Ensure educational continuity by using and making available appropriate digital resources;

- Create a label to distinguish digital educational solutions that have proven their positive impact on learning.

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The Commission also considers that a precise framework should be proposed for the use of digital work environments and Pronote.

Digital work environments are now widely deployed, although usage may vary from one school to another and among teachers and families. Designed to support a whole range of services electronically, they have become an everyday tool for the vast majority of school stakeholders.

However, some of these uses can be problematic, as has already been pointed out above, sometimes with a paradoxical injunction that leads young pupils to spend time on digital work environments or to view them at inappropriate hours, while at the same time they are asked to moderate their use of screens.

From the Commission's point of view, the use of digital work environments should be more closely supervised and protective settings should be provided for young people.

Among the rules likely to constitute an overall framework for the use of digital work environments, the Commission recommends firstly that digital work environments should no longer be used for primary school children. This does not prevent exchanges between parents and teachers, but pupils should not have to use digital work environments when they are in elementary school in particular.

For pupils above the primary school level (lower and upper secondary school pupils), we recommend:

- systematically configuring children's access so that updates and notifications sent to them are interrupted after 7pm and resumed at 7.30am the following morning. This will make it possible to reserve a period of time during which pupils are protected from the arrival (and expectation) of any new information and thus benefit from a genuine right to disconnect. On the other hand, teachers will still be able to enter information and send information to parents at any time;

- that parents should no longer be able to view grades before children have been informed of their marks in class. This would make it possible to re-establish a calmer environment for pupils, and a more ethically desirable way of operating, consisting of the principal concerned being informed first of the information that concerns them.

More broadly, it has become important for families to be better informed about what digital work environments are, how they work and how they are used. An hour of training at the beginning of the year would meet a real need and could be systematically offered as a "getting to grips with the tool" session, with the option of accessing online training at any time. The message that it is not necessary to provide your child with a personal digital device to access the digital work environment could be disseminated on this occasion and then regularly thereafter.

Proposal 16: **Establish a strict framework for the use of Pronote and digital work environments, with default settings to protect children.**

Examples of operational measures to be implemented:

- Do not develop a digital work environment for primary school children (use reserved for parents or by parents);
- Beyond primary school:
    - Set up digital work environments so that updates/notifications are interrupted after 7pm and resumed at 7.30am the following morning, to avoid receiving notifications during school holidays;
    - Ensure that no grades will be distributed to parents on digital work environments before pupils have been informed in class;
- Organise regular communication from schools to parents about digital work environments and the fact that children do not need to have a personal device to access them;
- Regularly plan, preferably at the beginning of the year, an hour-long training session for parents on digital work environments and provide in parallel a training resource online.

<p style="text-align:center">*</p>

Lastly, the Commission looked at the use of mobile phones in schools, more specifically in lower and upper secondary schools.

On the basis of the information it received during its work and during hearings, in particular with school stakeholders (administrations, school heads, teachers' representatives, parents' representatives, etc.), the Commission considers that, on the whole, the ban on mobile phones in lower secondary schools is respected and does not present any major problems. However, certain local or occasional situations of reduced respect or tension may persist.

It is therefore proposed that, where necessary, the ban could be made more effective by deploying additional tools to those already in place. A toolbox for heads of schools could be designed, including:

- the presentation of a range tools that could be used, inspired in particular by the practices of certain schools, ranging from flexible measures (such as the ritual of switching off mobile phones at the start of the day) to the introduction of more restrictive measures (such as the setting up in a given school of mobile phone boxes or secure lockers at the entrance to the school in which pupils would have to leave their phones). Heads of secondary schools would be entirely free, if they felt it necessary, to draw on this toolbox to consider, after consultation with the school's educational staff and parents, or even the pupils themselves, implementing some of the proposed measures in their school;

- tangible actions to reduce the incentives to use phones in class. In this respect, two of the main reasons why pupils look at their phones in class – to check the time and the messages their parents send them during school hours and the fact that pupils can consult the time – could be limited by:

- o getting all parents to sign a charter reminding them that mobile phones are not allowed in school, setting out recommended best practices and, where applicable, the school's own rules, and asking them to undertake not to send messages to schoolchildren during the day;

- o putting clocks in all classrooms so children can see the time.

The Commission examined the question of banning smartphones from upper secondary schools, along the lines of what is done in lower secondary schools. The feedback it received on this point indicates that the problems related to mobile phones in upper secondary schools are fairly limited. Given this situation, the fact that the pupils concerned are older (sometimes even of age in the final year of secondary school or in preparatory classes) and the fact that, as a general rule, they have more mature mobile phone usage than secondary school pupils, it deemed it unnecessary to extend the ban to upper secondary schools.

On the other hand, the Commission believes that it would be interesting and useful for upper secondary schools to put forward a shared strategy on the place and use of mobile phones. To this end, the Commission suggests that provision be made, for example, for:

- identifying "phone-free" areas (in addition to classrooms), to be determined in connection with and based on the school's general policies, and in agreement with student representatives;
- supporting schools that volunteer to experiment with smartphone-free upper secondary schools (experiments made possible under Article 34 of the Education Code), on the basis of what can be done, for example, in a school in Sommières in the Gard *département*, and assessing the impact of this initiative, particularly on the general atmosphere in the school and relations between pupils.

Proposal 17: Strengthen the implementation of the ban on mobile phones in lower secondary schools, and systematise in each upper secondary school a shared framework on the place and use of mobile phones in school.

Examples of operational measures to be implemented:

- For lower secondary schools:
  - o Identify best practices in implementing the ban on mobile phones in lower secondary schools. Develop a toolbox for schools to draw on;
  - o Get parents of schoolchildren to sign a charter to avoid sending messages during the day;
  - o Put clocks in all classrooms;
- For upper secondary schools:
  - o Provide "phone-free" areas in connection with and based on the school's general policies, and in agreement with student representatives;
  - o Support schools that volunteer to experiment with smartphone-free upper secondary schools and assess their impact.

4.4- Cluster 4: Carefully prepare young people for their autonomy when using screens, empowering them and, at the same time, giving children and young people their rightful place in community life

Bringing young people back to the forefront of society's concerns, allowing them to make the most of their progressive journey towards independence, freeing them from some of the hindrances that currently glue them to their screens, empowering them and giving them the opportunity to have full control of digital tools by putting these tools back in their rightful place are priorities from the Commission's point of view.

To achieve these goals, several sets of actions need to be carried out together. The first set involves educating and training young people in digital affairs by strongly supporting them — at school but also more generally in spaces designed for them — through various intermediaries, as they discover and understand tools, their uses, their strong points but also their risks (4.4.1). The second set of actions aims to offer them appropriate solutions for their needs with the proactive and systematic deployment of "countermeasures" to counterbalance or limit some of the effects of screens (4.4.2). The third set of actions relates to alternative measures to screens that may be offered to young people and, more generally, to ensuring these measures are made known to children and young people and that they are effectively implemented in society (4.4.3).

4.4.1- Educate and train young people in digital affairs and support them as they discover and understand how to use digital tools

Effective information and education in digital technology are essential prerequisites for young people to have full control over screens, promote virtuous practices and prevent possible dangers. This is a challenge for young people themselves, their culture, their understanding of the contemporary world, their ability to integrate into modern society and for the prevention of misuse.

Information measures and digital education for young people must be carried out at school (4.4.1.1.) but also, more broadly, outside school (4.4.1.2.).

4.4.1.1- Pupils need to be more aware of and educated on the digital world throughout their schooling

Schools must prepare young people to mature, work, fully grasp the workings of the digital world and acquire the necessary knowledge ~~and~~ technical skills to achieve 'digital literacy' i.e. knowing how to use a computer, having basic word processing skills, knowing how to learn and carry out research on the Internet, knowing how to carry out the most common actions that are useful for both personal and professional life, knowing the basics of coding and, now, honing AI prompt skills, i.e. the communication of a command to generative artificial intelligence.... Digital education must therefore be incorporated throughout pupils' entire academic career from primary to upper secondary school, and be backed by a solid scientific and humanities curriculum.

Recent developments (overhaul of moral and civic education programmes, consolidation of media and information education[130], introduction of a digital skills and computer sciences specialisation (NSI) in upper secondary school, development of coding classes and deployment of the PIX digital skills certification) are noteworthy and should be commended. These developments must nevertheless be considered and integrated into an ambitious, less fragmented and coherent curriculum progression, from a proportionate and reasonable use of digital tools, to the acquisition of knowledge of the digital world as an environment and medium, from primary to upper secondary school.

From this point of view, it should be stressed that digital education and the complete familiarity of young French people with digital tools also represent a real challenge of sovereignty and national competitiveness at a time when digital technology occupies a central place in the economy, where economic giants dominating the digital sector are overwhelmingly from major powers outside Europe and the accelerated development of generative artificial intelligence marks a new technological revolution.

But, in addition to acquiring technical skills, schools are also one of the essential places where awareness and education about digital technology, its challenges and its culture must be provided to best support young people in developing a full understanding of the tool and building a critical mind, free and untethered from the technology and content accessed through screens.

In order to do this, it is important to:

- incorporate digital education early enough (from primary school), adapting it naturally based on age, while remaining consistent with the message of the need to prioritise sensible use of technology, especially given the health effects of some screen-related technologies on the younger generations. This education must therefore be available, as is already the case, even with the digital tools themselves not being used (e.g., learning the fundamentals of programming can be done by controlling small robots);

- ensure continuity for digital education, rather than organising fragmented, one-off sessions that are provided to a varying extent from region to region;

- considerably enrich and consolidate the content of digital education at school, in line with research findings, in order to address all aspects relevant to young people and to ensure secure autonomy. In particular, it would be useful for schools to teach children the fundamentals of:

  o the functioning of the brain when interacting with screens, and the cognitive biases that can occur in order to enable them to understand their own emotions and reactions;

  o issues related to health (awareness of health risks, stepped up in the event of excessive usage) and environmental issues related to digital technology;

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[130] New programmes were published in January 2024 by the Programme Board of the Ministry for Primary and Secondary Education. They provide for additional hours devoted to teaching IML within ethics and civic education programmes, and encourage an interdisciplinary approach, from infant school to upper secondary school.

