Children and screens

In Search of Lost Time

April 2024

PREAMBLE

Technology has the capacity to emancipate children, to liberate them, because it allows them to access knowledge more freely and more easily. We can also hope that it is a factor of real social equality, because it gives access to the same knowledge whatever the environment of the child who connects, whatever the price of the device that is being used. he uses. For the first time, on a given subject, a child can know more than his parent, his teacher, or his minister.

But, like everything that is shaped by man, technology also has the ability to be used to confine, alienate and subjugate children.

After three months of work, the Commission became convinced that it had to adopt a discourse of truth to describe the reality of the hyper-connection suffered by children and the consequences for their health, their development, their future, and for our future too. … That of our society, that of our civilization, and perhaps even that of our humanity.

The Commission was shocked by the observations it had to make on strategies for capturing children's attention, where all cognitive biases are used to lock children on their screens, control them, re-engage them, monetize them . She was alarmed by certain representations, of women for example, that digital technology hyper amplifies, and by what it can impose on young girls in their vision of themselves or the behaviors “expected” of them.

Preempting this new market, in which our children have become the commodity, is the new axis of development of some digital companies. We want to tell them that we saw them and that we cannot let them do this.

This population of digital space by children, this migration from reality to virtuality, is too often done in isolation, without parents, and without any security. We must give them back their hand, to better support them, to better protect them, to give them back their place.

We must also, as adults as we are, get back to this time of childhood: our children are not “little adults”, they need to play, they need adults to forget their cell phones for their give time, they need to interact 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 to regain control of screens, to put children back at the heart of our society and allow them to grow and achieve in complete freedom.

What makes a Nation rich is its youth, and ours is not for sale.

Summary

SYNTHESIS

The President of the Republic wanted to set up, in mid-January 2024, a Commission made up of experts from “civil society” to assess the issues related to the exposure of children to screens and to formulate recommendations.

The work of the Commission was carried out in three months. Nearly 150 young people were met, and more than a hundred experts and professionals were interviewed with the aim of covering as much as possible the different aspects of children and adolescents' relationship with screens and digital technology.

During this work, the members of the Commission became convinced that the question of “screens” should not mask the broader, and very necessary, debate on the place, in our aging society, of children and adolescents. , which become invisible. For our youth, the uses of screens are sometimes sought after, because they promise significant socialization in their construction, because they carry unlimited access to knowledge, new skills, and entertainment, because they are accessible to fight against isolation, and likely to compensate for certain handicaps. For our youth, the uses of screens are also sometimes suffered, because they are made irresistible by deregulated strategies for capturing attention and personal data, because they are amplifiers of all hatred, because they are present everywhere in public spaces, because they promote control. against empowerment.

Rather than an approach that would target the child–screen pair alone, we must therefore prefer a collective response. This response will require better appropriation in the public debate of the issues of health, education, equality, fundamental rights and the environment which crystallize, or even confront, in this question of “screens”. It will require progress in knowledge and understanding of the essential needs of children and adolescents to grow well. It will require building on a political level, on a global, European and national scale, a global, coherent strategy, behind which to reinforce the effectiveness of commitments, administrations, researchers, teachers and educators, stakeholders of civil society, field actors. It will require engaging adults alongside children, to give meaning to the limitations and freedoms promoted, to evolve towards more exemplary behavior, to give “human” time back to children and adolescents.

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At the end of its work, the Commission drew up a set of findings summarized below:

- children, like their parents, evolve in a world in which screens and digital technology occupy a preponderant place. Children are thus very widely exposed (10 screens on average per household!), and increasingly younger, to screens, whether in their home, at school, in public spaces, or taking into account equipment that they can have for their own uses;

- a clear scientific consensus is emerging on the harmful consequences of screens on several aspects of the somatic health of children and adolescents. In particular, the use of screens contributes, directly or indirectly, according to a dose-effect relationship, to deficits in

sleep, sedentary lifestyle and lack of physical activity, obesity and all the chronic pathologies that result from it, as well as vision problems (development of myopia and possible risks for the retina linked to exposure to blue light). Questions, not yet resolved by science, on the effects of exposure to electromagnetic waves as well as on the possible impact of exposure to substances present in digital terminals and recognized as being endocrine disruptors invite this stage, to caution, particularly in periods of high vulnerability such as pregnancy;

- studies on the consequences of screens on the neurodevelopment of children and adolescents still require further investigation; and while recognizing the difficulties attached to the conditions of these studies to establish causal links, and the importance of other environmental factors, the data encourage us to move towards regulation of uses. The Commission wishes in particular to call for great vigilance, at least until the child is 4 years old, in the use made of tools in their presence by parents, but also more generally by professionals linked to the early childhood: mechanically, this "technoference" which affects the quantity and quality of interactions with the child can alter, in cascade, socio-emotional capacities and language development. Adolescence is also a vulnerable period in this respect on a psycho-behavioral level;

- the notion of "addiction to screens" as such is not yet recognized by science, but "screens", and in particular the use of social networks, seem to be, beyond the benefits they may bring additional risk factors when there is a pre-existing vulnerability in a child or adolescent, particularly depression or anxiety. In a context of massive diffusion of digital uses, and strong weakening in recent years of the mental well-being of adolescents, particularly young girls, research must progress to enlighten decision-makers, but attention must be acquired

from now on against the harmful designs of certain digital services;

- the uncontrolled access of children to screens and the insufficient regulation of 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 the dialogue with adults is only poorly constructed. They raise, more broadly, questions on a societal level, for example with the massive dissemination of certain stereotypes or harmful representations on relationships between men and women, on sexuality, on "living together". The risks of confinement caused by algorithmic bubbles must be further considered, and harmful representations deconstructed. The dangers linked to child crime have never been so high, and populate all the digital spaces where minors find themselves (video games, forums and messaging services in particular).

Public authorities and the various digital players have not remained inactive in the face of the emergence and amplification of these various risks. But the subject is highly complex, promoting a feeling of helplessness or even renunciation. As such, the new European commitments attached to the *Digital Services Act* (DSA) which has just entered into force, supported by France during its presidency, constitute an essential window of opportunity for action. They must

articulate with a political intention in France which is growing and is reflected in several recent legislative initiatives, which have the interest of bringing this issue to the public agenda, but would gain in effectiveness by being attached to a clarified collective strategy.

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Taking into account these various observations, the Commission considers that it is essential to initiate resolute action to take control of the situation, and to initiate it with a force of proposal aimed at young people. It calls for action to be carried out as much as possible within an internationally coordinated framework and to be part of an overall approach (health, education, parenting, etc.) and not just sectoral.

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

The Commission insists that these proposals must be taken as a whole. They are “system”. To consider that only a few of these measures, the most symbolic, would be enough would be an error. She further specifies that these recommendations have been designed in a non-guilt framework for children, as for their parents, even if everyone has a role to play. As such, the Commission sought to put responsibilities “in the right order”, with digital players in particular having to take all their responsibilities. Finally, the proposals seek to give due importance to the issues of education, dialogue and support, which are essential conditions for the success of the ambition.

These proposals are structured around six axes which represent as many purposes and objectives to be achieved.

The first axis recommends forcefully tackling the addictive and confining designs of certain digital services, to ban them and, in doing so, give children and adolescents their freedom and the possibility of making real choices. The requirement must also be placed on the accessibility and clarity of the configuration and economic model of any digital service, without which minors face developments that ignore their consent; as well as promoting more ethical alternatives to existing models. Likewise, the Commission is calling for action against the evolution of certain video games towards gambling models, made up of microtransactions or deceptive designs. Research and civil society actors constitute major partners for the regulator, and a clear signal must be sent to them in this regard, for an effort that meets the challenges and the creation of more effective action coalitions in dialogue. with the digital “big guys”.

The second axis aims to get out of the rut of parental control alone, which has its limits, to favor, thanks to the mobilization of all, technological solutions making it possible to scale up the protection of minors against illegal content, and whatever the entry point into digital technology (laptop, box, Wi-Fi, at home, in schools, etc.). These solutions will become more effective if the choice is made to advance further on the requirements of interoperability of different digital services, and in particular large platforms. They will have to ensure that they supervise the experience of minors, what they ask for, while respecting the spaces that should be theirs. Protection must also be that of the physical health of children, and research and innovation programs must better emerge to address the issues

somatic, such as vision for example. For each stage of the deployment of digital services, the assessment of their environmental impact must also be integrated.

The third axis involves promoting progressiveness in access to screens and the uses made of them by minors, depending on their age. This logic of a staggered, reasoned and supported “pathway” should make it possible to no longer “let go” of children and adolescents into the digital world without support or education. It must make it possible to keep children as safe as possible, by preparing them, and to lead them towards a gradual conquest of their digital autonomy by particularly protecting the youngest from inappropriate uses and practices. In this logic, the Commission is proposing “benchmark” age limits, which will need to be reassessed regularly to take into account advances in science, as well as protection issues.

The Commission therefore proposes to strengthen the current recommendation not to expose children under 3 to screens, and to advise against their use until the age of 6, or at least for it to be strongly limited, casual, with educational quality content, and accompanied by an adult.

After 6 years, it is a question of moving towards moderate and controlled exposure, which finds its rightful place among activities which must be diversified and varied for the development of children and adolescents.

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

This progressive approach must be implemented in the school context, with the imperative need to build reference frameworks between the State and local authorities, evaluated, crossing health and education issues, involving families and educational communities, for both the deployment of equipment and that of adapted educational uses. In addition, the Commission recommends combating all practices unfavorable to children, in the use of ENT and Pronote for example.

The fourth axis emphasizes the urgency of training and supporting children and adolescents in digital technology, both in and out of school. This training must gain in scope, progressiveness and articulation with the issues specific to children and adolescents; it must be accompanied on the ground by the visibility of reference adults capable of answering the questions of children and adolescents, including if they wish to discuss them in a more intimate setting than the classroom. Education in all humanities must also make way for the phenomena of amplification of difficulties driven by digital technology. Beyond training issues, the Commission insists on the need to deploy “countermeasures” to compensate or limit some of the effects of screens on sleep and sedentary lifestyle in particular. Finally, the Commission calls for the consolidation, through a major and proactive commitment from all of society, of all alternative proposals to screens, to give children and adolescents the desire and opportunity to get involved in a different way. The Commission is convinced that limitations alone, even if well understood, will not be sufficient: children and adolescents need to rediscover the interest that society owes them, to reconnect with

human, to see play areas, including board games, populating urban spaces, waiting and transport areas. This is making room for the needs of children.

The fifth axis concerns adults, and in particular all those who work with children and adolescents, starting with their parents. It is particularly important to amplify the parenting support movement, but also to equip and train teachers and more broadly all professionals or volunteers in contact with young people. At the same time, society as a whole must set an example, without which miners will find it difficult to follow. It is appropriate to promote “disconnected” places and times, to organize symbolic disconnection rituals and challenges, to ensure respect for the lives of parents while teleworking has become widely diffused, thus blurring the boundary between personal life and professional life. It is on this condition, in the interest of all, and minors in particular, that the “screens” will be able to regain their rightful place.

Finally, the sixth axis presents the proposals necessary, according to the Commission, for the deployment of a winning global strategy. This requires, in particular, greatly strengthened governance, including a special place for children and adolescents, an observatory making it possible to collect and monitor large data on screens and the diversity of their uses, a necessary foresight council. to embrace the challenges of a technological revolution accelerated by artificial intelligence. The Commission also recommends building a system of financing public action, research and associations that is impervious to dialogue with digital players themselves, but based on their contribution under a “polluter pays” principle. which we believe could apply in this field *(see* in particular the proceeds of fines, or the supervision costs at this stage directed towards the European authorities only). Finally, the Commission calls for a large-scale communication strategy, highlighting legitimate expectations for the development of children and adolescents, finding its routine around key moments in the lives of minors, establishing itself in the public landscape as other public health themes have managed to do this, guaranteeing the consistency of all messages.

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The Commission expresses the hope that these principles can be mobilized together, and found the first stage of a collective and transpartisan vision, which alone will be able to create the salutary surpassing for the sustainable evolution of behavior and the emergence of a proposal at the height of the journey of childhood and adolescence.

INTRODUCTION

The President of the Republic wanted to install a Commission made up of experts from civil society in mid-January to assess the impacts of children's exposure to screens, evaluate the effectiveness of actions already implemented, and formulate recommendations. The public authorities have not done anything, but the subject is highly complex, at the crossroads of issues of health, education, social equality, many fundamental rights including freedom, dignity and protection of the childhood. This complexity should not, however, create helplessness, which by dint of being felt becomes real, in the face of an industry that is anything but in a state of inertia.

At the end of these three months of work together, the members of the Commission have become convinced that the question of “screens” must not mask the broader and necessary debate around the place and needs of children in our society. . We cannot question the right place of “screens” in the lives of children, promote a progressive and secure takeover of digital technology, without further committing to a strong political and societal project, serving their needs and their needs. rights.

Asking the question of “screens” and children risks leading one to think that the problem is only in the relationship of screens to children, and that the solutions are to be found in this pair alone. Certainly, “screens”, which must be considered in their full sense (technological tools, uses, and content that they make accessible), are everywhere: through those who accompany children, through the population of street furniture and public space, through

children's own use ever earlier. But behind the relationship of young people with screens lie many phenomena, which call for a project of overcoming.

Obviously, this is a difficult subject, which deserves nuance, and before which the members of the Commission have complete humility. To the different components of “screens”, we must add the different needs specific to children depending on their age and sometimes their gender, from before their birth until the end of their adolescence. Their brain continues to evolve until they are around 25 years old, its functioning is partly known but still retains many unknowns, and the development of children carries, at several key moments (first 1,000 days or puberty for example), vulnerabilities that require vigilance.

If the question of the relationship between screens and children is for all these reasons difficult, and will not fail to be subject to numerous debates when this work is completed, the members of the Commission express the hope of being able to come together around a simple principle: to the issues raised by the exposure of children and adolescents to screens, the response must be collective.

The main thing is to realize, in an aging society, that children are gradually becoming invisible, becoming poorly armed captives of economic giants and strategies of control.
in all directions, are urged not to make noise in collective places, set alarm clocks at night to check their notifications or discover that their parents have access to their grades before their teacher communicates them to them, are confronted without choice with representations that are questionable from an ethical and democratic point of view, while also struggling to have the interest of their online experience recognized.

We cannot accept that children become commodities, targets of endless notifications, glued to reward systems designed by behavioral science experts to be irresistible, with free time becoming highly digitalized. We cannot accept

that their mind, their time, their life, can be assimilated into data that can be converted into cash at will. Where the digital technology can be useful, where it is likely to 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 mechanisms, it must be refused.

This ambition is demanding; it requires a commitment from everyone: it can only be conceived by reinvesting the words and needs of children themselves, by giving meaning and a framework to the digital experience, by organizing a large-scale transition scale of digital training and its codes, and by assuming to make 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, civilizational, societal, anthropological and family transition has experienced a new acceleration with the Covid crisis, both because confined homes have become even more populated with “screens”, and because the border between personal life and parents' professional lives have faded further with the spread of teleworking. New technological potentialities, which are moving quickly, such as artificial intelligence and the metaverse, are not understood today from the point of view of children.

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

- the search for coherence and progressiveness: the paradoxical injunctions and the confusions which are plentiful do not allow either children or their families to make sense of the freedoms and limits which must be established and explained. A major investment in research is absolutely necessary, with all disciplines, with strong coalitions between civil society actors, to better illuminate from a scientific point of view the impacts of “screens” on children. Controversies exist today on the scientific level, in particular because going from highlighting correlations to demonstrating a causal relationship is difficult. The Commission nevertheless considers that the time for research and these uncertainties are not incompatible, including by mobilizing the precautionary principle, with the establishment now of a project and strong recommendations that can be read by society. It is a major political responsibility to make an intention out loud, wherever necessary, not to accept what is not compatible with the emancipation and health of children;

- the affirmation of an imperative of public order to protect children in digital life, equivalent in its objectives to that which applies in other spheres of collective and individual life, even though this digital life raises a particular complexity due to the absence of “geographical” and “temporal” boundaries in an unregulated globalized environment. The primary responsibility is not that of individuals and families.

  If digital life can provide leisure, social connection, knowledge, emancipation, there is no reason why it should not be governed by rules that protect the physical health, development and mental health of children. No one would think of entrusting the keys to a car to a child who is too young, without serious learning, without prior support, without checking the quality of the vehicle, without a highway code common to all;

- the need to put the fight against inequalities at the heart of the project: this requirement can both justify putting a greater level of effort towards vulnerable children, and those most exposed to health risks; like mobilizing responses

particular, including digital, when they are likely to improve the lives of children, whether they are disabled or isolated;

- the urgent need for digital acculturation and its uses to give everyone back the ability to choose, act and balance their digital life: for children and their families, for professional and particularly educational communities, for local actors, for the regulator, for researchers and virtuous actors of civil society;

- the identification of a twin imperative of regaining control of screens, that of massification and making alternative responses to “screens” visible and accessible, to reinvest activities that are essential and essential to the development of children .

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The Commission's work takes place in a particularly favorable context for building this ambition. Expectations and demands are everywhere, among the children themselves, among families, among professionals. The European Union is moving forward quickly, States are organizing themselves, civil society is structuring itself, certain 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 European level, which also provides the right incentives to economic players. Without this precisely established collective course, there is a great risk of a dispersion of energies and inflation

normatively poorly thought out and counterproductive.

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The Commission, co-chaired by ***Servane Mouton,*** neurologist, and ***Amine Benyamina,*** addiction psychiatrist, has a total of ten members, guarantors of the multidisciplinarity and expertise required on these complex issues:

- ***Jonathan Bernard,*** epidemiologist at Inserm, and leader of a research program on the impact of screens on children's development;
- ***Grégoire Borst,*** professor of developmental psychology and cognitive neuroscience of children and adolescents at Paris Cité University and director of the LaPsyDE laboratory at CNRS ;
- ***Axelle Desaint,*** director of the digital education center of Tralalere, and Internet Sans Fear, national digital education program for young people and families of the European Commission ;
- ***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 After ;
- ***Marie-Caroline Missir,*** general director of Réseau Canopé (public training network for teachers);
- ***Catherine Rolland,*** head of the “science and video games” teaching and research chair from the Polytechnic School of Paris;
- ***Grégory Veret,*** founder of the company Xooloo, specialized in the protection of children on Internet ;

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

In the three months of its work, the Commission was neither able nor willing to carry out an academic or university study, this being more a matter of long-term work undertaken by various public organizations. While ensuring that we clearly establish what is the consensus today from a scientific point of view, and what is more uncertain in the absence of sufficient data, as well as taking into account the debates and divergences that may arise. both within the Commission and in society more generally, the Commission has managed to agree on a body of findings and recommendations which it hopes will constitute robust points of support for the deployment of a strategy collective at the height of the interests of the children.

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

- the Commission was keen to involve young people in its reflection to avoid as much as possible the trap of adult representations. Who better than young people themselves to talk about their uses, their needs, their difficulties, their expectations? This youth association has taken different forms, including immersion during dedicated workshops alongside associations, or even organization, with the support of the Canopé network and the Interministerial Delegation for Public Transformation (DITP) , a dedicated day with nearly eighty middle school students:

- the Commission also conducted around a hundred hearings of professionals, voluntarily from very diverse fields (health, education, early childhood, society, institutional, academic, associative, economic sectors, etc.), without these hearings necessarily being exhaustive. The Commission endeavored to embrace as broadly as possible all positions without exclusion or a priori, while conducting these exchanges in complete independence with regard to the own interests that its interlocutors may have.

The proposals that the Commission formulates thus correspond more to principles of action for an overall strategy, systematically informed by more operational recommendations which will have to be specified in a medium-term roadmap.

The Commission would like to emphasize a few markers which, in its view, determine the effectiveness of this strategy:

- the approach must be systemic, and articulate all the levers of action. If measures are taken in isolation and brought to the political level in a fragmented manner between ministerial officials, without being backed by a shared vision in public debate, they will only have a very limited impact. The search for a large-scale effect justifies an orderly mobilization of all fields of action;

- success will depend on a strong political impulse, beyond just political and media time: only this impulse will be likely to obtain the commitment of everyone in the service of children, and in particular economic actors;

- efficiency will be gained gradually: it is useful to set a long horizon, and to take responsibility for improving the situation step by step. Each action lever will have its imperfections and limits, but this should not be an obstacle to their implementation or their systematic evaluation to guide public policies on this subject.

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The work of the Commission is presented below in four parts:

- Exposure of children and adolescents to screens: what are we talking about?
- Exposure of children and adolescents to screens: is it serious?
- Exposure of children and adolescents to screens: what have we done so far?
- Exposure of children and adolescents to screens: what ambition and how shape ?

This work constitutes a step which must support the emergence of an offensive and coherent public policy, meeting the challenges; as well as promoting societal and transpartisan mobilization involving all stakeholders, including young people themselves. The reflection initiated by the Commission in three months will naturally have to continue and deepen, as well as structuring itself into an organization that is both sustainable, agile and equipped with the means to act.

PART 1 – “EXPOSURE OF CHILDREN AND ADOLESCENTS ON THE SCREENS”: WHAT ARE WE TALKING ABOUT?

Screens and digital technology now occupy an essential place in our society. They are present everywhere, in workplaces, in homes, in public spaces. They have become common tools for professional use, training and even leisure.

If the presence of screens in our daily lives, and in that of young people in particular, is not new - it began with the arrival of television in homes - it has increased significantly over time with the arrival then the development of the Internet, the diversification of available terminals and the multiplication of uses enabled by all of these tools. It has particularly accelerated since the recent arrival of individual and mobile devices, tablets and smartphones in particular.

Children and adolescents, like all of society, live in regular contact with screens and digital tools and use them.

The following developments aim to present synthetic data on the place and role of screens in our society and more particularly among young people.

Without claiming to be exhaustive, and it being specified that the diversity of existing data sources can sometimes lead to variable figures depending on the work, this part seeks to provide an overview of the current situation and the presence of screens among minors. It is thus firstly interested in the level of equipment of homes in general and of minors in particular (1.1), then secondly in the uses that minors make of screens (1.2).

1.1- What is the level of equipment with screens and digital tools at which minors have access in their homes, at school or via their own equipment?

1.1-1. Children and adolescents can access screens through the equipment in the home they live in

Homes are a place where screens are particularly present. Thus, in France, according to the 2022 edition of the Digital Barometer, French households owned on average nearly 10 digital devices with screens. It should be noted that out of these ten screens identified per household, 2.6 on average were not used.