- the business model of the digital sector and knowledge of the design principles and the driving forces behind certain social networks, algorithms, video games and artificial intelligence systems;

- the rights and responsibilities in digital life so that young people are well aware that the digital space is not a lawful space and that the abuse they may suffer or which they may be responsible for has the same degree of seriousness, and the same potential consequences, as in the real world;

- "key" or so-called "21st century" skills to ensure autonomy: critical thinking, collaboration and communication, creativity, language proficiency, problem solving in a group.

In addition, involving schools in supporting young people in their progress towards independence when using screens is vital. Thus, in line with the main stages of the process presented above by age, schools could take action at certain key moments that constitute rites of passage (e.g. access to smartphones, access to social media, etc.).

Non-exhaustively, in order to implement these various principles in practice, the Commission proposes in practice that:

- media and information literacy included in ethics or civic education programmes, as well as the PHARE anti-bullying programme, be adapted to focus more on children's needs and the reality of his or her relationship with digital media, for example by integrating information on the workings of the child's and teenager's brain, their sensitivity to reward mechanisms, the cognitive biases that may be present in accessing and sorting information, and the functioning of social media and digital platforms.

- information officer teachers in lower and upper secondary schools be introduced, who are recognised and promoted as part of this objective with a view to coordinating an educational project for children, ensuring a more integrated and practical understanding of the challenges of the digital world that is currently rather patchy and dispersed among too many subjects or programmes.

- each school appoint within it a team of adult officers working with the children with regard to their digital issues, allowing both reactivity and confidentiality in their exchanges. This team will be able to call on supervisors, head school counsellors, information officer teachers, psychologists, etc., depending on the human resources locally available and trained for this purpose;

- each revision of the curriculum systematically involve a discussion on the means of promoting, through the subjects taught, the skills necessary for digital life as in real life (empathy for example), as well as the drivers of the workings and uses of digital tools and media.

Proposal No 18: Educate and inform pupils from primary school and throughout their schooling on the digital world, its model, its content, its uses, the opportunities it offers and the dangers it may present in an appropriate manner based on their age

Examples of operational measures to be deployed:

- Incorporate, starting from primary school, digital education, including without using digital tools/through non-digital activities, and ensure a routine is in place for these lessons;
- Enrich the content of digital education by integrating all aspects relevant to young people's use of screens and ensuring secure autonomy (how the brain works when interacting with screens, issues related to health, the environment, rights and responsibilities in digital life, etc.);
- In the school environment, prepare for all the key moments of children's digital lives and consider them as milestones;
- Adapt PHARE, media and information literacy and ethics and civics curriculum programmes to better focus on children's needs
- Mobilise and promote the essential role of information officer-teachers in middle and upper secondary schools in order to coordinate an educational project for children;
- Set up in each establishment a team of adult officers to handle children's digital issues, created on the basis of the resources present locally;
- Incorporate in programme reviews discussions on resources for acquiring the skills needed for digital life.

4.4.1.2- Young people must also be able to be educated, supported and safeguarded as they discover digital technology outside of school

The idea of vastly increasing the number of opportunities, channels and resources to enable young people to benefit from support and security in their experience of learning about digital life is not new. Many stakeholders and schemes are already strongly mobilised to provide support and meet young people's expectations and respond to questions about digital technology. However, they are not always sufficiently known to young people, nor is their action sufficiently coordinated, particularly locally.

It would therefore seem necessary to further develop the possibilities for young people to contact officers when they need support or advice, or need to discuss a specific matter with them.

The Commission proposes:

- encouraging online and offline initiatives as part of this process of supporting young people digitally, provided, however, that great care is taken beforehand to ensure the quality of the support offered and, above all, the well-intentioned nature of the contact persons. In particular, it suggests that:

   o the "Web Walkers" approach, which makes it possible to support young people in their digital activities and ensure an online educational presence, should be better promoted and structured at national and local level, under the aegis of family allowance funds (CAF) in particular;

   o students, who are closer in age to the young people concerned, and who can therefore propose a different approach, should also be mobilised for this approach, as is already the case in certain regions;

- raising children's and young people's awareness, by all means (school, town hall, sports and cultural clubs etc.) of where to find adults officers to help them address a need or difficulty

related to their digital life. This entails carrying out analyses and assessing the current situation. This task of regional analysis and mapping could be carried out by municipalities (by the "youth affairs" departments for those that have them).

- ensuring that these confidential and private discussions can be held in an increasing number of ways (online but also offline in the form of in-person consultations, for example in communal rooms, or in places where young people can spend time: youth and cultural centres (MJC), multimedia libraries, neighbourhood community centres, etc.).

- seeking to further structure and coordinate actions at local level by organising, under the aegis of local authorities wishing to engage and/or CAFs, for example, or even non-profits themselves. Regular meetings of stakeholders in this area could thus be planned to discuss issues relating to the local area, practices, and sharing resources. In the same vein, common and uniform training for stakeholders could be envisaged, with precise specifications laid down.

- encourage local authorities to take advantage of major annual digital awareness events (e.g. Safer Internet Day, Anti-Bullying Day, the "10 days without a screen" challenge, etc.) to take action with young people, in collaboration with local professionals and youth centres.

Proposal No 19: Appoint adult and student officers for online and offline digital affairs and create safe spaces for dialogue for children

Examples of operational measures to be deployed:

- Carry out local analysis and mapping of the stakeholders and schemes in place in the area to support young people as they discover the digital world
- Disseminate widely among young people and families, by any means (town hall, schools, associations, etc.), the location of the stakeholders present in the local area and the methods for contacting them
- Structure and publicise "Web Walkers" everywhere, under the aegis of the CAF in particular
- Promote the involvement of students, coordinators and other professionals and volunteers in these processes, enabling them to better understand how young people use such technologies and to feel more comfortable in their advisory and support role
- Ensure access to reference material to support this commitment and organise regular multidisciplinary exchanges between stakeholders at local level
- Organise places for 'screens together', in particular for video games, with the aim of providing young people with better support and understanding of how these ecosystems work

4.4.2- Set a level of ambition in line with the needs of children, with the proactive and systematic deployment of "countermeasures"

In addition to the education and support that can be provided, better support for children and young people also means taking better account of their basic needs and deploying a whole series of "countermeasures" to offset the negative health effects of using screens and countering some of the harmful underlying messages or viral trends online.

Measures must therefore first be proposed to counter, insofar as possible, some of the adverse effects of screens on the health of children and young people. As mentioned above, screens have proven significant adverse effects in terms of sleep, a sedentary lifestyle and reduced physical activity and also can damage eyesight. Beyond the precise and necessary measures implemented to act on these different aspects of somatic health, this initiative more generally constitutes a broad message of taking charge of children's health. It appears that this message needs to be hammered home in conjunction with, as a guiding thread, the need to step up health education among young people, which goes far beyond the scope of this analysis and the issue of just screens.

The Commission therefore proposes to step up children's health education, in part for the aspects most affected by the large presence of screens in their daily lives. An overall plan could thus be drawn up with targeted messages and appropriate action taken, including awareness-raising initiatives:

- the issues relating to sleep and the need to better take into account the "natural cycles" of children and teenagers. In this regard, the Commission recommends strong communication initiatives on the importance of sleep throughout life, especially during childhood. This may include disseminating information on the subject and mobilising networks of health professionals. The Commission also proposes that all the measures should, in the social organisation, address the need to give more importance to young people's sleep. It suggested that consideration should be given, in particular, to changing the school timetable in lower and upper secondary schools in such a way as to adapt it to the actual physiological needs of young people (including without the impact of screens) — for example, postponing the start time for lower and higher secondary schools classes to 10am;

- the issues of physical activity and the fight against sedentary lifestyles. Much has already been done on this aspect, whether it be awareness-raising campaigns and nutrition and movement campaign messages, and what has been done to promote sport. In this regard, the Commission recommends going one step further and, in particular, studying the possibilities of increasing physical activity in schools, particularly among children under 10, with the goal of exceeding the 30-minute-a-day target;

- the issues of the eyesight of young people and, in particular, to combat short-sightedness, the need to increase time outdoors (at least 2 hours a day), whether with the family or at school.

As part of the plan proposed by the Commission, it is also recommended to carry out a systematic assessment of physical fitness in primary school, and then every year in lower secondary school, in order to have annual data on the health of children, and to identify vulnerable children. This assessment could, for example, be conducted during physical education classes.

Proposal No 20: Step up health education, and specifically:

- **in relation to sleep, open up the debate to better adapt schools to the physiological needs of young people;**

- **in relation to the risks associated with sedentary lifestyles and insufficient physical activity, better use physical education and sports classes as an opportunity to monitor children more closely;**

- **in relation to eyesight risks, provide more opportunities for outdoor time.**

Examples of operational measures to be deployed:

- Develop a plan for health education for children and young people, taking into account the issues of sleep, eyesight and the fight against sedentary lifestyles;

- Adapt schools to take the physiological patterns of children into account to a greater degree, for example by changing, if necessary as part of an initial trial phase, the start time of classes in middle school and high school to 10.00a.m. It needs to be made clear that this is not an initiative intended to undermine an 'earlier bedtime' for teenagers: it is not a solution for solely increasing the amount of sleep, but rather one which directly corresponds to the biological rhythm of children and teenagers.

- Conduct a systematic assessment of physical fitness in elementary school and then every year in college to have annual data on the health of children, and to identify vulnerable children;

- Explore opportunities to increase physical activity in schools, especially among children under 10 years of age (exceed the 30-minutes-per-day target).