This equipping of homes with screens consisted of the following:

- 2.85 mobile phones/smartphones;
- 2.13 televisions (it can be noted that the number of televisions is tending to decrease: while one in two households had several television sets in 2012, the rate of households with at least two televisions was only 42 % in 2022);
- 1.99 laptop or desktop;
- 1.24 tablets;
- 1.07 portable game console;

- 0.71 connected watch or bracelet.

By looking at the rate of equipment per person, still according to the Digital Barometer, in 2022 :

- 94% of those questioned said they had a television at home;
- 89% of people had at least one personal or professional computer at home residence ;
- 87% of the population aged over 12 had a smartphone (+ 3 points compared to to 2020);
- 57% of people had a tablet at home.

It should be noted that other digital tools, with or without a screen, have entered homes and are seeing their presence increase. As an illustration, the rate of equipment with connected speakers with voice assistance is increasing sharply, with the share of households having them being estimated at 27% (compared to 19% in 2020 and only 9% in 2019). At the same time, the number of “other connected objects” (objects relating to health, household appliances, security or even home automation) within homes is also growing rapidly since, according to the same source , “ 40% *of those surveyed have at least one”,* which represents an increase of 7 points compared to the previous study.

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

Children also have access to digital tools through school, whether it is a fixed or mobile terminal or an interactive digital whiteboard (TNI). These screens are sometimes used as supports educational or digital discovery and training.

Regarding equipment levels in schools, the most up-to-date data that the Commission has been able to access concerns digital equipment in the public sector for the 2021-2022 and 2022-2023 school years. These main data are shown in the table below.

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

	Name of fixed terminals per 100 students	Name of mobile terminals per 100 students	Number of tools video projection for 100 students
Preschool	3	3	2
Elementary schools	5	10	4
Primary schools	4	10	4
1st DEGREE **ENSEMBLE (2022-2023)**	**4**	**9**	**3**
Colleges	23	17	6
General and technological high schools	43	23	7
Vocational high schools	71	26	11
ENSEMBLE 2nd DEGRE (2021-2022)	**33**	**20**	**7**

Source: Data communicated to the Commission by the Digital Education Directorate (DNE) of the Ministry of National Education, taking up the work of the Evaluation, Foresight and Performance Directorate (DEPP) of the same ministry .

It can also be noted that:

- 98% of public secondary schools have dedicated computer rooms (100% of vocational high schools, 99% of general and technological high schools, 97% of middle schools and 99% of school campuses) according to the evaluation department , foresight and performance (DEPP) of the Ministry of National Education;
- according to data1 dating back to the 2018-2019 school 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 middle schools, 94% of general and technological high schools and 95.5% of vocational high schools.

In 2021, the DEPP indicated that the level of equipment in relation to the number of students had improved significantly since the number of students per computer had decreased significantly over the last decade in primary and secondary schools. Thus in kindergarten, the indicator went from 25.3 to 15.9 students for a computer between 2009 and 2019; over the same period, it went from 11.6 to 6.9 in elementary school and from 8.1 to 3 in middle school. In high school, the indicator has remained relatively stable since 2010, due to an already high equipment rate (it went from 3.1 to 2.3 between 2010 and 2019) [2].

According to the same study, this average rate, however, conceals a great deal of heterogeneity depending on the sizes, types of establishments and their classification (for example, establishments located in priority education are better equipped).

Furthermore, according to the DEPP, even if the number of students per computer is decreasing, French schools are less well equipped digitally than the average of OECD countries. According to the 2018 Talis survey, the use of digital technology in the classroom remains limited among French teachers: “French teachers report having little use of information and communication technologies (ICT) in their teaching practices, unlike those of other OECD countries. Indeed, although many French teachers frequently use

[1] Source: INSEE, Economy and society in the digital age 2019 edition.

2 Source: Digital education: what do DEPP data tell us? Working document n° 2021.S03 – Syntheses series, August, 2021.

digital tools to prepare their lessons (94% for the first degree and 88% for the second degree), fewer of them use them to guide class sessions (respectively, 50% and 70%) and even fewer let students use ICT for projects or work in class (respectively, 14% and 36%)3 ".

1.1-3. Children and adolescents also often have equipment that allows them to are clean

With regard more particularly to children and adolescents, the available data4 in terms of the average rate of equipment in France with personal screens, that is to say truly dedicated to their own use, indicate that, for the year 2022 :

- in the 13 - 19 year old age group, young people owned an average of 2.9 screens personal;
- in the age group of 7 - 12 years old, young people had an average of 1.6 personal screens.

A detailed analysis of the types of personal devices owned by children and adolescents reveals that:

- the smartphone is very present since it was owned in 2021 by 89% of 13-19 year olds (up 12 points compared to the situation in 2016) and by 35% of 7-12 year olds. 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 9 years and 8 months5 ;
- a personal computer is owned by 69% of adolescents aged 13 and over. Children aged 7 to 12 are less likely to personally have such equipment, but still 19% are equipped6 ;
- 58% of 7-12 year olds and 63% of those over 13 have personal game consoles.

1.2- What are the screen practices of children and adolescents?

The practice of children and adolescents can be analyzed from the point of view of the time spent on screens (1.2.1) and the uses made of them (1.2.2) (the time and uses at school not being not taken into account in the developments of 1.2.1).

1.2-1. What is the average screen viewing time for young people?

Regarding the total cumulative time, the last study which refers in France at the time of this reflection dates back to 2015, i.e. well before the Covid period (Esteban study carried out by Public Health France). According to this study, children aged 6 to 17 spent an average of 4 hours 11 minutes per day on a screen. The fairly clear trend is that of a fairly significant increase in the screen time of children and adolescents when we look at the studies available from previous periods.

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[3] Source: TALIS survey, 2018.

4 Source : Etude IPSOS, Junior Connect', Edition 2022.

5 Source: Ined-Inserm, Elfe Cohort, 10.5 year survey 2022.

6 According to the DEPP (2021), we observe that 34% of middle school students educated in a private establishment have their own computer, compared to 26% for those educated in priority education.

Table 2: Average screen time per day (in hours and minutes) in major surveys by Anses and Public Health France

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 old	3h31	3h12	3h38	4h48
15-17 years old	3h27	3h50	4h50	5h24
All of the minors	2h57	2h48	3h05	4h11

Source: Commission based on data from studies carried out for ANSES and Public Health France

The 2024 study on young people and reading carried out by the IPSOS institute for the National Book Center (CNL) reveals that young people aged 7 to 19 spend an average of 3 hours 11 minutes on screens every day. She specifies, concerning the 16-19 year old group, that boys spend more than 5h12 min on screens (in addition to the time spent in front of a screen for school, studies or work) and girls 5h09 min. Among children aged 7 to 9, the daily average screen time is 1 hour 50 minutes for boys and 2 hours 20 minutes for girls.

The latest survey of the “Elf cohort” [7], conducted in 2022, showed that children aged 10 and a half spent on average 2 hours 36 minutes per day in front of screens. It is interesting to note that this study presented screen viewing time by device type. These 2h36 min were distributed as follows on average: 59 min of television, 33 min of video games, 29 min of tablet, 19 min of smartphone and 16 min of computer.

Regarding the youngest children, the estimates published in April 2023 in the Weekly Epidemiology Bulletin of Public Health France and obtained from data from the “Elf cohort” on the screen time of children born in 2011, showed that the average daily screen time of children was 56 min at 2 years old (i.e. in 2013), 1h20 min at 3 and a half years old (in 2014-2015) and 1h34 min at 5 and a half years old (in 2017). Only 13.7% of children were not exposed to screens at all at age 2.

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

Overall, the youngest children mainly watch television (cartoons in particular) but very quickly; as they grow up, they start going online and playing video games.

People are using the Internet at younger and younger ages, sometimes even before using video games, or at the same time, *via* connected devices (tablets in particular) to watch videos or engage in other recreational uses. According to an e-Enfance survey with Toluna-Harris Interactive from

[7] The “Elf cohort” is the first French longitudinal study on a national scale devoted to monitoring children, which addresses the multiple aspects of their lives from the perspective of social sciences, health and the environment. The children in this cohort were born in 2011.

February 2023, parents surveyed indicated that their children started using the Internet (with an adult) at 5 years and 10 months and that the age at which they started using the Internet alone was 6 years and 10 months.

When screens, regardless of the device used, are used to access the Internet, usage diverges depending on age. According to the same e-Enfance survey with Toluna-Harris Interactive, the first uses of the Internet by 6-10 year olds mainly concern activities related to entertainment, with the aim of relaxing, having fun and to satisfy their curiosity: 44% to watch videos, 34% to use creative applications and 33% to listen to music. Adolescents aged 13 and over use the Internet more for social purposes. They therefore favor social networks, mainly those which are driven by video, instant messaging services, video games or even listening to music.

Social networks occupy an important place in the uses made of screens by children and adolescents. Thus, a study by the e-Enfance 3080-Caisse d'Epargne association made public at the end of 2023 shows that 86% of 8-18 year olds are registered on social networks. A previous study, carried out for the Génération digital[8] association , made public in February 2022, indicated that in 2021, 62% of boys and 68% of girls were present on social networks among the 11-18 year old population.

The main uses declared as sought after *via* social networks were then chatting with friends or family (for 78% of young people aged 11 to 18), watching videos (for 58%) and playing video games (for 29%). Discussions about classes and homework, which previously occupied third place among the desired uses, have now given way to video games.

It should also be noted that children under the age of 13 are registered in large numbers on social networks, although in theory prohibited for under 13s. Thus, according to this same study, 58% of young people aged 11-12 in 2021 had an account on at least one of the social networks. For its part, the Audiovisual and Digital Communication Regulatory Authority (Arcom) reported that “45% of French people aged 11-12 are registered” on the TikTok application.

Video games also feature prominently in screen usage among under-18s.
According to the study “The French and video games” carried out in June-July 2023 by Médiamétrie for the Union of Leisure Software Publishers (SELL), 93% of 10-17 year olds play video games (94% of 10-14 year olds and 92% of 15-17 year olds). Among these “child” players, 22% play several times a day, 40% play every day or almost and 30% play once or twice a week. According to this same study, playing video games among children and adolescents has a strong social dimension for them: 81% of them play games with others, online or locally (compared to 58% of adult players).) and 48% of children playing video games say they have the feeling of “belonging to a community” (compared to only 29% of adults). Parents, 68% of them, indicate that they are concerned about their children playing video games, either by systematically being at their sides when they play (7% of parents), either by letting them play independently but choosing the games or by advising them on the games they can play; 69% play with their children at least occasionally and 94% say they are aware of the existence of parental control systems but only 45% say they use one.

Concerning the use made of screens by children and adolescents in connection with their schooling, digital tools, according to the DEPP, are mainly used to carry out research, create written documents or oral presentations, or even to program in computers .

[8] Survey “Digital practices of 11 – 18 year olds” presented by the Génération digital association – February 2022.

In 20199 , the digital tool most used by 3rd grade middle school students in mathematics remains the calculator: 56% of teachers say they “very often” have their students work with a calculator, while only between 3 and 5% do so. “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 carried out in particular at entry into 6th grade are done on screen. Thus, the OECD PISA study notes that “the student's digital capital promotes the improvement of the results obtained in the PISA skills tests”. However, “students' possession of personal digital tools seems to differ depending on the social origin of the parents and their schooling establishment.