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Measures must then be devised to combat certain harmful trends and messages that propagate online and can strongly impact young people.

As mentioned above in the findings, and the list being non-exhaustive, young people are regularly exposed through screens to violent, hateful, sexist, misleading content, content intended to allow the person who distributes them to manipulate, or pornographic content. Young people are at a time in their lives when they still lack models to live by, have a need to try things out and seek validation, and may understand those messages to be the 'norm' to relate to. They can therefore be particularly disturbed by this content and affected as they construct their identity.

More generally, the whole issue of 'social harmony' is raised and sometimes undermined in a way that is exacerbated by certain content.

The measures must therefore make it possible to disseminate real "counter-messages" in terms of gender equality, respect for women, sexuality, empathy, acceptance and respect of others and combating hatred in order to let the young people concerned know that there is an 'other reality' than that depicted by the content they look at.

<u>Proposal No 21</u>: Devote considerable time and effort to incorporating all forms of 'social harmony' education (sex education and emotional learning, education on gender issues, education on psychosocial skills, civics etc.) which has been systematically impacted by the amplifying effect of the digital world

Examples of operational measures to be deployed:

- Systematise the incorporation of issues relating to digital life into all these forms of education where applicable;
- Identify resources to ensure access, geared to the issues at stake, for these classes in schools;
- Propose alternative content and access to it in collective places (libraries, multimedia libraries, community centres, healthcare centres etc.).

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4.4.3- Conceive a large-scale plan to diversify the activities proposed to young people in order to develop accessible and visible alternatives to any kind of screen, and to find a place for them in the lives of the younger generations in society

The Commission believes that it is essential to invest heavily in the development of genuine 'alternatives' to screens that are easily accessible and enable young people to abandon any kind of screen by rediscovering activities and experiences other than those offered by televisions, computers, tablets, smartphones, game consoles and other digital devices. Indeed, screens are seen as a sort of 'safe haven' that are a natural choice when there are no other possible activities.

A wide-ranging approach must be taken in this regard, and requires the whole of society to assume their responsibilities (public authorities, companies, non-profits, families etc.).

These actions must get children 'out of the house' and separate them from screens in their homes. Alternatively, when they are outside and have to pass time in a waiting area (train stations, airports, underground or bus stations, in a shopping centre or in another space in which they are with their parents) these initiatives must provide other alternatives to occupy children during that time so not that they do not end up using a smartphone or any other mobile digital device or toy.

Among the possible avenues to be explored, in addition to what can already be promoted and organised in terms of regular sporting activities in a club or association format in particular, with a view to also making these alternatives and the 'world outside the screen' widely visible and accessible, the Commission has identified the need to:

- provide playgrounds (without screens) in all waiting areas, in particular in the transport sector (train stations, underground stations, bus shelters, airports) and in government departments and buildings open to the public;

- ensure the availability of child-friendly spaces (with board games and boxes of books) in various public spaces or places where children are likely to spend time (e.g. shopping centres, trains);

- repopulate the public space with fun, 'good and practical' street furniture for children (e.g. replacing certain digital advertising screens in bus shelters and in cities with abacus-format games/wooden games and toys; boxes of books, etc.);

- launch a large-scale plan for the deployment of street libraries, operating alongside associations that support the oral culture and the transmission of culture;

- arrange for all children to visit community spaces in their town/city (libraries, multimedia libraries, etc.) to encourage their participation.

The systematic mobilisation of the free time, experience, commitment and initiatives led by old-age pensioners and volunteers to offer activities to the younger generations could be an interesting prospect. The development and support of places and events promoting intergenerational exchanges (within fab labs, multimedia libraries, community centres, etc.) and all opportunities for the exchange of knowledge between generations should be encouraged from this point of view.

Proposal No 22: Populate the public space with alternatives to screens for children, and find a place for them in this space, including in noisy environments

Examples of operational measures to be deployed:

- Mobilise local authorities in this strategy to develop alternatives (initiatives for street furniture, visits to cultural sites in the municipality or *département*, etc.) and support enrolment in libraries and multimedia libraries;
- Mobilise public authorities and entities and transport companies to provide suitable spaces and tools (without screens) for children, including on trains, for example by creating playgrounds in each train in a dedicated carriage;
- Promote and publicise the places and events providing an intergenerational exchange (fab labs, multimedia libraries, community centres, etc., which are all opportunities for knowledge exchange);
- Consolidate the reading skills of children and adolescents, based on their practices and tastes in this area.

4.5- Cluster 5: Better equip, better support and provide better digital education for parents, teachers, educators and all those who work with children, while building a society that puts screens and the digital world back in their rightful place

Beyond support and digital training actions for children and young people, it is all adults, first and foremost parents and educators in the broadest sense, who need to be supported and equipped to, in turn, be able to support young people in their interactions with screens.

Parents and families should therefore be given the power to act and foster a constructive and responsible dialogue with young people on digital matters, in particular through specific actions to support parents (4.5.1). At the same time, all professionals and volunteers in contact with young people and children must also be equipped to work with the same positive approach to provide comprehensive support for young people entering and living in the digital realm (4.5.2). More broadly, given the health, environmental and even anthropological challenges raised by the omnipresence of digital technology in our modern world, the issue of the place of screens in our society must be raised in order to put these tools back in their rightful place, that is to say at the service of humankind (4.5.3).

4.5.1- Empowering parents and families

According to the Commission, parents naturally cannot be held solely responsible for the changes, and sometimes misuse, observed when their children use screens. Moreover, the various proposals set out above seek to influence the various factors, other than those linked to parental supervision, which contribute to the current state of usage and harmful practices.

Parents, however, have an essential role to play, both as educators and as protectors of their children. Parenting is therefore one of the critical issues identified by the Commission, even if it is not the only action area to be mobilised.

Parents should therefore be supported as early as possible, starting in particular with future parents, with regard to the role of screens and digital technology in order to ensure that a human-centric approach and the parent-child relationship are once again the central concerns in screen usage.

To that end, the Commission considers that parents must be supported continuously and particularly during the 'key stages' of childhood and adolescence. Several categories of measures can thus be envisaged in this regard:

- Systematisation of awareness-raising and support measures for expectant parents and parents of very young children, including the dissemination of appropriate information starting from pregnancy on screen-related issues and risks of technoference, awareness of good practices, presentation of recommendations concerning children's exposure to screens in the first months and years of their lives, and explanations on the reasonable use of screens when in the presence of young children. In terms of operational measures, the personal health record given at the birth of the child must be a means to provide useful information on the subject of screens, and this information must be updated as often as necessary on the 'online' version of the record. The Commission took note of the work undertaken on this matter under the aegis of the Ministry of Health. A 'monitoring grid' on screen usage and screen time that is to be completed and used as a survey at each prenatal check-up and then after birth and throughout early childhood would also be a very useful tool for assessing the actual situation and could provide more support and appropriate advice to families who need it most

- The organisation of sessions for discussion, throughout childhood and adolescence, on the child's exposure to screens. These sessions could thus be organised at some of the key stages of healthcare, for example during the 'annual health check-ups' planned from the age of 3 to the age of 6, and then at some point during the three 'periods' set out up to the age of 16: 8-9 years; 11-13 years old; 15-16 years old. These moments would also be an opportunity for parents to get an outsider's perspective of their child's screen usage (and that of the whole family, if necessary), to be reminded of good practices together with their children, and to be advised and supported if necessary by health professionals;

- Enhancement and systematisation of appropriate quality support measures provided for 'digital parenting' that are implemented across all regions by the public authorities, the various stakeholders involved and the non-profit sector in particular. This entails:

    o the deployment, in all regions, of parent/child workshops dedicated to digital technology with a collective organisation to be set up, under the aegis of *département* prefects, in conjunction with the Ministry for Primary and Secondary Education, early childhood stakeholders, CAFs and community and non-profit education networks in order to bring all initiatives into line and benefit from a genuine 'synergy';

    o essential support for the deployment of a high-quality offering through the certification of the proposed actions but also of structures, devices and tools to support digital parenting to make virtuous initiatives thrive (akin to, for example, the "P@rents, parlons numérique" label, extended to any scheme, whether online or offline, allowing a parent to be informed and supported on the topic in order to show that this support can be provided in different ways). Beyond the recognition of specific actions of interest, this certification strategy must be able to effectively identify support networks (stakeholders, places, projects, etc.). A website dedicated to this label would make it possible to find all the local or online certified schemes;

    o ensure, through schools and town halls for example, that specific information is communicated at each "key moment" for children (starting lower secondary school, getting their first smartphone, signing up for their first social media account, etc.) relating to the available and enactable support measures concerning digital parenthood;

- the deployment of a 'global health' programme for the most vulnerable families,[131] with a greater focus on screens. As part of this approach, a program of "trusted parents" trained in digital parenting to organise and facilitate peer-to-peer discussions in less-favoured neighbourhoods would benefit from being promoted.

Warning systems could be set up for potentially dangerous viral trends online (e.g. happy slapping) with advice to allow adults to be informed of risky situations and know how to act. These warnings could be disseminated on social networks to reach a broad section of parents, as well as healthcare and education professionals.

Finally, the Commission states that in educating their children on the issue of screens and digital technology, parents naturally have a major role to play in terms of setting an example. Adopting reasonable practices at one's own accord, devoting necessary time for discussions on the matter within the family, sharing joint activities, preventing an excessively frequent separation of the parent and the child as a result of excessive screen usage are all practices to be promoted.

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[131] The Commission proposes to draw inspiration for this from the Malin Programme's approach which was presented to the Commission during this work. The programme aims to promote access to baby food that is adapted to the needs of children in families who are socially and economically vulnerable.

Proposal No 23: Deploy a proper policy to help and support parents when it comes to screens and the digital world

Examples of operational measures to be deployed:

- Systematise raising awareness of the risks of screens, their reasonable use among children and the risks of "technoference" starting from pregnancy (thereby integrating these aspects into prenatal check-ups and/or the childbirth preparation period);
- Include relevant information on screens in the child's health record issued at birth and update it on the 'online' version of the booklet. Provide, at the same time, a grid for monitoring screen usage and screen time to be completed and used as a survey during prenatal and post-birth check-ups;
- Devote time to discussions on children's exposure to screens during some of the key healthcare stages (at annual check-ups from the age of 3 to 6 years and then during the three periods up until the age of 16 (8-9 years old; 11-13 years old; 15-16 years old);
- Support and strengthen a high-quality offer of support for "digital parenting" by deploying parent/child workshops in all regions, with: a collective organisation under the aegis of département prefects (in liaison with the Ministry for Primary and Secondary Education and early childhood stakeholders, CAFs and community and non-profit education networks); the deployment of certification labels (actions, structures, schemes and tools to support digital parenting); specific information communicated at each 'key stage' of the child's journey in the digital world;
- Deploy a comprehensive health programme of action for the most vulnerable families with a larger focus on screens;
- Provide warning systems for potentially dangerous online trends.

4.5.2- Teachers, educators and any other adults in contact with children must be trained and equipped to best support young people in their adoption of digital tools

As mentioned above, parents are not the only adults who need to get involved in supporting young people with regard to the screens and digital world. All educators and adults in contact with children and young people must also be able to do their bit.

Among all adults interacting with young people, and in line with what has been said above about the crucial role of schools in terms of digital awareness and education, a priority focus must naturally be placed on teachers, their own training on these subjects, digital literacy, an understanding of how young people use such technology, the needs they express and the difficulties they may face, with a real goal for acculturation.

These priorities must therefore be fully integrated, both during initial teacher training, during which it is important to bring the digital approach incorporated into the training in line with the core values of the teaching profession. These focus areas must also be factored in as part of ongoing training, which must in particular allow teachers to be kept up to date on the developments taking place.

In this regard, the Commission stressed that, beyond the mere practical understanding of digital tools, it was important for teachers to be made aware of the health and environmental impacts of screens, the issues relating to digital citizenship and the various educational applications of digital tools that have proven their worth.

Proposal No 24: Allow teachers to fully grasp the fundamentals of the digital world, digital citizenship issues and the educational applications of digital tools starting from their initial training, and grant them opportunities to update their knowledge throughout their career

Examples of operational measures to be deployed:

- Further develop the initial digital training of teachers by teaching everyone the basics in computer science, scientific culture, general knowledge on the digital world and screens, their benefits and risks, an introduction to how algorithms work and the workings of the brain when interacting with screens;
- Develop ongoing training courses giving teachers the opportunity to update their digital knowledge and effectively apply it to their teaching practices;
- Invest in training for the educational, reasonable and research-informed use of digital tools;
- Coordinate and promote a network of peers/trainers/teacher officers that share resources, in line insofar as possible with in-person and remote needs.

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In addition to teachers, all adults who interact with children, whether professionals (healthcare professionals, childcare workers, after-school sports coaches, etc.) or volunteers (in sports clubs, non-profits, etc.), must be able to act as intermediaries and help spread the right messages on digital affairs. As such, they too must lead by example on the reasonable relationship to be maintained with digital tools and on the need to prioritise human connection.

Proposal No 25: Raise awareness among all professionals and volunteers working with children about digital issues and build a framework for recommending how to use screens when interacting with children

Examples of operational measures to be deployed with professionals and volunteers working with children (educators, health professionals, social workers, heads of non-profits, managers and stakeholders in sports clubs, etc.):

- Alert all persons in contact with children to be wary of the emerging risk of technoference;
- Define a strict framework for all professionals in contact with children on their own screen usage in the presence of children (excluding needs that would be specifically related to carrying out their work);
- Hold adults interacting with young people — professionals and volunteers (via professional networks, sports federations, non-profit networks, etc.) — accountable by reminding them of their duty to set an example for young people as they develop;
- Ensure awareness-raising campaigns/training that are tailored to each stakeholder group.

4.5.3- More broadly, reconsider the role of screens in society, for the benefit of all and young people in particular

The Commission supports the vision of a society in which the presence of screens would be more controlled and, in some respects, limited, in particular with a view to providing young people with an

environment that is more suited to their needs and to freeing up space for more direct human connection. This approach does not seek to ban screens as a matter of principle, but rather to restore them to their 'rightful place', namely serving humankind, by providing opportunities to question the sometimes excessive relationship young people can have with digital tools.

To this end, the Commission proposes, without calling into question individual freedoms of course, encouraging moderate and reduced usage, in the interests of all, adults and young people alike, and also in keeping with the health and environmental concerns already mentioned. To that end, the Commission suggested starting to put an end to the process of unlimited screen development in public spaces and seeking a development of the 'off-screen' world in order to rediscover time spent with others.

In concrete terms, several actions could be promoted consisting of:

- encouraging tech-free spaces, without a screen. In particular, this could be considered:

  o in public spaces and places likely to accommodate children, with the exception of paediatric emergency rooms, preferring in this case to set up a dedicated space so as not to impose screens on all families. The aim is to ensure that the organisation of the public space is in keeping insofar as possible with the public health messages broadcast on the health risks associated with screens (devices, such as tablets or computers allowing health professionals to carry out medical procedures on children are of course not covered by this recommendation);

  o in companies or certain public spaces. "Zero connection" spaces to be determined on a case-by-case basis in collaboration with the employees or officials concerned could be set up in companies or public organisations, for example in certain meeting rooms, catering or relaxation spaces (coffee stations). Such spaces could also be set up where appropriate in public places (museums, dedicated rooms in communal areas, community centres, etc.);

  o in recreational and cultural spaces. The projects envisaged include a new "screen-free restaurants/bars" certification label, as a response to child-free spaces that are becoming increasingly prevalent, flouting the discriminatory nature of such spaces.

- encourage periods of digital detox, without a screen. In the same vein:

  o digital detox practices could be introduced on certain dates, for certain occasions, on certain days of the week, at certain times of the day, etc.;

  o a symbolic right for "parents to disconnect", thus giving them more space and time to interact with their children (special settings should be adjusted accordingly to prevent any new notifications from popping up).

Other actions along the same lines as this strategy may be proposed, such as the introduction of a month of using digital tools in moderation (akin to the alcohol-free month of "Dry January" or Breast Cancer Awareness Month in October in France).

With regard to public authorities (central government and local authorities), action must be taken to reduce the prevalence of screens in public spaces, both for public health reasons (especially the effects of blue light) and for environmental considerations, whether this relates to digital advertising, information or entertainment screens.

Finally, even if this falls outside the strict scope of its analysis, the Commission observes that the issues relating to the place of screens in the policies revolving around the increased digitalisation of public services should be taken into account. While the use of digitalised services is often a source of gains, both for the government department and its users, the '100% digital' approach can also pose problems in effectively addressing some user needs and, in connection with the topic of this analysis, send a signal that contradicts several of the messages conveyed as part of the Commission's work, in particular on the place of humans in relation to digital technology and on receiving notifications or messages at inappropriate times.

Proposal No 26: Promote "digital detox" spaces and periods without screens, in particular to encourage adults to question their own relationship to screens

Examples of operational measures to be deployed

- Reverse the normalisation process of using screens in public spaces and places likely to accommodate children, with the exception of paediatric emergency rooms, preferring in this case to set up a dedicated space so as not to impose screens on all families;
- Creation of "digital detox" spaces in companies, government departments and public spaces;
- Introduce a new 'screen-free restaurants/bars' label;
- Establish digital detox practices;
- Promote the right of parents to disconnect;
- Establish a month of using digital tools in moderation;
- Reduce the prevalence of screens (advertising, information, entertainment screens) in public spaces.

4.6- Cluster 6: Put in place an ambitious governance system allowing the public authorities to define a proper strategy, have oversight capabilities, be equipped to better support stakeholders interacting with young people and families and provide information to citizens

Taking action to improve the relationship of children and adolescents to screens cannot be limited to setting restrictions. It requires a positive and beneficial approach, and the conception and creation of an attractive project for children and society in general that makes other prospects and other forms of autonomy appealing.

However, the strength of this project will only be a reality if a collective commitment to a new ambition that transcends political and administrative boundaries is undertaken, that overcomes fears and concerns to work at the level of children, going beyond a rhetoric of helplessness and legal-technical battles.

In this sense, the action strategy recommended by the members of the Commission is demanding, and will only be attainable if there is political momentum over the medium-term horizon with a new organisation to support it.

The project proposed by the Commission involves: planning and overseeing a structural and collective vision, strategy and roadmap; listening to young people and taking what they have to say into account; intervening at different global, EU and national levels; orchestrating a sustained, continuous and, in all respects, coherent dialogue with the various public and private stakeholders as well as political stakeholders; articulating and mobilising at interministerial level fields of action ranging from healthcare, national education, the economy, culture, sport, family and parenthood support, justice, domestic affairs, etc., for which the project is currently positioned differently in terms of priorities given the scale of all the challenges; coordinating all the local networks upholding the strategy to be as close as possible to parents, families and local communities; ensuring high levels of attentiveness and responsiveness to changes in social phenomena that propagate quickly online; structuring consistent and sufficiently regular public service announcements, particularly at key moments in children's lives, to deliver a high-impact message; investing in forward-looking projects such as immediate action; appointing spokespeople in the public sphere; and securing resources, collected but redistributed independently from firms to the central government and all the public and private stakeholders involved.

The recommendations below are intended to set out some factors that the Commission considers essential in terms of governance, funding and communication, in order to be impactful and support real changes at societal level.