For example, we observe that 34% of middle school students educated in a private establishment have their own computer, compared to 26% for those educated in priority education. If French teachers remain poorly trained in the educational use of digital technology, confinement has favored their appropriation and slightly advanced the use of digital technology in the school setting. Thus, still according to the DEPP, nearly 80% of primary school teachers and more than 85% of middle school teachers declared that confinement had contributed to developing their digital skills, and nearly 80% of teachers think that the implementation place of distance education has had a positive impact on their educational innovation (differentiation, group work, project 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 adolescents are not correlated with their digital skills: France thus obtains an average score of 499 in “digital literacy10 », just a little above the international average of the countries participating in the survey. This score means that only 40% of students achieve the average level of digital literacy skills assessed in the 2018 International Computer and Information Literacy Study (ICILS) survey from the IEA (International Association for the Assessment of Educational Achievement). This medium level refers to the basic tasks of collecting and managing information on a computer.

Finally, the INSEE study, on “The economy and society in the digital age” in 2019, already mentioned above, provides interesting indications on the proportion of establishments offering accessible services, particularly to students, outside establishment via the Internet *(see* table below).

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

Table 3: Share of establishments (in %) offering services accessible outside establishments via Internet

Services accessible	Schools kindergarten	Schools elementary	Colleges	General and technological high schools	Vocational high schools
Skills booklet on Internet	5,6	66,7	.	.	.
Documents et resources educational	41,3	54,0	95,1	95,4	92,0
Timetable on the Internet	3,2	9,3	97,4	98,3	97,5
Agendas and news from the establishment	16,9	31,8	96,9	95,4	94,7
Student grades on the Internet	.	.	99,3	99,8	99,7
Absences of students on the Internet	.	.	95,3	96,9	97,7
Textbook on Internet	.	.	99,5	99,1	100,0
Other services on Internet	47,0	19,3	.	.	.

Source: Commission based on data published by INSEE ("The economy and society in the digital age"), 2019

PART 2 – “EXPOSURE OF CHILDREN AND ADOLESCENTS ON SCREEN: IS IT SERIOUS?

Without prejudice to the progress that can be brought about by digital technology when it is used well, whether we think for example of the multiplication of possibilities for exchange and openness to the world or even access to knowledge and the emancipation that it can allow, its diffusion is such today at the level of equipment, uses, and contents, that it is important to control its impacts and to reduce the possible associated risks for health and for child safety.

To control these impacts, the challenge is therefore first of all to be able to clearly identify and qualify them, taking care to explain what is widely established on a scientific level, or even a consensus, of what can be today just questioned, or prove more controversial, in the absence of sufficient data.

The Commission therefore sought to take stock of the state of knowledge regarding the impacts on children and adolescents 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 adolescents (2.2);
- the mental health of minors (2.3);
- risks of exposure to inappropriate, traumatic, or even dangerous content for the safety of minors (2.4);
- more “societal” impacts (2.5).

2.1- Screens as a technology present risks today established by the science on certain aspects of the physical health of children and adolescents.

There is a very clear consensus on the direct and indirect negative effects of screens on sleep (2.1.1), on a sedentary lifestyle, lack of physical activity and the risks of overweight or even obesity (with a cascade the resulting pathologies) (2.1.2) as well as on sight (2.1.3). However, questions about other suspected or possible effects of technologies associated with screens on health remain unresolved at this stage, calling for caution and continued research (2.1.4).

2.1.1- Screens and the uses made of them have a proven negative effect on the sleep of children and adolescents

Available data reveals that young French people lack sleep. Thus, in France,
in 202011, adolescents in France slept an average of 7 hours 45 minutes per night, and in particular less than 7 hours per night during the week, instead of the 8 hours 30 minutes to 9 hours of sleep recommended by the organization

[11] National Institute of Sleep and Vigilance. 20th Day of Sleep. The sleep of the French in 2020.

American charity “National Sleep Foundation” (NSF) 12. Furthermore, 16% of children aged 11 and 40% of those aged 15 had a deficit of more than 2 hours of sleep per day, during the week.

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

Chronic quantitative and/or qualitative alterations of sleep promote the occurrence of numerous pathologies: metabolic disorders such as overweight or obesity, diabetes; cardiovascular illnesses ; 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; alteration of immune regulation. In addition, a lack of sleep or poor quality sleep significantly increases the risk of physical and road accidents. In general, chronic sleep deprivation increases the risk of mortality.

In minors, as in adults, lack of sleep causes a cascade of consequences that can be serious on both physical and mental health. In children, sleep also plays a crucial role in overall development and plays a crucial role, notably in memory processes13, in the mobilization of attentional capacities14 and in the regulation of emotions. During early childhood and throughout school thereafter, acute and chronic sleep deprivation can compromise learning and academic success by modifying alertness, processing speed, cognition and behavior. Impaired sleep in those under 18 is therefore responsible for significant cognitive disorders and can have lifelong repercussions. Finally, the quantity and quality of sleep in children are particularly important to the extent that sleep habits are established in childhood: poor sleep hygiene is likely to persist over time.

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 sleep of children and adolescents, and disrupt their natural cycles.

Several mechanisms can explain the link between screen use and sleep:

- the generalization of the use of screens in the evening, and sometimes even during the night, which mechanically leads to a reduction in sleep time and significantly disrupts its quality. From this point of view, adolescents are particularly exposed to the extent that it has been observed:

    - o very frequent late use of screens. These uses are facilitated by the fact that many children and adolescents now have a connected device in

[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 (that which records facts and whose content can be expressed verbally) is consolidated during deep sleep and procedural memory (or “automatic memory” which allows, for example, walking or cycling without having to relearn every day) consolidates during paradoxical sleep. The quality of sleep determines the quality of memory for the next 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 will be. This concerns sustained attention such as focal attention as well as working memory.

permanence in their room (this is the case for 71% of 11 to 18 year olds15). This tends to push back bedtime and falling asleep, and therefore to reduce effective sleep time;

o checking the time or notifications on the smartphone when waking up at night, leading to cognitive awakening and difficulty getting back to sleep;

o the existence of widespread behavior among children and adolescents consisting of voluntarily staying awake, or even setting an alarm in the middle of the night, to use a screen (exchange with friends, follow news on a social network, watch videos, playing video games…). A recent survey revealed that 31% of young people aged 11 to 18 said they stayed awake or woke up at night for this purpose16

exposure to a rapid scrolling of images, sounds, lights and movements broadcast on screens, such as playing video games, which stimulate awareness. Viewing violent or age-inappropriate content can thus 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 the synchronization of biological rhythms17. Normally, the decrease in light 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 - 4 a.m.

in the morning. However, the use of screens in the evening, and particularly in the hour before going to bed, prolongs the period of suppression of melatonin synthesis, which delays falling asleep and the onset 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);

- disruptions to the circadian rhythm linked to time spent on screens, including during the day. Indeed, this rhythm is also influenced by physical activities. If these are not sufficient, sleep will be impaired. However, the recreational use of screens among children and adolescents can often encroach on these activities, therefore having a disruptive effect on the internal clock18 .

For the first three points, the harmful effects of exposure to screens are particularly marked when using terminals in the evening (particularly in the hour before the theoretical bedtime). A 2022 survey by the National Institute of Vigilance and Sleep showed that children who spend more than an hour on screens between 5 p.m. and

15 Survey “Digital practices of 11 – 18 year olds” presented by the Génération digital association – February 2022.

16 Survey “Digital practices of 11 – 18 year olds” presented by the Génération digital association – February 2022.

17 Recent studies tend to conclude that “blue light filters” do not provide any benefit on sleep quality (fall asleep latency, sleep architecture, feeling of fitness the next morning) or on melatonin secretion.

18 “ Sleep disorders” Yves Dauvilliers. Elsevier Editions. 2019.

8 p.m., go to bed later and see their sleep time reduced19, under the cumulative effect of the various factors mentioned above.

It should be noted that among adolescents, these phenomena of sleep disruption linked to screens and their use, add to the "natural" or physiological phase shift, namely a tendency of adolescents to "be evening", implying falling asleep later in the evening and waking up later in the morning. This phenotype, possibly accentuated by the use of screens in the evening, physiologically shifts falling asleep towards very late hours and the wake-up time being most often stable and imposed by school schedules, this results in a sleep debt.

Faced with these worrying findings, the Commission noted during its work that awareness of the effects of screens on the sleep of children and adolescents was very insufficient.

Thus, a recent survey revealed that 49% of parents of children under 11 believed that the use of screens had no impact on their children's sleep, and that 8% even thought that this impact was beneficial20 . In general, the biological realities linked to sleep are not sufficiently taken into account today by society as a whole, particularly

regarding pre-adolescents and adolescents.

Table 4: Sleep duration recommendations from the National Sleep Foundation21

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 old	9-11
14-17 years old	8-10

2.1.2- The place taken by screens and the uses made of them encourage a sedentary lifestyle and lack of physical activity, creating the basis for overweight, even obesity, responsible for numerous chronic pathologies

French data highlight that minors are insufficiently physically active, too sedentary and significantly affected by overweight and obesity.

Studies carried out by Anses in 2020 based on 2016 data on sedentary lifestyle22 and physical activity show that 33% of children under 3 years old did not engage in any outdoor physical activity. Between ages 3 and 10, a third of boys and two thirds of girls were considered sedentary. Between 11 and 17 years old, 20% of boys and more than half of girls were considered

19 In 2022, 40% of children under 11 years old, 60% of 6-11 year olds and around 70% of 12-17 year olds looked at a screen in the hour before falling asleep. Furthermore, one in ten children under the age of 11 fell asleep in a room in which a screen is on.

[20] Source: National Institute of Sleep and Vigilance. 20th day of Sleep. The sleep of the French in 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 lifestyle is defined by a “wakefulness situation characterized by low energy expenditure in a sitting or lying position”. Note: time spent sitting in front of a screen for leisure has been the most used indicator since the 1970s and 1980s in studies to assess sedentary lifestyle among young people under 18 years old.

as sedentary. Generally speaking, it was noted that there was a strong social gradient in children's sedentary lifestyle: the lower the socio-educational level, the more sedentary the child was.

The latest national epidemiological survey "Obépi-Roche" available on overweight and obesity revealed that 21% of 8-17 year olds were overweight, including 6% obese. Among 2-7 year olds, overweight and obesity are on the rise. These alarming data, observed in most high-income countries, have led to talk of an “obesity epidemic”. It is appropriate here again to underline the existence of a strong social gradient, with higher rates of overweight and obesity in families with a lower socio-educational level.

However, a sedentary lifestyle, lack of physical activity and being overweight constitute important and recognized risk factors in terms of health, in particular by increasing the risk of cardiovascular and metabolic diseases23 .

A sedentary lifestyle, beyond the increased risks of developing cardiovascular pathologies24 , increases mortality from all causes. The practice of moderate to intense physical activity alone does not fully compensate for the sedentary lifestyle caused by time spent sitting25. Beyond 7 hours per day spent sitting, each additional hour increases the risk of mortality from all causes by 5%.

The probability that a child will remain obese in adulthood varies according to studies from 20 to 50% if obesity is present before puberty, from 50 to 70% if it appears after puberty. The persistence of obesity is a certain source of future complications, by facilitating the occurrence of cardiovascular diseases26 and metabolic diseases.

It should be noted that certain pathologies favored by a sedentary lifestyle, overweight and obesity, previously considered specific to adults (arterial hypertension, lipid disturbances, type 2 diabetes, sleep apnea syndrome, etc.) can now be present from childhood in the case of obesity, with a consequent significant increase in the risk of cardiovascular disease in adulthood. Furthermore, obesity could promote precocious puberty in girls27 .