4.6.1- Organise a framework for action to collectively structure the strategy for a renewed youth project over the long term

To implement a structural and collective strategy in favour of children and young people, the Commission calls for the promotion of a new organisation within the French government. It will make it possible to give guarantees of sustainability and coherence to public action in all its components, which can take the form of a societal project and be identified by all parties, which will create the necessary collaboration between all government departments and public and private stakeholders.

The Commission considers the absence of a strategic framework and a collective roadmap to currently be a major obstacle to achieving the desired results, as is the absence of a recognised and legitimate

driving force behind this strategy at interministerial level that is in sync with the entire research, non-profit and economic ecosystems.

It is therefore important that work be carried out to identify the best administrative configuration to implement this ambition, it being understood that it will have to be guaranteed operating resources commensurate with the challenges, an ambassador who can be seen and heard in public opinion will need to be appointed, and the contributions of the various government departments and organisations with established skills, and who are committed to serving collective needs, will need to be organised. **An agency-type format, such as the Australian eSafety Commissioner, seems to be an interesting option.**

This agency would set up a sustainable and structured working framework covering all academic, non-profit and economic stakeholders that is adapted to the objectives and fields of investigation. This framework, in addition to coordinating communities for the effective deployment of the strategy and roadmap, must organise France's contribution to the EU bodies responsible for regulating large platforms. It will also have to set up a space to pay heed to any alerts from civil society, educational establishments and non-profits on the emergence of new phenomena requiring rapid responses. Finally, the framework will have to be built in such a way as to avoid the biggest digital players having too much influence, and to give the smallest players an active role, in particular those involved in protection, ethical design and the proposal of alternative models. This structuring work will also have to establish co-building methods with all elected officials — parliamentarians or local elected representatives — all of whom have concerns and a role to play within the framework of a shared strategy.

This organisation will also have to ensure that local, public and non-profit networks are coordinated as close as possible to the local level, which are in direct contact with young people and families, are responsible for running project collectives and for explaining the choices made and giving them meaning, and are the first detectors of practices and points of vulnerability.

Finally, the Commission wishes to emphasise what it considers essential to complete this organisation.

First of all, the Commission claims **to provide a visible and real space for young people's voices** in support of public action. It should not be a question of selecting a shell of an organisation to tick a box. It is a question of believing, and this is particularly true in the digital world, that dialogue between adults and young people is the key to their well-being, in addition to being absolutely necessary in order to avoid acting on the basis of portrayals that are often very different from the reality of young people's practices and experiences. Young people are also much more aware of the risks, and are in need of support and must be heard. Finally, they can be active proponents of a project promoting their safety and their autonomy. The Commission therefore recommends setting up a dedicated council, in accordance with arrangements for effective association with government action that must be reconsidered so as to guarantee effective co-building.

Secondly, the Commission calls for the establishment of an **independent observatory** capable of producing benchmark figures on everything related to digital technology and young people, and applying the expected methodological rigour. Today, data sources are at the same time very fragmented, produced under conditions that are not always overseen, and do not allow for some key data trends to be tracked, which are nevertheless important —other than screen time — in order to measure usage and to enlighten public debate on the development of children, and their access to alternative activities.

Finally, the Commission advocates enhancing the system by setting up a dedicated **Planning Committee,** enabling several disciplines and a variety of expertise to be applied over the long term for

monitoring and forecasting purposes. Technologies are developing so rapidly that it is essential to devote space and time to this work. Such a committee could be more broadly tasked with addressing some of the issues surrounding the impact of digital technology on major talking points, such as the functioning of our democracies.

Proposal No 27: Introducing new governance and an organisational drive for a global project for digital literacy and youth protection and empowerment

Examples of operational measures to be deployed:

- Develop agile/open governance that matches the scale of the issues with:
  o a dedicated agency, with sufficient resources to coordinate the whole strategy, that is visible in the public debate, sufficiently embedded to structure the dialogue with all stakeholders around clearly established objectives, and can steer an integrated communication strategy;
  o a youth council to ensure that the voices of young people are taken into account;
  o an independent observatory to provide benchmark data on usage, time spent, conclusive impacts, etc.;
  o a Planning Council allowing for early discussions on new technological deployments;
- Identify across regions, through the prefects, operational intermediaries for mobilising and supporting local networks;
- Ensure a "fast track" modus operandi to receive to civil society alerts on the development of new harmful practices, and be able to have an immediate communication strike force.

4.6.2- Guarantee appropriate and sustainable means to the stakeholders who support, train, protect and inform young people and families about the digital world

The issue of resources is now critical for establishing a project for the protection and autonomy of children and young people.

While this is a common debate, particularly given the very severe pressure on France's public finances, the Commission would like to emphasise two fundamental principles:

- The first is to create a close link between the financing of child protection stakeholders, research programmes, government initiatives, particularly communication initiatives, and the contributions of firms and businesses themselves. As mentioned above, collective action is today largely dependent on the assistance obtained from businesses, with the interested parties having to engage in a bilateral dialogue with businesses to ensure their pledge continues and thus to secure the resources to develop their projects. Without evoking the insecurity that this arrangement creates for sustained action over time, nor the effort that is required to maintain this dialogue that could be better made to achieve the stakeholders' ultimate objectives, the Commission wants to draw attention to the risks that such a situation brings in terms of independence and prudence in the rhetoric of those who have the most predatory models towards children. It is absolutely necessary to change the system by creating a central government fund, financed where necessary by contributions from businesses, and attempt to allocate its resources, in line with the overall strategy. This model is also used in many other fields, including the fight against addiction, and seems suitable for restoring clarity within the system, and having an exchange on the level of resources invested and the expected results.

- The second is to defend the view that this policy, in all its aspects, must be largely at least financed by those who generate negative externalities. As such, two priorities should be the focus. The first, which has already been mentioned above, concerns the need for a lively discussion with the other Member States and the European Commission on the potential to share the expected gains from the supervisory fees liable to be paid by large platforms under the DSA, and the fines that will be imposed by the judge and the regulator, at EU level but also at the level of the Member States that are home to the headquarters of these companies (such as Ireland, which for example obtained more than USD 1 billion from Max Schrems). While the DSA foresees that supervisory fees will consolidate the tasks of the EU regulator, the regulator cannot act alone and needs the community of stakeholders working towards these EU objectives to be structured into an active and reactive network in each of the Member States. The second funding priority, which is certainly less accessible in the short term, relates to the general recognition in law of a polluter-pays principle, based on the model of environmental law. We are facing unprecedented capitalist powers, and we ask non-profits and volunteers without secure support to work tirelessly, day and night, to manage negative externalities.

Proposal No 28: Ensure the sustainability of the necessary resources with the implementation of the polluter-pays principle to provide contributions to a dedicated fund for research, public policies and virtuous stakeholders

Examples of operational measures to be deployed:

- Create a fund dedicated to digital security and the empowerment of children;
- Relieve the pressure felt by non-profits from businesses and the insecurity they face by granting 100% public funding. ;
- Public support for research programmes to also avoid confusion.
- Engage in a European dialogue for (i) the return of a portion of DSA funds from digital players and (ii) fines imposed at EU level or in certain Member States;
- Examine legal avenues to enshrine a polluter-pays principle for predatory entities targeting children.

4.6.3- Make a large-scale investment in an information and prevention system for the French people

Information and prevention are key to supporting the strategy proposed by the Commission.

The application of several principles seems necessary to achieve this important ambition that is multifaceted by necessity:

- Do not limit the communication campaign to "screens": there is a very strong need to raise awareness of the issues related to children's development, the workings of their brain, physical health issues, particularly with regard to sleep and physical activity, their essential needs, and the important aspects to promote in their daily life. Messages should focus on promoting positive ambitions for children.

- Information on screens must cover all aspects, including those necessary to understand the digital world and its models, rights and responsibilities, the practices to be promoted (also from the point of view of environmental protection) and resource persons.
- It must emphasise the need for dialogue between children and adults, which is a massive hurdle to overcome so that they can put screens in their rightful place, while respecting the children's experience.
- The information could effectively focus not only on how children use this technology, but also shed more light on the challenges related to adults leading by example and their availability.
- It will be important to avoid any one-off approach, as only the systematisation of campaigns and actions will make an impact. In particular, this communication strategy should be geared to the key moments in a child's life (for example, the start of the school year, Christmas and holidays, which punctuate the lives of all children overall; or more specifically the local level at the time when milestones are reached, such as starting lower secondary school, turning 15 etc.).
- It will be necessary to deploy a strike force dedicated to taking into account in real time emerging and high-risk phenomena on social media (promotion of practices or challenges, dissemination of questionable portrayals for example).
- Consistency of messages will have to be ensured on an ongoing basis. For example, the promotion of e-sports — which employ concerning language — despite also encouraging children to take part in physical activities and enrich their 'screen-free' lives, may be seen as questionable.

In terms of organisation, the Commission recommends that particular attention be paid to the following conditions:

- Public communication must be developed under a common "brand image" and editorial line, guaranteeing the consistency of messages and their role in setting standards. Today, the approaches adopted by the various government departments, agencies and operators are completely different, which can undermine collective effectiveness. Similarly, consolidating today's scattered budgets would mean that goals could be stepped up.
- All channels must be mobilised to get these messages heard, adopting two approaches — very general public communication and more targeted communication directly addressing any needs.
- Messages need to be clear and understandable to ensure that they are fully grasped and internalised by everyone.

Finally, the Commission wished to draw the attention of all public and political leaders to the importance of ensuring that their own communication strategy is consistent when addressing children, by avoiding, for example, the use of harmful social media that would be counter-current to the guidelines set out in this report.