The links between the space given to screens and the uses made of them, and sedentary lifestyle and less physical activity are obvious.

The factors causing sedentary behavior among young people are multiple and are integrated into the modern way of life. The 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 position, sitting or lying down. It is also associated with a lesser duration of total physical activity since the more time spent in front

[23] The concept of cardiovascular disease brings together a set of pathologies: myocardial infarction and other coronary diseases, cerebrovascular accidents (CVA), chronic renal failure of vascular origin, arteritis of the lower limbs, venous diseases.

24 For example, according to the INTERSTROKE study, a sedentary lifestyle is the cause in 35% of stroke cases.

25 A sedentary lifestyle should not be confused with the absence of sports practice, nor insufficient physical activity. We can both being sedentary (too much time spent without activity) and also practicing physical or sporting activity.

26 According to the INTERSTROKE study, the risk of stroke increases by 22% in cases of overweight and by 64% in cases of obesity.

[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.

screens is high, the less that available and actually devoted to physical activities of moderate or high intensity will be important by simple substitution effect.

If the epidemic of overweight and obesity cannot be blamed on screens alone, their excessive use contributes to it.

Numerous studies have revealed dose-response associations between time spent in front of screens and increased risk of overweight and obesity, or excessive accumulation of adipose tissue28 .

It should be noted that, in the literature, this link is more apparent in adolescents than in young children. This can be explained, on the one hand, due to the fact that the accumulation of adipose tissue takes place over a more or less long time until the stage of overweight and, on the other hand, due to the specificities of the growth of young children. Routine weight tracking tools may mask the identification of a link at this age. However, early childhood is a period during which excessive screen use can set the stage for later excess weight.

Several factors can explain this link:

- time spent on screens leads to a reduction in calorie expenditure29. Indeed, paying attention to the screen implies a static sitting position, a source of sedentary lifestyle, and a reduction in energy consumption. It is interesting to point out, however, that the “amplitude of energy consumption” depends on the type of screen viewed. Energy consumption is thus lower in front of the television screen in front of which the viewer remains in a passive attitude compared to the use of a screen associated with a video game which can involve more physical activity and commitment30 ;

- time spent on screens is more frequently associated with eating behaviors leading to an increase in energy intake through food31. In particular, eating in front of a screen (in front of the television for example) distracts attention and reduces or delays the feeling of satiety, thus promoting overconsumption of energy through food32. The use of screens also seems to promote greater permeability to advertising messages promoting food products and therefore lead to their consumption33. A correlation has also been noted between time spent using screens and a greater appetite for fatty, salty or sweet products, with a Nutri-score classified as D or E.

[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. Screen use, overweight and obesity. Obesity. 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. Screen use, overweight and obesity. Obesity. 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 crue to consume: a systematic review and meta-analysis of the effects of acute exposure to unhealthy food and nonalcoholic beverage advertising on intake in children and adults. Am. J. Clin . Nutr. 2016;103:519-533.

2.1.3- Intensive viewing of screens has harmful effects on eyesight and could lead to worrying long-term consequences

Screen use plays an established role in the onset and progression of various eye and vision disorders or pathologies, and children and adolescents are particularly vulnerable.

In fact, the child's eye is still forming and its development ends around the age of 16.
Growth of the eyeball takes place until the age of 4 years. The neuronal maturation of the visual system then continues until adolescence, around 13-15 years old. Light plays an essential role in the maturation of the eye and the development of visual functions34 .

Screens would contribute in particular to the myopia epidemic which affects 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 individuals, that is to say, those with normal vision without any problems. It is estimated that in 205035, half of humanity will suffer from myopia, at a severe stage for 10% of them.

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) [36] .
In France, where the trends observed follow those observed in Asia with a few years lag, around one in three people in the general population (compared to 20% in the 1970s) and 42% of 10-19 year olds37 are myopic. In the United States, 42% of 10-15 year olds are affected. This situation has led several Asian countries to activate offensive public health policies (in particular, a structured plan in China involving more than an hour of outdoor physical activity every day at school for primary and secondary school children). secondary; experimental deployment of devices to test the benefits for children of exposure to specific low-intensity red light or, in other countries, installation of hardware devices to ensure the correct distance between children; children's eyes and their support

learning).

In addition to being a vision disorder, myopia is an aggravating risk factor for other eye or vision pathologies in adulthood. The risks of maculopathy, retinal detachment, glaucoma, early cataract and blindness are significantly increased in cases of myopia38 .

From this point of view, childhood constitutes a key moment since it is most often between the ages of 6 and 12 that we become myopic. Myopia then stabilizes in young adults.

The causes of the myopia epidemic are diverse and linked in particular to several aspects of contemporary lifestyle, some of which predate the arrival of screens: life in an urban environment with less clear visual horizons, more time spent indoors. (at home, at school)

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[34] ANSES reports. Potential health effects of stereoscopic 3D audiovisual technologies, 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.

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

detriment of time spent outdoors (lower exposure to natural light and more to artificial light)[39]

Since their appearance, screens have been suspected of having reinforced these trends and thus accelerated the myopia epidemic. Exposure to artificial light emitted by screens, rich in wavelengths in the blue range and depleted in red, is involved in the incidence of myopia. Likewise, continuous efforts to accommodate on small screens used close to the eye (tablets, smartphones, portable game consoles) could promote the appearance 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 myopia risk, but that time spent on a smartphone or computer – screens used close to the eyes – is associated with an increase in the risk of myopia, by a factor of between 30 to 145%. The study further highlights that the literature is still insufficient and contradictory, and that it is essential to improve the robustness of the studies to be more conclusive40 .

Finally, it must be emphasized that regular outdoor activities, exposure to natural light, are an effective measure to counter the development of myopia41 .

Blue light emitted by the majority of screens and products using light-emitting diodes (LED) appears to present, at high doses, worrying phototoxic effects on the retina.

At high doses, the phototoxicity of blue light emitted by LEDs on the retina has now been demonstrated. When it reaches the eye, this light causes a chain of chemical reactions leading to the creation of toxic particles which damage the photoreceptor cells42 .

According to the current state of knowledge, the retina is more sensitive to light exposure during the night43. The eye is also more sensitive to blue light the younger we are. In fact, the capacity of the lens to filter light is strongly linked to age: before the age of 8, the lens allows more than 80% of short wavelengths to pass through, in the blue range, while from the age of 25, this passage is reduced to 50%, to be only around 20% at 80 years old44 .

The toxicity thresholds of blue light, however, remain to be determined. Studies in condition actual use are necessary to assess the long-term impact of low but frequent exposure to blue light, such as that emitted by smartphones, tablets, or screens

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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.

computers45. Note that the distance between the eye and the light source is also a determining factor in possible damage.

Prolonged use of screens can also be associated with various symptoms, referred to as “digital eye strain” 46, the prevalence of which is estimated at at least 50% among computer users, such as an increase in the sensation of dry eye47 , feelings of visual fatigue, visual blurring.
Stopping screen use and visual rest are generally enough to alleviate these symptoms. If they are benign, their functional and economic impact requires that they be identified, in order to be adequately taken care of in terms of prevention and treatment.

2.1.4- Reasoned vigilance must be given to 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 ones mentioned during the Commission's work and which are still the subject of ongoing research are the following:

- the possible existence of effects linked to exposure to radiofrequency radiation:
  - o ANSES published a report in 2016 concluding possible effects on cognition especially, and on the well-being of children with recommendations in terms of risk limitation [48] ;
  - o another recent report from this agency49, repeating its conclusions from 2013, states that limited evidence concerns:
    - ÿ “on animal models: sleep, male fertility and performance cognitive;
    - ÿ in humans: gliomas for intensive users and neuroma of the vestibulo-acoustic nerve in epidemiological studies, as well as with a sufficient level of proof a short-term physiological modification of brain activity during sleep”;
  - o the agency underlines the insufficiency of data regarding 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 the evolution of technologies.

- the possible existence of “hormonal disruptor” or “endocrine” type effects:
  - o association between excessive use of screens and an advance in pubertal tempo in girls :
    - ÿ via disruption of the circadian rhythm50 ;

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[45] ANSES report. Effects on Human Health and the Environment (fauna and flora) of Light Emitting Diodes (LED). 2019.

[46] Sheppard AL, Wolffsohn JS. Digital eye strain: prevalence, measurement and amelioration. 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] ANSES OPINION and REPORT relating to the expertise “Exposure to radio frequencies and children’s health”. 2016.

49 ANSES opinion relating to the guidelines aimed at limiting 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.

ÿ via a sedentary lifestyle promoting overweight or even obesity51 ;

ÿ more recently, a direct effect of prolonged exposure to blue light is suspected. It was thus observed, following recent periods of confinement, a link between the duration of exposure to screens and the advancement of the age of puberty in young girls52. Animal studies suggest a causal link with exposure to blue light, but this will need to be confirmed53 ;

o the toxicity of some of the materials or substances used for the manufacture 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 likely to spread when using the device and/or when the equipment deteriorates; with effects, particularly on cognition, that can be envisaged over several generations54 .

- the possible existence of musculoskeletal disorders, or other disorders, for example of the hand, wrist, back, neck, joints, linked to postures associated with intensive use of screens. The Commission received alerts on this subject but was unable to have sufficient information in three months to assess the issue.

On all of these subjects, the Commission recommends continuing and amplifying research in order to reach clear scientific conclusions as quickly as possible on the safety or

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. Front Endocrinol (Lausanne). 2022 Aug 5;13:913334;

53 Uÿurlu AK, Bideci A, Demirel AM, Kaplanoÿlu GT, Dayanÿr D, Özlem Gülbahar O, Deveci Bulut TS, Döÿer E, Çamurdan MO Blue Light Exposure and Exposure Duration Effects on Rats' Puberty Process ESPE 2022, Abstract P1-361; Kÿlÿnç Uÿurlu A, Bideci A, Demirel MA, Take Kaplanoÿlu G, Dayanÿr D, Gülbahar Ö, Deveci Bulut TS, Döÿer 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 Environ. 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.

Environ 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? Environ 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 Environ. 2017 Dec 31;609:541-545.

dangerousness of the technologies, processes, materials or substances concerned on the various aspects previously mentioned.

In the meantime, while taking care not to fall into excessive alarmism, she suggests favoring prudent and common sense attitudes, as has begun to be done on the issue of electromagnetic waves with the formulation of recommendations from the powers that be. public regarding the optimal conditions of use to limit the occurrence of suspected risks.

The Commission recommends on all these subjects to increase vigilance during the period of pregnancy during which it is established that the vulnerability of the fetus is very high, and in vulnerable populations such as that of newborns particularly if they are premature, and more generally, children and adolescents.

2.2- Regarding the development of children and their brains, it is important to be vigilant about the effects of screens on the youngest children and the risk of “technoference” which can harm them in the long term

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

1) The methodological quality of the studies varies. It is therefore not possible for ethical as well as practical reasons to carry out double-blind randomized studies. Furthermore, social factors linked to the family are often poorly taken into account even though they play a determining role in educational and health behaviors. Second, measures of cognitive development are sometimes reported by parents or teachers and not evaluated by tests administered by psychologists. Finally, there are more cross-sectional studies than longitudinal studies, and more small numbers than large samples. However, it is clear that these studies show associations that are most often negative or neutral, and rarely positive. The effects, whether negative or positive, are weak.

2) Most studies allow us to conclude 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 because developmental traits are multifactorial.

3) The effects observed are of low magnitude on a clinical level, whether positive or negative, but such effects can be significant at the scale of a population. Take the example of Intelligence Quotient (IQ):

- *at the ends of the Gaussian curve: a drop of 1 to 2 points in IQ moves certain individuals “in the low standard” into the “intellectual deficiency” category or “in the high standard” into the “superior intelligence” category;*

- *a drop in the average IQ of the population of a country has consequences in terms quality of life and productivity in particular.*

In addition to this scientific approach, it is also appropriate to consider the feedback expressed by professionals, mainly from the field of health and education, with the limits again of these observations which are little taken into account in the field. health with the general population.

These methodological aspects having been established, the Commission was keen to present the elements encouraging us to limit the exposure of children under 6 years of age to recreational screens, in resonance with the recommendations of the WHO55 and several learned societies including the American Association of Pediatrics (AAP)[56] and the French Association of Ambulatory Pediatrics (AFPA)[57].

On the one hand, many “weak signals” have been going back several years. The hearings conducted by the Commission allowed several interlocutors to report these signals. For example, certain pediatricians, speech therapists, PMI doctors, who are required to follow children under the age of three with language, eating and communication difficulties, and for whom it turns out that they have been and are heavily overexposed to screens (sometimes more than 5-6 hours daily since the first months of life), relay these alerts. Likewise, some kindergarten and elementary school teachers are concerned about the impression of increased concentration difficulties and the reduced vocabulary of their students. Some professionals indicate that these trends seem to have increased with the confinements linked to the SARS-COV 2 pandemic.

On the other hand, the scientific literature dealing with the links between the use, mainly recreational, of screens and the cognitive development of children under 6 years old, has continued to grow since the 1970s and the first studies on television exposure.

Let us remember straight away, as mentioned above, that if the effects reported are most often negative or neutral, they are rarely positive in the general population. Furthermore, the effects observed, positive or negative, are rather weak individually speaking in all the studies.

Note also that occasional videoconference calls, for a few minutes once or twice a week, do not seem to be problematic from a cognitive point of view in children over 18 months.

Finally, note that we are not considering here the use of digital media by so-called children with special needs, for whom it can be a tool for compensating for disability and 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 intrauterine period until around the age of 25, the brain is developing and has great plasticity to assimilate all useful information. During the first years, fundamental human functions develop, including sensorimotor skills, socio-emotional skills and language, then later, academic learning. The last functions to mature are those called high-level: executive functions, control of impulsivity, planning, etc.

If during this period the entire 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, several “sensitive” periods occur, during which certain functions (the development of the senses, walking, language, social cognition,

[55] WHO releases first guidelines on digital health interventions. Press release. https://www.who.int/fr/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 Adolescents and Digital Media. Pediatrics, Nov;138(5), 2016.
57 https://afpa.org/dossier/ecrans

the discovery of reading, the acquisition of writing, etc.) will be all the better acquired during these periods. These moments take place, for many of them, in childhood but also,
for high-level functions, during adolescence. These "sensitive" periods are characterized by greater plasticity of the brain and therefore, at the same time, by an even greater vulnerability to harmful environmental events.

Disturbances likely to occur during key moments in the development of perceptual systems, particularly in very young children, will sometimes lead to irreversible consequences. HAS
As an illustration, significant uncompensated hearing disorders occurring during language development will have definitive consequences on language and/or on hearing itself. Likewise, a significant weakness in one of the two eyes at a young age, if it is not taken care of, could lead to a permanent loss of vision for this eye, the connections necessary for its proper functioning for the rest of existence not being realized. Similarly, 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 regulation systems.

On the other hand, these "sensitive" periods are also windows of opportunity to intervene in the environment and to act positively for the benefit of the health and education of children and adolescents.

2.2.1- Numerous arguments highlight the negative effect of certain uses of screens on the neurodevelopment of young children and lead us to recommend caution until the age of 6

The Commission wanted to draw attention first to the phenomenon of technoreferences. This is a neologism pointing out ***interference in the parent (or referent adult) relationship - child/adolescent, generated by the use of the screen by the parent in the presence of the child/adolescent.***

Television on in the background was the first type of technoference described, without being so named. By reducing the quality and quantity of parent-child interactions, it impairs the development of language and socio-relational skills.

The massive spread of adult use of mobile tools, mainly smartphones since 2007, has led to an exponential increase in these disruptions in interactions. This is an emerging field of scientific research, and recent studies and clinical observations suggest that these new technoferences are at the origin:

- on the parent's side[58] : an alteration in the sensitivity, support as well as the availability and reactivity of the parental response;

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]: an alteration in language development, emotion regulation and socio-relational skills.

This question represents a particularly critical issue during the period of the child's first 1,000 days (from pregnancy until the child is 2 years old). If the studies still need to be strengthened, and ethically they come up against the possibilities of “testing” the hypotheses with children by adopting experimental approaches capable of establishing cause and effect links, the Commission considers that the mechanistic effects attached to the intervention of screens in the young child's relationship with adults constitute sufficient points of support to **call for great vigilance, at least until the child is 4 years old, in the use which is made tools in their presence by parents but also more generally by professionals related to early childhood (childminders, nursery staff, nannies, etc.) especially at key moments in the relationship (meals, care, games, etc.).** Vigilance must also be maintained during adolescence (see below).

*

Beyond the use of screens by adults in the presence of children, the Commission wanted to take stock of current studies relating to the links between screen time and neurodevelopment of young children.

These studies, although they do not establish a causal link as such, overall show a slightly negative, or neutral, association between this screen time and neurodevelopment.

The current consensus comes from the meta-analysis of Madigan et al. (2020)[61] which integrates 42 studies on language development. It shows that, overall, the more limited the screen time and the later the age of first exposure, the better the language skills. However, viewing programs with high educational value and/or interactive co-viewing with parents was 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 5 years of age also takes stock[62] .

59 Corkin MT, Henderson AME, Peterson ER, Kennedy-Costantini 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. Juillet 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 key moments in the language learning process

- Between 3 and 6 months: the child “chirps”, communicates through smiles, tears, vocalizations.

- Between 7 and 10 months: the child babbles, modulates the intensity of his voice, understands intonations and imitates them, responds with vocalizations. Understands everyday phrases (“it’s meal time!”), intonations. First syllables.

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

- Around 2 years old: the child understands around 300 words and pronounces around fifty.

- At 3 years old: the child uses “I”, conjugates verbs, uses articles, knows his or her name and first name.

- At 4 years old: the child has fluent language in his or her mother tongue.

- At 6 years old: the child has a vocabulary of approximately 2,500 words.

Another longitudinal study by Madigan et al. high level of [63] followed 2,241 Canadian children aged 24 to 60 months. THE exposure at 24 months and 36 months is associated with poorer cognitive performance at 60 months.

In the French context, there are two studies in preschool children (before 6 years) among the most robust in the literature, the conclusions of which confirm this consensus and provide new elements:

- based on the monitoring of more than 1,500 children from the “EDEN cohort”, the study by Martinot et al., in 2021, shows that the context of use would play a more important role than the simple time of use screen: between 2 and 5 years old, the more frequently children were exposed to television during meals, the weaker the language development was64 ;

- this result is corroborated by the study by Yang et al., from 2024, in nearly 14,000 children from the “ELFE cohort”, in which turning on the television during meals was associated with less cognitive development , particularly language, between 2 and 5.5 years65. In this study, at 3.5 years and 5.5 years, we observed a negative and dose-dependent correlation between screen time and overall cognitive performance from the 30-60 minutes of daily exposure. The correlations, however, are not longitudinally significant, that is, in this study, screen time at a given age is not associated with neurodevelopment at a later age.

These two studies also highlight that the weight of social inequalities is considerable during early childhood, and accounts significantly for differences in language performance. In France and in most comparable countries, the fact that screens are watched much more by children

[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. Juin 2021.

[65] Yang S, Saïd 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.

disadvantaged families66, is a factor in increasing developmental inequalities between children from different social backgrounds.

Several elements are put forward to account for this negative effect.

First of all, in general, it is established that, until the age of approximately 24-30 months, the child learns less well through a screen than through real human interaction67 : we are talking about video transfer deficit. In other words, very young children do not need a screen for their learning.

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. Furthermore, to understand and learn, young children need to have sensory information and to repeat experiences. And real, real-time interaction with the parent or relevant adult is essential68. A screen can't give him that.

Furthermore, screens stimulate in various ways, notably by bringing novelty, network called the “reward system” [69] leading to the release of a large quantity of dopamine. The prospect of a long-term reward also triggers the release of dopamine but in smaller quantities. When the amount of dopamine released is high, the reward system is more sensitive to the prospect of short-term reward. When dopamine levels are maintained high for a long time, for example by repeated pleasant stimuli, connections with long-term reward structures degenerate, in favor of short-term ones70. Remember that we are placing ourselves here in a mechanistic explanation which could explain certain behavioral phenomena observed in relation to screens but that to date there is no scientific study which has highlighted this effect in relation to screens. Note that the reward network is activated in all activities that give us pleasure from food, board games and sport, but that stimulating it through screens requires little effort compared to the sport for example.

In addition, the use of screens in the evening, particularly in the hour before going to bed, qualitatively and quantitatively alters sleep, which can cascade influence neurodevelopment and learning *(see* the section dedicated to sleep above). .

2.2.2- Concerning the neurodevelopment of older children and adolescents, the questions mainly concern access to written language, academic results and depressive symptoms.

The acquisition of reading relies on the quality of oral language, and requires effort and regular and repeated work throughout elementary school. In Quebec, a longitudinal study on

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[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 nationwide Elfe birth cohort. Int J Behav Nutr Phys Act. Août 2022.

[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 feeling of pleasure. As a result, it plays an essential role in motivation processes, and is strongly involved in the appearance of compulsive and/or addictive behaviors. The key neurotransmitter is dopamine.

[70] Lachaux, JP The attentive brain, Edd Odile Jacob, 2011; Lachaux, JP The tightrope brain, Edd Odile Jacob, 2015.

children aged 6 to 12 years old reveals a negative and weak association between time spent watching television and time spent reading at 6 years old, but without time spent watching television at 6 years old having any effect on reading performance at ages 8 and 1071. This study also shows that time spent watching television does not replace time spent reading, or only marginally so. Another study, however, showed poorer reading performance at 10-

11 years old and spending more than 2 hours each day in front of the television at 8-9 years old, and poorer performance in numeracy at 10-11 years old and spending more than an hour in front of a computer at 8- 9 years. No effect was observed for playing video games72 . In France, in the Elfe73 cohort, higher screen time at 2 and 3.5 years is associated with lower literacy results in middle section and first grade. Even if studies still remain divergent on this question. However, reading being a determining element and one of the key factors of academic success throughout schooling, the data from the Elfe cohort calls for a certain vigilance.

For pre-adolescents aged 9-10 and adolescents up to 17 years old, certain studies, including longitudinal ones, suggest that recreational screen use time exceeding current recommendations (2 hours per day) or high, would be associated with poorer overall cognitive performance and poorer academic performance74757677. However, one of the latest longitudinal studies, a functional, anatomical and diffusion imaging study, on the ABCD cohort which follows 13,000 adolescents over 15 years from the age of 8, does not observe any effect of time spent on screens at a given age on the brain development of adolescents aged 9 to 1278 . Whether the results are negative or null, these studies do not establish causal links and the effects remain weak.