<u>Proposal No 29:</u> Deploy a large-scale, recurring, general public communication strategy to raise awareness and provide information on health, education and environmental issues largely linked to screens, as well as to promote children's needs and alternative solutions

Examples of operational measures to be deployed:

- Build a multi-channel, multi-faceted communication strategy that focuses on health education and child development issues, and positively promotes the essential ingredients of the child's daily life;
- Support communication and information dynamics that are structured over the long term, making it possible to systematise key moments when disseminating messages relating to the lives of children and young people;
- Establish an editorial line and a common "brand image" for the French government, supported by a dedicated fund to consolidate all investments and align the initiatives of the various government departments and bodies;
- Set up a communication system dedicated to real-time monitoring of emerging high-risk phenomena (e.g. viral challenges on social media);
- Involve, through the prefects, in conjunction with the regional health agencies and the academic world, all local networks in implementing the national strategy where the people are.

Summary Table of Proposals

No.	Proposal
Cluster 1: Tackle, with a view to their ban, the addictive and closed nature of certain digital services in order to restore young people's choice	
1	Reverse the burden of proof to tackle the harmful designs and algorithms of social media services and to develop regular independent audit capabilities
2	Prohibit harmful design and develop an EU ethical standard
3	Restore users' power by recognising a new right to configuration
4	Strengthen the safeguards in video games to make the experience safer for young gamers, so as to better protect them from inappropriate content and combat the development of deceptive microtransactions and designs
5	Secure, organise and amplify civil society action, as an essential channel for managing the negative externalities of platforms
6	Send a clear signal of investment in multidisciplinary research and the opening up of data in order to strengthen the regulator's position in dialogue with powerful firms
Cluster 2: Protect, rather than control, children: a battle that must be fought and won with firms	
7	Develop and promote more efficient and accessible private protection solutions, particularly for families
8	Support the firm implementation of the DSA with regard to pornographic websites, to force the adoption of currently available age verification tools and at the same time invest in the production of resources tailored to children's legitimate questions about their emotional and sexual lives.
9	Ensure that reporting policy is scaled up to make it a major lever for action with regard to platforms
10	Actively promote the highest standards of physical health and environmental protection for digital technology tools and digital services
Cluster 3: Devise and establish a progression in children's use of screens and digital technology according to their age	
11	Protect young children under the age of six from exposure to screens, particularly in childcare settings (day nurseries, childminders, nursery schools, etc.)
12	Allow access only to ethical social media platforms from the age of 15
13	Plan gradual familiarisation with mobile phones: - under the age of 11: no phone; - from the age of 11: phone without internet connection; - from the age of 13: smartphone without access to social media and illegal content; - from the age of 15: additional access to ethical social media.
14	Define and direct a digital equipment policy that respects children and reconciles health, pedagogy, education and environmental issues
15	Systematically link the deployment of digital educational programmes and resources in schools to a trial, a prior impact study before wider distribution and training for teachers in their pedagogical uses. Guarantee access to appropriate digital tools for pupils with special educational needs, children who are far from school or where there is a break in educational continuity. Label digital educational solutions that have been scientifically validated for their positive impact on learning and make them available to teachers via a dedicated, secure interface.
16	Establish a strict framework for the use of Pronote and digital work environments, with default settings to protect children

No.	Proposal
17	Strengthen the implementation of the ban on mobile phones in lower secondary schools, and systematise in each upper secondary school a shared framework on the place and use of mobile phones in school

No.	Proposal
Cluster 4: Carefully prepare young people for their autonomy when using screens, empowering them and, at the same time, giving children and young people their rightful place in community life	
18	Educate and inform pupils from primary school and throughout their schooling on the digital world, its model, its content, its uses, the opportunities it offers and the dangers it may present in an appropriate manner based on their age
19	Appoint adult and student officers for online and offline digital affairs and create safe spaces for dialogue for children
20	Step up health education, and specifically: - in relation to sleep, open up the debate to better adapt schools to the physiological needs of young people - in relation to the risks associated with sedentary lifestyles and insufficient physical activity, better use physical education and sports classes as an opportunity to monitor children more closely - in relation to eyesight risks, provide more opportunities for outdoor time
21	Devote considerable time and effort to incorporating all forms of 'social harmony' education (sex education and emotional learning, education on gender issues, education on psychosocial skills, civics etc.) which has been systematically impacted by the amplifying effect of the digital world
22	Populate the public space with alternatives to screens for children, and find a place for them in this space, including in noisy environments
Cluster 5: Better equip, better support and provide better digital education for parents, teachers, educators and all those who work with children, while building a society that puts screens and the digital world back in their rightful place	
23	Deploy a proper policy to help and support parents when it comes to screens and the digital world
24	Allow teachers to fully grasp the fundamentals of the digital world, digital citizenship issues and the educational applications of digital tools starting from their initial training, and grant them opportunities to update their knowledge throughout their career
25	Raise awareness among all professionals and volunteers working with children about digital issues and build a framework for recommending how to use screens when interacting with children
26	Promote "digital detox" spaces and periods without screens, in particular to encourage adults to question their own relationship to screens
Cluster 6: Put in place an ambitious governance system allowing the public authorities to define a proper strategy, have oversight capabilities, be equipped to better support stakeholders interacting with young people and families and provide information to citizens	
27	Introducing new governance and an organisational drive for a global project for digital literacy and youth protection and empowerment
28	Ensure the sustainability of the necessary resources with the implementation of the polluter-pays principle to provide contributions to a dedicated fund for research, public policies and virtuous stakeholders
29	Deploy a large-scale, recurring, general public communication strategy to raise awareness and provide information on health, education and environmental issues largely linked to screens, as well as to promote children's needs and alternative solutions

Annex 1: Presentation of the Members of the Commission

Servane Mouton, is a neurologist and neurophysiologist, specialising in learning difficulties in schools. Member of the neurodevelopment sub-committee of the cognitive evaluation think tank GRECCO. President and co-founder of the Neuro-Environnement Réseau Francophone (NERF) network. She is the coordinator' of the collaborative book *Humanité et numérique - Les liaisons dangereuses* (eds. Apogée 2023), in which 25 scientists and caregivers offer a panorama of the health, environmental and societal challenges of new information and communication technologies.

Amine Benyamina is a psychiatrist-addictologist at the Paul Brousse University Hospital in Villejuif, he is also university professor at the Faculty of Medicine of Université Paris-Saclay. He is the department head of psychiatry and addictology at the Paul Brousse University Hospital and head of the PSYCOMadd research unit. He is the administrator for several French and international university degrees. He is Chair of the French Addictology Federation (FFA), President of the addictology interdivision at the CNU (National College of Universities) and Chair of the Addict'Aide fund. He is editor-in-chief of the journal *Alcoologie et Addictologie* and director of the French Addictology Society (SFA) and of the French Association of Biological Psychiatry and Neuropsychopharmacology (AFPBN). He is the author of more than 140 referenced scientific articles dealing with issues of treatment, biomarkers and psychiatric and addictive comorbidities. He is the author of numerous academic and educational works and has coordinated several collective works. He is also the author of more general-interest books dealing with addiction issues, in particular cannabis and alcohol. He is the founder of the ALBATROS Congress, an international congress on addiction held every year in Paris.

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Jonathan Bernard is an epidemiologist and researcher at the National Institute of Health and Medical Research (INSERM). He holds a master's degree in nutrition and health from the University of Montpellier, a doctorate in epidemiology and public health from the Université Paris-Saclay and an accreditation to supervise research in epidemiology and public health from Université Paris Cité. At the Centre for Epidemiological and Statistical Research (CRESS) in Paris, he conducts research on factors influencing child health and development using large epidemiological cohorts such as the ELFE and EDEN studies. He leads an extensive research programme on the characteristics of screen usage by the general public, and the identification of their determinants and impacts on children's cognitive development, behaviour, sleep and physical health.

Grégoire Borst is a professor of developmental psychology and the cognitive neuroscience of education at Université Paris Cité and Director of the Laboratory of Child Development and Education Psychology (National Centre For Scientific Research). He received his PhD in 2005 from Université Paris Sud and joined LaPsyDÉ in 2010 after four years of post-doctoral studies at Harvard University. His research focuses on the role of high-level cognitive functions (metacognition, resisting automatic gestures, emotional regulation) in cognitive and socio-emotional development and in schooling for children, teenagers and young adults by combining behavioural and brain imaging methods (EEG, NIRS, MRI). Author of more than 90 scientific articles, he has also penned various educational books (*Le cerveau et les apprentissages*) as well as general-interest books (*Mon cerveau – Questions/Réponses, C'est pas moi c'est mon cerveau*). He is a senior member of the International Bureau of Education (IBE - UNESCO), a senior member of the Institut Universitaire de France (IUF), a member of the International Science Council, heads the Pluridisciplinary Thematic Network "Research on educational issues" at the CNRS, is a member of the expert committee on young people at ARCOM, and a member of the commission "Development of reading skills for specific audiences" at the Centre National du Livre

(CNL). In 2021, he received the Dagnan-Bouveret Prize from the Académie des Sciences Morales et Politiques (Institut de France) for his research programme on cognitive psychology and modern education.

Axelle Desaint is Director of the Digital Education Unit of Tralalere and Internet Sans Crainte, the European Commission and France's digital awareness programme for young people and families, which Tralalere has been managing for 15 years. A graduate in hypermedia science and technology, Axelle Desaint has been working for 25 years in the field of digital education for young people. After 10 years in the non-profit sector conceiving and running training and outreach programs relating to young people's use of digital tools for professionals and the general public, she joined Tralalere's teams in 2011 to develop the digital publishing department and coordinate research and development projects on digital literacy. After several years as an education and awareness programme manager, and then as an editorial and education director, she now runs the European Internet Sans Crainte programme, a national awareness centre with more than 200 free digital education resources.

Florence G'Sell is currently a visiting professor at Stanford University's Cyber Policy Center. She is a private law and criminal sciences professor, professor at the Université de Lorraine, and is the Digital, Governance and Sovereignty Chair of Sciences Po. She mainly works on issues related to the regulation of online platforms and on the governance of artificial intelligence.