On the other hand, as in younger children, the social environment of origin is the most explanatory variable of the differences observed in the cognitive domain and screen time can have positive effects on the quality of interactions with peers. . Note also that screen time can 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 8 and 10 years old while social networks would have no effects79. Finally, during adolescence, the effects of screens and particularly social networks must be interpreted with regard to pre-existing neuropsychological vulnerability80. One study suggests in particular that activity in certain structures of the prefrontal cortex in response to social rewards and their development from 9 to 12 years of age constitute risk factors for excessive use; excessive use which constitutes a risk factor for developing depressive symptoms in girls

[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.

[72] Mundy LK, Canterford L, Hoq M, Olds T, Moreno-Betancur M, Sawyer S, Kosola S, Patton GC. Electronic media use and academic performance in late childhood: A longitudinal study. PLoS One. 2020 Sep 2;15(9):e0237908.

73 Influence of the use of screens on the cognitive development and academic learning of children in the EDEN, ELFE and GUSTO cohorts | Theses.fr.

74 Marciano L, Camerini AL Recommendations on screen time, sleep and physical activity: associations with academic achievement in Swiss adolescents.Public Health. 2021 Sep;198:211-217.

75 Howie EK, Joosten J, Harris CJ, Straker LM. Associations between meeting sleep, physical activity or screen time behaviour guidelines and academic performance in Australian school children. BMC Public Health. 2020 Apr 17;20(1):520.

76 Ramer JD, Santiago-Rodríguez ME, Vukits AJ, Bustamante EE. The convergent effects of primary school physical activity, sleep, and recreational screen time on cognition and academic performance in grade 9. Front Hum Neurosci. 2022 Nov 10;16:1017598.

77 Paulich KN, Ross JM, Lessem JM, Hewitt JK. Screen time and early adolescent mental health, academic, and social outcomes in 9- and 10- year old children: Utilizing the Adolescent Brain Cognitive Development ÿ (ABCD) Study.
PLoS One. 2021 Sep 8;16(9):e0256591.

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

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

[80] https://doi.org/10.1093/scan/nsae008

but not among boys. The relationships between screens and the cognitive and emotional development of adolescents are therefore complex and use-dependent.

During adolescence, technoference again intervenes in the relationship between parents and the young adolescent and could be associated with poorer mental health81 .

2.2.3- Regarding the specific issues of attention, scientific literature suggests a link between excessive use of recreational screens and an alteration of attentional capacities apart from video games on the visio-spatial level

Screens offer access to varied recreational content, all of which rely on essentially bringing into play so-called “exogenous” or automatic attention in multiple ways (particularly sounds, rapid movements, colored contrasts in young children). novelty, random reward, infinite scroll and other “addictogenic” designs afterwards). This is effective very early on

the first months of life, unlike “endogenous” or voluntary attention which must be trained and worked on to become efficient.

An overuse of the first could be to the detriment of the second, which could ultimately potentially have effects on concentration abilities. The most anterior regions of the brain are involved in these processes and continue to develop throughout adolescence.

A recent review of the literature82 including 11 studies, some in imaging and electrophysiology, shows that prolonged exposure to screens for children under 12 years of age, beyond current recommendations (0 before 2 years, less than 1 hour before 5 years, less than 2 hours thereafter) may be associated with reduced attentional abilities. A longitudinal study which studied the smartphone use of 2,587 adolescents aged 15 and 16 followed for 2 years, highlighted a weak association of symptoms of inattention and hyperactivity/impulsivity at the end of follow-up among 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 networks, active use of them, watching videos, listening and downloading music, but not with the use of messaging and texting, taking into account the usual confounding factors (sleep, socio-economic level, etc.)83. “Media multitasking” is an important factor in disrupting attentional processes and memorization84 .

Note that the widely observed use of screens in the evening or during the night quantitatively and qualitatively alters sleep, and through this potentially the attentional abilities and control of impulsivity *(see* the developments in 2.1 relating to sleep).

Conversely, one of the latest published meta-analyses reports positive effects, weak to moderate, associated with the practice of action video games on endogenous visuo-spatial attention in

81 Dixon D, Sharp CA, Hughes K, Hughes JC.Parental technoference and adolescents' mental health and violent behaviour: a scoping review. BMC Public Health. 2023 Oct 19;23(1):2053.
82 Santos RMS, Mendes CG, Marques Miranda D, Romano-Silva MA. The Association between Screen Time and Attention in Children: A Systematic Review. Dev Neuropsychol. 2022 Jul;47(4):175-192.
83 Ra CK, Cho J, Stone MD, De La Cerda J, Goldenson NI, Moroney E, Tung I, Lee SS, Leventhal AM. Association of Digital Media Use With Subsequent Symptoms of Attention-Deficit/Hyperactivity Disorder Among Adolescents. YAMA. 2018 Jul 17;320(3):255-263.
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.

interventional studies85. However, there is no consensus on the transferability of these skills to tasks other than those similar to those proposed by playing games86 87 88

2.2.4- Screens are not the cause of neurodevelopmental disorders (NDD), ADHD (attention deficit disorder with or without hyperactivity) or autism spectrum disorder (ASD) but vigilance is required in relation to their excessive use to avoid the amplification of symptoms linked to these TNDs

The Commission wishes to indicate that neurodevelopmental disorders (NDD), including ADHD or autism spectrum disorders, cannot be attributable to screen use. These disorders are in fact multifactorial and present from birth; they cannot logically be caused by exposure, necessarily later, to screens.

However, it should be noted that excessive exposure to screens can worsen symptoms linked to these disorders in children who suffer from them. By way of illustration, a recent review89 and meta-analysis90 found a significant association between screen use and ADHD in the population aged 0-18, this association probably being bidirectional, that is to say that the subjects with ADHD also tend to use screens more. It is therefore necessary to observe great vigilance in monitoring children who present with these TNDs, to ensure that the severity of the symptoms is not increased by excessive use of screens.

Summary of the presumed effects of screens in children and adolescents

- before 2 years of age, the effects of exposure to screens are associated with poorer performance in terms of language and attentional skills.

- from 2 to 6 years old, 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 6 to 17 years old: screen time greater than two hours per day could be associated for certain uses with lower attentional abilities and lower reading and academic performance,
but this remains to be confirmed.

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

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/j.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- In terms of mental health, particularly depression and anxiety, the use of social networks 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 crisis, with indicators that have generally evolved unfavorably, particularly among young girls.

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

Public Health France has alerted public authorities to the fact that the mental health of young people remains degraded in France in 2023, a constant trend since September 2020. This deterioration particularly concerns adolescents (11-17 years old) and young adults (18 -24 years). So :

- recourse to emergency care for mood disorders, suicidal ideas and gestures increased sharply in 2021 then 2022, and has since remained at a high level. Among young people aged 18-24, the increase even continued markedly in 2023;

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

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

Public Health France also published in April 2024 the results on mental health of the national survey in middle and high schools among adolescents (EnCLASS). The study, conducted using data collected in 2022 from 9,337 secondary school students in mainland France, shows that middle and high school students experienced a clear deterioration in their mental health between 2018 and 2022. This deterioration is more marked among middle and high school students. young girls, and widens the gap between boys and girls which was already observed until then. Especially :

- although the vast majority of students interviewed express satisfaction with their current life and perceive themselves to be in good health, only half present a good level of mental well-being. We observe a significant proportion of young people at risk of depression and reporting a feeling of loneliness, psychological and/or somatic complaints or suicidal thoughts;

- around a quarter of the students surveyed have experienced a feeling of loneliness over the last 12 months; this feeling being more present among high school students than among middle school students (27% vs. 21%);

- more than half of the young people questioned (51% of middle school students and 58% of high school students) formulate recurring psychological or somatic complaints (i.e. at least two complaints more than once a week during the last six months). The most frequently reported complaints are difficulty falling asleep, nervousness, irritability and back pain;

- 14% of middle school students and 15% of high school students present a significant risk of depression2 . Lacking energy, feeling discouraged, and having trouble thinking are the three main depressive symptoms reported by adolescents;

Suicidal behavior was also measured, but only among high school students. A quarter of them (24%) reported having had suicidal thoughts in the past 12 months. Girls are significantly more concerned than boys (31% versus 17%).

%), regardless of the class. About one in ten high school students reported having attempted suicide in their lifetime.

*

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

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

Screens can also sometimes be associated with behaviors of confinement, of cutting off from reality. Examples of young people preferring the “virtual life” of their avatar on the Internet or in a video game rather than their real life have been reported.

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

However, the Commission considers that there is sufficient evidence to indicate that excessive consumption of social networks constitutes an aggravating risk factor for young people with vulnerabilities, and that it is essential to support research to better shed light on this, as well as to act on the design of networks to reduce potentially deleterious impacts *(see* below).

The link between social networks and mental health does not seem unambiguous. Indeed, science suggests that there are several ways in which social media would improve the lives of young people, including the deployment of opportunities to connect to communities for more marginalized young people, and access to leisure activities in a wide variety of settings. uses. Conversely, it suggests that certain features of social media can harm the mental health of some young people. This includes algorithms highlighting inappropriate content, causing excessive distraction from time that could be spent on activities beneficial to well-being, and increasing the possibility of children being abused. Note that sleep debt caused by the use of screens in the evening and at night represents an independent risk factor for anxiety and depression.

This debate does not only take place in France. In October 2021, the American Academy of Pediatrics declared a "national emergency for children's mental health"; and the American Center for Disease Prevention and Control (CDC) relayed a similar alert in 2022. The role of social media has thus 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 increased adolescent loneliness.
Other researchers, such as Jeff Hancock, are less categorical, and suggest an association (and not a causality), limited, between the consumption of social media and the increase in depression and anxiety, and especially value the positive effects in the feeling of belonging and connection to communities, as well as in the creation new spaces of expression. Amy Orben and Andrew Przybylski in England suggest that if a link exists between social networks and depressive symptoms, it is extremely limited and does not require 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 a nuisance, and still others will have a supportive and positive experience for their mental health. It is therefore difficult to deduce an average overall effect for the entire population.

The influence of social media on the mental health of young people is dependent on several complex factors, including individual strengths and vulnerabilities, themselves based on social-economic, genetic, cultural, etc. factors. These factors also include the time spent on the platforms, the nature of the content consumed, and the level of disruption caused to other activities essential for sleep and physical activity. However, these factors are unfavorably oriented by predatory designs which precisely aim to maximize the time spent online, and to lock adolescents in filter bubbles, and as such reinforce the risks for the mental well-being of young people already presenting vulnerabilities.

Amnesty International's report " Driven into Darkness: How the 'For You' feed encourages self-harm and suicidal ideation " explains how TikTok's strategy
to get users' attention, risks worsening mental health problems such as depression, anxiety and self-harm. The technical study is based on more than thirty automated accounts which were configured to represent 13-year-old children in Kenya and the United States in order to measure the effects of the recommendation system of this social network on young users. A second simulation, run manually, was carried out 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 in two videos was related to mental health and potentially harmful, i.e. a volume 10 times greater than that presented to accounts having indicated no interest in the subject ;

- the "spiral" effect was even faster when the research team manually reviewed mental health-related videos that had been suggested to study accounts simulating the behavior of 13-year-olds;

- between three and twenty minutes after the start of the manual study, more than half of the videos in the “For You” thread were related to mental health issues, with many videos recommended within an hour only idealized, trivialized or even encouraged suicide.