Since 2020, **Marie-Caroline Missir** has been the Director-General of Réseau Canopé, the public education operator responsible for in-service teacher training, and of CLEMI, the centre for media and information literacy. She previously joined Digischool, a French EdTech group specialising in apps for young people as director of development. A journalist specialising in education, she was editor-in-chief at the AEF news agency, a political journalist, the deputy digital editor-in-chief of the magazine l'Express and a correspondent based in Lyon for Les Échos before being appointed managing editor of the L'Étudiant group. At the same time, she headed a weekly section on the Rue des écoles radio show, broadcast on France Culture. Co-founder of the Femmes de l'Éducation network, she is the co-author of *Mères, libérez-vous !* (Plon, 2014) with Louise Tourret. Missir graduated from Sciences Po Paris and the ESSEC Media and Entertainment Program.

Catherine Rolland, a doctor and engineer by training, worked 12 years in research for the pharmaceutical industry before devoting herself to video games and their applications, particularly in health and education. Receiving an MBA in video game management, she has been designing and developing games and R&D and innovation projects for 15 years in studios and companies specialising in healthcare applications, vocational training, education and popular science. She has been involved for 12 years in the curricula of renowned video game schools and has worked in various non-profits to organise outreach events and debates on the applications of video games. She has been a project manager for the Science and Video Game Chair at the École Polytechnique for almost five years, where she oversees scientific projects related to video games.

Grégory Véret is founder and president of Xooloo, a French company specialising in the protection of children on the Internet. Xooloo's teams are developing new secure digital services to help children develop their own autonomy and take control of their digital lives. Notably, the company has published the first mobile application for children aged from 8 to 12 in France. Xooloo received the CES Best of Innovation Award in Las Vegas and the French government's Invest for the Future Programme for its real-time content analytics solution to protect children on the Internet. The company is a member of the Internet Child Protection Laboratory. Véret started his career in the children's programme unit of the TF1 group. Passionate about the benefits of technology for children, he then founded the company Xooloo. Driven by ecological issues, Grégory is also an organic farmer.

Célia Zolynski is a private law professor at the Law School of Université Paris 1 Panthéon-Sorbonne, where she co-heads the Sorbonne Department of Research in intangible property law (IRJS-DreDis) and the Observatory of Artificial Intelligence at Paris 1. Member of the National Pilot Committee for Digital Ethics (CNPEN), she is also an expert in the National Consultative Commission on Human Rights (CNCDH) and the Superior Council of Artistic and Literary Property (CSPLA). Her research interests include digital law, intellectual property law, market law and fundamental freedoms. She is the author of various publications in these fields, in particular concerning the regulation of the attention economy. She leads several interdisciplinary working groups and collective research projects on the regulation of digital services and algorithmic systems.

The Commission rapporteurs were **Carole Bousquet-Bérard** (Government Administrator) and **Alexandre Pascal** (Member of the Inspectorate General for Social Affairs – IGAS).

Annex 2: List of Individuals Interviewed and Contributions Received

The Commission would like to sincerely thank all stakeholders who agreed to be interviewed or who sent written contributions to the Commission.

The Commission sought to collect all the testimonials, points of view, observations and proposals made during these exchanges in complete independence. It must stress that the shared experience, the analyses presented, as well as the numerous discussions arising from the various interviews, were key to developing and enriching its analysis work.

The Commission would like to take this opportunity to thank in particular the lower secondary school pupils from Collège Louis Braille in Esbly (Seine-et-Marne) and Collège Paul-Verlaine des Mureaux (Yvelines) and their teachers, Stéphanie Tur and Olivier Menard, for their valuable participation in the hackathon organised on 29 March with the support of DITP and Réseau Canopé.

The Commission also thanks the lower secondary school pupils from Collège de Gassicourt in Mantes-la-Jolie as well as Cyril Norbec and the members of the teachingl team of Collège de Gassicourt who hosted several members of the Commission.

In the course of its work, the Commission heard and/or received contributions from the following persons and bodies.

1. Individuals interviewed or who have contributed to the bodies they represent

Académie de Paris:
- Ms Caroline Veltcheff, Academy Inspector, in charge of preventing bullying at school for the Académie de Paris

Environment and Energy Management Agency (ADEME):
- Mr Erwann Fangeat, Coordinator of the Digital and Sustainability Cluster
- Mr Mathieu Wellhof, Digital Programme Manager at ADEME

National Agency for Food, Environmental and Occupational Safety (ANSES):
- Ms Olivia Roth-Delgado, Scientific Project Officer; Physical Agents, New Technologies and Major Installations Unit
- Mr Matthieu Schuler, Deputy Director-General of the "Sciences pour l'expertise" unit

Apple:
- Ms Julie Lavet, Head of Government Affairs at Apple France and Benelux

French Alliance of Digital Industries (AFNUM):
- Mr Lloyd Cerqueira, Director of Institutional Affairs at Dell France and President of the AFNUM Public Affairs Group
- Mr Philippe de Cuetos, Director of Technical and Regulatory Affairs, AFNUM
- Ms Eva Marxer, Public Affairs and Communication Officer
- Ms Stella Morabito, General Delegate of AFNUM
- Ms Emma Pras, Audiovisual and Public Protection Taskforce Officer

Electronic Communications and Postal Regulatory Authority (ARCEP):
- Mr Rodolphe Le Ruyet, Technical Adviser to the President
- Ms Virginie Mathot de Raincourt, Advisor to the President
- Ms Laure Penin de La Raudière, President

Regulatory Authority for Audiovisual and Digital Communications (ARCOM):
- Ms Alexandra Mielle, Head of the Public Protection and Prevention Department
- Ms Laurence Pecaut-Rivolier, Member of the College
- Ms Lucile Petit, Director of Online Platforms

AXA:
- Written contribution

Babilou Family:
- Mr Xavier Ouvrard, Chairman and Chief Executive Officer of the Babilou Family Group
- Ms Dominique Perrier, Executive Director of Corporate and Institutional Relations

National Family Allowance Fund (CNAF):
- Mr Nicolas Grivel, Director-General

Caméléon Association:
- Ms Laurence Ligier, Founder and Executive Director
- Ms Violaine Monmarche, Deputy Director-General
- Ms Socheata Sim, Head of the French Social Task Force

Training Centres for the Promotion of Progressive Education (CEMEA):
- Ms Chisin Alice, Digital Media and Anti-Discrimination Officer
- Mr François Laboulais, Deputy Director

National Centre for Scientific Research (CNRS):
- Ms Françoise Berthoud, Researcher at CNRS
- Mr Pierre-Yves Longaretti, Researcher at CNRS
- Mr Franck Ramus, Research Director

Commission on Generative Artificial Intelligence:
- Mr Erwan Paitel, Rapporteur-General

French Data Protection Authority (CNIL):
- Mr Mehdi Arfaoui, Sociologist at the CNIL Digital Innovation Laboratory
- Mr Xavier Delporte, Director of Public Relations
- Mr Louis Dutheillet de Lamothe, Secretary-General
- Mr Vincent Toubiana, Head of the Parental Control and Age Check Laboratory

Liaison Centre for Media and Information Education (Clémi) (Canopé network):
- Ms Nathalie Sonnac, President of the Clémi Advisory Council
- Ms Virginie Sassoon, Deputy Director

French Digital Council (CNUM):
- Mr Jean Cattan, Secretary-General

Collectif CoLINE (Collective combating the spread of digital technology in schools):
- Ms Julie Perel, Member of the collective
- Ms Audrey Vinel, Member of the collective

Collective for appropriate digital education (*Collectif éducation numérique raisonnée*):
- Ms Agnès Fabre, Lower and upper secondary school teacher
- Ms Cécile Ferschneider, Primary school teacher
- Mr Michel Lesage, Headmaster of a general and technological upper secondary school;

Screen overexposure collective (CoSE):
- Ms Anne-Lise Ducanda, Doctor of maternal and infant health, member of the collective
- Ms Sabine Duflo, Clinical Psychologist, Member of the collective

European Commission:
- Mr Prabhat Agarwal, Head of the DSA team in DG Connect
- Ms June Lowery-Kingston
- Ms Silvia Merisio
- Ms Adelaide Remiche

Interministerial Delegation to Combat Racism, Anti-Semitism and Anti-LGBT Hate (DILCRAH):
- Ms Shani Benoualid, Digital Advisor and Head of Digital Strategies

Designers Éthiques (non-profit):
- Mr Karl Pineau, Co-President of Designers éthiques
- Ms Flora Brochier

Interministerial Delegation for the National Strategy for Neurodevelopmental Disorders:
- Mr Etienne Pot, Interministerial Delegate

Directorate General for Social Cohesion (DGCS):
- Mr Benjamin Voisin, Head of the Social and Medico-social Policy Department, Deputy to the Director ·

Directorate General for School Education (DGESCO):
- Mr Jean Hubac, Head of the Education Policy Support Department

Directorate General for Enterprise (DGE):
- Ms Chantal Rubin, Head of the Digital Platforms Regulation Unit, Ministry for the Economy

Directorate General for Health (DGS):
- Ms Julie Barrois, Head of the Mental Health Bureau
- Ms Maud Godignon, child psychiatrist, medical Advisor, Mental Health Bureau
- Ms Sarah Sauneron, Head of Department

Directorate for Digital Technology in Education (DNE)
- Ms Florence Biot, Assistant Digital Education Director
- Mr Audran Le Baron, Director

Waldorf schools:
- Written contribution

EdTech:
- Ms Aude Gueneau, Vice-President of EdTech and Founding President of 'Plume'
- Ms Orianne Ledroit, General Delegate of EdTech France

e-Enfance:
- Ms Justine Atlan, Director-General of the e-Enfance non-profit

French Telecommunications Federation:
- Mr Corentin Durand, Head of Public Affairs, Bouygues Telecom
- Ms Carole Gay, Head of Public Affairs for Orange
- Mr Paul Guinard, Policy Officer at the French Telecommunications Federation
- Ms Alix de Montesquieu, Head of Public Affairs, SFR
- Mr Olivier Riffard, Deputy Manging Director of the French Telecommunications Federation

Fédération Nationale des Francas non-profit:
- Mr Fabrice Boisbouvier, Deputy General Delegate of the Fédération Nationale des Francas
- Mr Hervé Prevost, National Director of Education Programmes and Educational Practices

The 'La main à la pâte' foundation:
- Ms Elena Pasquinelli, Philosopher

La Fondation pour l'enfance non-profit:
- Ms Clémence Lisembard, Operations Manager
- Ms Joëlle Sicamois, Director of the Children's Foundation

Google:
- Mr Olivier Esper, Head of Government Affairs
- Ms Charlotte Radvanyi, Government Affairs Officer

Gulli:
- Ms Coralie Boitrelle-Aigle, Director of Programmes for Young People — France of the M6 Group
- Mr Philippe Bony, President of the Gulli channel
- Mr Julien Figue, Deputy Director

National Institute for Research in Digital Science and Technology (INRIA):
- Mr Gérard Giraudon, Research Director
- Mr Benjamin Ninassi, Deputy Head of the Digital and Environment Program
- Mr Vincent Roca, Research Officer
- Mr Didier Roy, Associate Researcher at the École Polytechnique de Lausanne and member of the 'Flowers' team at INRIA

National Institute of Health and Medical Research (INSERM):
- Ms Cécile Delcourt, Epidemiologist and Director of Research on Eye Diseases
- Ms Sandrine Lioret, Epidemiologist and Research Director on Social Inequalities in Child Healthcare

Innovation and Digital Education Laboratory:
- Ms Margarida Romero, University Professor at Université Côte d'Azur in France, Associate Professor at Université Laval in Canada

La Quadrature du Net advocacy group

La Voix De l'Enfant non-profit:

-   Ms Françoise Brousse, President

'Lève les Yeux !' non-profit:
-   Mr Yves Marry, General Delegate

La Ligue de l'enseignement (confederation of associations):
-   Mr Mathieu Muselet, Head of the National Digital Hub
-   Mr Sébastien Tourve, Digital Educational Development Officer

Meta:
-   Mr Anton'Maria Battesti, Director of Government and Public Affairs France
-   Ms capucine Tuffier, Public Policy Manager at Meta

Interministerial task force to combat drugs and addiction (MILDECA):
-   Mr Olivier Masson-Halimi, "Digital Practices" Policy Officer
-   Mr Nicolas Prisse, President

French Natural History Museum:
-   Mr Jean-Baptiste Fini, Professor

National Institute of Environmental Health Sciences and National Toxicology Programme:
-   Ms Linda Birnbaum, Former Director

Nomad Education:
-   Mr Nicolas Citti, Consultant
-   Ms Caroline Maitrot, Founder of Nomad Education

Observatory on Parenting and Digital Education (OPEN):
-   Ms Marion Haza, President
-   Mr Thomas Rohmer, Director – Founder of OPEN

Observatoire Santé PRO BTP observatory:
-   Contribution

Minors Office of the Ministry of the Interior (OFMIN):
-   Ms Veronique Bechu, Head of OFMIN's strategic unit

Representative organisations of parents of pupils:
-   Mr Olivier Chabault, FCPE
-   Mr Gilles Demarquet, APEL
-   Mr Marc GUIDONI, APEL
-   Mr Patrick Salaün, UNAAPE
-   Ms Marie Wittrant, PEEP

Pan European Game Information (PEGI):
-   Ms Jennifer Wacrenier, Director of Operations and Communications

Members of Parliament:
-   Ms Caroline Janvier, MP for Loiret
-   Mr Laurent Marcangeli, MP for southern CorsicaPaul Midy, MP for Essonne
-   Mr Bruno Studer, MP for Bas-Rhin
-   Ms Kim van Sparrentak, MEP from the Netherlands
-   Mr Stéphane Vojetta, MP representing French citizens living outside France

Public Prosecutor's Office for minors in Paris:
- Mr Aurélien Brouillet, Deputy Prosecutor, Deputy Division Head

Point de Contact professional association:
- Ms Alejandra Mariscal-Lopez, Legal Expert

Center of expertise for digital platform regulation (PEReN):
- Ms Hélène Bonnet, Project Director Public Policy and Institutional Relations
- Mr Nicolas Deffieux, Director

'MALIN' programme:
- Mr Benjamin Cavalli, Director of the MALIN Programme

Samsung:
- Ms Amandine Rogeon, Head of Public Affairs, Samsung Electronics France
- Ms Catherine Chazal, CSR Director of Samsung Electronics France

Santé publique France government agency:
- Mr Pierre Arwidson, Deputy Director of Prevention Health Promotion

Snapchat:
- Ms Sarah Bouchahoua, Public Policy Manager

SQUARE:
- Mr Hugo Besançon, Deputy Delegate-General
- Ms Alice Bougneres, General Delegate

Syndicat des éditeurs de logiciels de loisirs trade union:
- Mr Benjamin Niang, Public Affairs Officer
- Mr Nicolas Vignolles, General Delegate

Teacher unions:
- Mr Tristan Brams, SGEN-CFDT
- Ms Stéphanie Devanssay, UNSA Education
- Ms Sylvie Magne, FSU
- Ms Carine Royer, SGEN-CFDT
- Mr Julien Vanhee, SNES-FSU
- Mr Jean-Christophe Vayssette, FO

Trade unions representing directors of establishments:
- Mr Bruno Bobkiewicz, Representative of the SNPDEN -UNSA
- Mr François Resnais, National Secretary of the SNPDEN-UNSA

TikTok:
- Mr Eric Garandeau, Public Affairs Director
- Ms Sarah Khemis, Government Relations & Public Policy Senior Manager France

National Union of Family Associations (UNAF):
- Mr Olivier Gerard, Coordinator of the Media Unit at UNAF
- Ms Stephanie Pouria, Digital Parenting and Cyber Threats Officer

Brunel University of London:
- Mr David Gee, Expert

X/Twitter:
- Ms Claire Dilé, Public Policy Senior Manager

YouTube:
- Mr Thibault Guiroy, Head of Government Affairs and Public Policy

2. Individuals interviewed or who have contributed in a personal capacity, as part of their former duties or actions they are undertaking, with their expertise on one of the aspects of the topic

- Ms Adeline Ancenay, Speech-Language Pathologist

- Ms Gisèle Apter, Child Psychiatrist

- Mr Laurent Begue-Shankland, Professor of Social Psychology

- Ms Francine Behar-Cohen, Ophthalmologist — Université Paris Descartes

- Mr Dominique Boullier, Professor in Sociology

- Ms B Stefana Roadbent, Digital Anthropologist

- Mr François Carré, Cardiologist

- Mr David Cayuela, Upper Secondary School Teacher in Sommières (Gard département)

- Ms Coralie Chevallier, Researcher in Cognitive and Behavioural Sciences (ENS)

- Ms Marie Danet, Accredited Lecturer in Developmental Psychology and Clinical Psychologist

- Mr Gian Paolo De Filippo, Paediatric Endocrinologist, Robert Debré Hospital

- Mr René de Sèze, former research director at the National Industrial Environment and Risk Institute (INERIS).

- Mr Alain Dervaux, Professor of Psychiatry and Addictology

- Mr Ryan Durrie, Associate Director, Cornell Institute

- Ms Séverine Erhel, Lecturer, digital education specialist

- Mr Marc Faddoul, AI Forensics, Director, expert in transdisciplinary technology, specialist in recommender systems and algorithmic auditing.

- Mr Bruno Falissard, Child Psychiatrist and Professor of Biostatistics at Université Paris-Saclay

- Ms Aurore Guyon, Doctor of Neuroscience, Clinical Research Fellow, Claude Bernard Lyon 1 University, Lyon.

- Ms Woody Hartzog, Professor of Law, Boston University

- Mr Serge Hercberg, Epidemiologist and Professor of Nutrition at Université Sorbonne Paris Nord

- Ms Célia Hodent, Psychologist

- Ms Caroline Huron, Psychiatrist, Research Fellow at INSERM, President of the le Cartable Fantastique non-profit

- Ms Kate Klonick, Associate Professor of Law, St. John's University

- Mr Jocelyn Lachance, Sociologist-anthropologist

- Ms Maud Lemercier-Dugarin, Senior Lecturer in Clinical Psychology and Clinical Psychologist, Psychotherapist

- Mr Jean-Marc Merriaux, Former Director of Digital Technology for Education, Director-General of the French Mission Laïque

- Mr Jean-Marc Monteil, University Professor, former Rector, former Director General of Higher Education, in charge of the E-Fran and Pro-Fan programmes

- Ms Lydie Morel, Speech-Language Pathologist

- Mr Lê Nguyen Hoang, Mathematician, Web Videographer and Writer, Expert in Algorithms and Artificial Intelligence, founder of the collaborative platform Tournesol

- Mr Olivier Phan, Child Psychiatrist-Addictologist

- Mr Neil Richards, Professor of Law, Washington University in Saint Louis, Director of the Cornell Institute

- Ms Lucia Romo, Clinical Psychologist

- Mr Sébastien Soriano, current Director-General of France's National Geography Institute

- Mr Michaël Stora, Clinical Psychologist and Psychoanalyst

- Mr Ramin Tadayoni, Head of Ophthalmology at the Hôpital Fondation Adolphe de Rothschild Hospital

- Mr Pierre Taquet, Clinical Psychologist and Researcher

- Mr Serge Tisseron, Psychiatrist, Doctor of Psychology, Member of the National Academy of Technologies of France

- Mr Niels Weber, Psychologist-Psychotherapist

- Ms Elena Zeide, Professor of Law, University of Nebraska - College of Law