In addition to these observations linked 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 "addiction explained by neuroscience" published in MAAD-DIGITAL 91 (Tree of Knowledge system))

When it is in "normal" conditions, a healthy brain is in principle able to react to different stimulations and disturbances coming from the external environment and to maintain its homeostasis (or "equal state"). But, when confronted with the effects of psychoactive products (drugs, alcohol, etc.), it is then greatly disrupted to the point of making homeostasis more difficult to achieve. Taken repeatedly, these products are integrated into the very functioning of the brain. Without their contribution, the brain will then be "suffering" and will no longer be able to properly accomplish its missions. This is how the phenomenon of addiction begins.

During its activities, our brain seeks reward (often linked to vital needs: eating, drinking, etc.). When this reward is near, a strong release of dopamine, the reward neurotransmitter, occurs. With it comes the pleasure phase.

Brain imaging studies have established that psychoactive products cause a much greater and rapid release of dopamine than that obtained by natural rewards. However, "the release of dopamine plays a major role in the development of addiction, but also in the occurrence of psychiatric illnesses such as schizophrenia or attention disorders". Its "massive release in the prefrontal cortex seems directly involved in the delusions and hallucinations characterizing psychoses".

The releases of dopamine in turn cause a powerful desire for the product and excite impulsivity, that is to say the difficulty for the individual to control themselves. "The repetition of these excitations results in a diffusion of the signal towards the circuit of compulsivity" which corresponds to a loss of control and a repetition of taking the product despite the awareness of its undesirable effects, and despite the reduction or even disappearance pleasure linked to this consumption. The brain areas which are the sites of reward, impulsivity and compulsivity are in fact very close.

At the same time, the intensity of the response to the stimulus decreases. The brain carries out various actions to protect itself from the effect of the products, such as "internalizing" the receptors inside the neurons so that they are no longer exposed to stimulants, or even modifying the structure of the receptors so that that the stimulant no longer triggers action. The subject is then led to increase their consumption to obtain the desired effect. This tends to overactivate the neurobiological stress circuit and promote the emergence of negative emotions. "The initial homeostasis is broken, the product is integrated as a necessary element for brain functioning, the brain is a prisoner."

Once addiction has taken hold, "the reversibility of changes in neurobiological circuits caused by psychoactive products is poorly understood. (…) It appears, however, that the greater the duration and frequency of exposure, the more severe and lasting the disturbances will be. »

If video game problems are already recognized internationally, this is not the case for social media. Yet social media features design elements of

[91] This box was produced from the following source: B. Nalpas & S. Elmestikawi. "Addiction explained by neuroscience", article in 3 parts published in MAAD-DIGITAL.fr (https://www.maad-digital.fr/dossiers/laddiction-explée-par-les-neurosciences-13.

addictive which, according to certain authors, should push us to recognize the existence of addiction to social networks.

Classification at the international level is often long and the evidence will need to be strengthened to strengthen the dialogue, but there is little doubt that this recognition will be acquired, with constant functioning of the networks, within a few years. Addiction, constituted by the repeated inability to control a behavior that brings pleasure and allows one to escape psychological discomfort, is also multifactorial; it is always established in a complex relationship between the individual and his environment. But here too, the economy of capturing attention mobilizes precisely addictive-type “reflexes” which reinforce 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 occur during the period of adolescence which is particularly critical: it is a period during which risky behavior reaches its peak, during which the manifestations of problems of mental health such as depression emerges; during which identity and self-esteem are formed; during which brain development is particularly “sensitive” to social pressure and peer opinions. As such, the most harmful algorithmic models carry strong risks, such as that of increasing sensitivity to social rewards for example, and of being prescriptive of a drop in satisfaction in the development of young girls, for example.

Adolescence being a critical period in many ways, children and young people do not have the luxury of waiting for us to be able to understand everything through science: it is appropriate to immediately initiate the means to better protect adolescents, and especially girls, from anything that is unethical in social media, in particular the mobilization of addictive and confining type processes. Indeed, while it is absolutely necessary to mobilize and support research to better document these effects, the scientific community agrees that social media has the potential to both create benefits for adolescents and harm their health. mental. However, while the use of social networks is today almost universal, the negative impact, even limited, can concern a very large number of vulnerable adolescents and social media constitute for them an additional risk factor which it must protect them.

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

During its work, the Commission was able to note that the insufficient regulation of access, on the one hand, and of the content that the screens allow to consult, on the other hand, as well as the lack of information, of training and support for children and adolescents as well as their parents and educators led to them being exposed to inappropriate content (2.4.1) or likely to threaten their safety (2.4.2).

2.4.1- The level of exposure of children and adolescents to inappropriate content appears alarming

Based on the information it has been able to collect, the Commission deplores the fact that minors too often have access to content that is shocking and/or unsuitable for their age. Thus, according to an investigation made public

at the start of 2023, 7 out of 10 young people aged 11 to 18 considered themselves to have already been exposed to “shocking content on the Internet or on social networks” [92]

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

- exposure to pornographic content. The survey from the beginning of 2023 mentioned above concerning 11-18 year olds highlights that 36% of children in this age group have had access to scenes of pornography. When a child is exposed to pornographic content, the average age at which they encounter it, including accidentally, is now 10 or 11 years old depending on the sources (compared to 14 years old in 2017). An ARCOM study from March 2023 specifies that 2.3 million minors in France visit pornographic sites each month (10% of young people under 18 visit these sites daily), half of whom are boys. from the age of 12 and two thirds of boys aged between 16 and 1793 . These data are clearly increasing (+600,000 in 5 years, or +36%). For 75% of those under 18, content is viewed on a mobile phone. It must be emphasized that these contents are always more shocking, violent, and uncontrolled, and are therefore all the more unsuitable for a minor audience, who sometimes have not explicitly sought this content and have seen it imposed on them, or had access to it while seeking information about sexuality;

- the significant exposure of young people to violent content. The February 2023 survey mentioned above concerning 11-18 year olds details that 47% of these young people were exposed to scenes of animal abuse, 42% to scenes of fights or violence and 26% to very violent content such as scenes of war, torture or execution. The testimonies of minors collected during discussions with the Commission have greatly

  discussed the exchange of extremely violent content between them, including through messaging systems that have silently evolved into social media models;

- exposure, *via* screens, to hateful comments or content. Thus, 48% of young people say they have been insulted and 25% have been made fun of on the Internet94. A survey by the Génération digital association carried out in partnership with DILCRAH and released in March 2024, denounces the trivialization of online hatred. Thus, around 30% of 11-18 year olds say they have seen racist comments circulating online (+ 9 points compared to 2020), and 26% insulting or hateful comments linked to religion (+ 8 points compared to 2020). 2020).

Several phenomena contribute to minors having such significant access to content to which they should not be subjected:

- sites reserved for adults, despite recent developments *(see* section 1.3 below), remain too easily accessible to minors who can easily bypass entry filters.
  Concerning, for example, pornographic sites, the ARCOM study cited above indicates

[92] Source: Digital Generation, Survey on shocking content accessible to minors, February 2023.

93 Source: ARCOM study on the use of adult sites by minors - March 2023, data based on Médiamétrie Internet audience measurements.

[94] Survey “Digital practices of 11 – 18 year olds” presented by the Génération digital association – February 2022.

that minors represent on average 12% of the audience of “adult” sites (and up to 17% for one of the pornographic sites studied);

parental control systems supposed to regulate the access of minors are insufficiently activated and have too many limits;

- many platforms or social networks insufficiently moderate their content. For example, pornographic content or violent or inappropriate content may be posted and circulated for several hours on certain media before actually being removed. However, many children and adolescents are present on these networks or platforms, including those under 13 for whom registration is normally not possible, which raises the question of the conditions for verifying access to these platforms or networks. ;

- to a lesser extent, minor Internet users can sometimes be subjected to unsuitable content *via* advertisements broadcast online or even in public spaces (example noted of large commercial brands broadcasting videos or videos on screens exposed to everyone's view). video games not recommended for minors).

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

The place taken by screens among minors, the insufficiency of supervision and support systems for uses as well as the lack of content regulation mean that the possibility for them to be confronted with abuses likely to endanger their own safety is important.

Thus, 19% of 11-18 year olds say they have already “encountered a problem on the Internet”. These “problems” can be of different nature and seriousness and range from a simple “argument” (58% of young people aged 11 to 18 say they have had an argument on the Internet) to the occurrence of extremely worrying situations.

The hyper-presence of screens in the daily lives of minors means, for example, that these tools
now constitute a vector, even an amplifier, of harassment phenomena. If this problem of harassment is not new, and harassment is never natively digital, the possibility of massively increasing the dissemination of these messages without any moment of respite for those who are victims (including at night or when the victim is no longer in proximity to their attackers) is facilitated by the location and main uses of screens. Cyberharassment is therefore a very present reality for minors. A study carried out by the “e-Enfance 3018” association and Caisse d’Epargne reveals that 24% of families have already been confronted with cyberharassment at least once. And according to surveys by the Génération digital association, 6% of young people admit to having been perpetrators or having participated, even unintentionally, in cyberharassment. In certain cases, these continuous phenomena of harassment can lead to the occurrence of dramatic situations for the young people who are victims of it.

The exposure of minors to screens and the insufficiency of fully operational systems at this stage of protection expose them to other types of extremely serious situations, in particular online sexual exploitation and abuse. Thus, the Commission was able to note during its work:

- the sharp increase in phenomena of “sex extortion” (or sextortion) towards minors, and sometimes including between minors themselves, consisting of obtaining from the minors concerned a compromising image or video of a sexual nature and subjecting them to blackmail in return for the non-dissemination of this content (12,000 facts 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 of online “grooming” phenomena against minors (techniques consisting, for a malicious adult, of seeking to make contact under a false identity with a minor in order to make sexual propositions to them);

- cases of dissemination of “deep fakes” of a pornographic nature, the number of which is increasing while the production of this visual or audio content is now facilitated by the democratization of generative artificial intelligence systems;

- the great vulnerability of minors to child crime, including *via* sites, forums or online video games that appear harmless but which, to the extent that they bring together many children, represent phishing areas favored by child criminals.

In total, according to data communicated by the Juvenile Office (OFMIN)95 attached to the National Directorate of Judicial Police, 318,000 reports of child criminal content (downloads, distribution of child criminal content, etc.) were recorded in 2023 in France (including the 12,000 reports concerning sextortion mentioned above). More generally, according to a study carried out in 2021 at a global level96, 54% of people questioned during the work had suffered at least one online sexual assault during their childhood.

2.5 – Beyond the issues of public health and individual integrity, what impacts on the plan societal?

Beyond the individual issues set out above, the Commission wanted to examine the more systemic impacts on a societal level of the exposure of children and adolescents to “screens”.

This is not a question of making a case against digital technology in general, which can open up children's horizons of exchange; usefully allowing them to preserve links with their family, when they are far away; nourish their needs for socialization with peers, particularly around the age of 13 when young people begin to free themselves from the family sphere; making this social bond “plural”, taking them out of isolation when they are prisoners of it; provide access to support when they are

[95] The minors office attached to the national directorate of the judicial police was created in 2033 to respond to the increase in attacks against minors and improve the effectiveness of the judicial treatment of this violence.
96 We protect-Global Alliance - Global threat assessment, 2021.

faced with difficult situations on a personal or family level; offer them spaces for creation and self-realization...

It is a question, mirroring these logics of emancipation, of calling for collective vigilance on the mechanisms which, conversely, fundamentally work against this freedom to realize oneself according to one's choices, and thereby could harm the " live together ".

Although there is little conclusive data to establish the causality between certain uses of digital technology and social behavior, as well as the level of intensity of the effects, it appears from the various studies that the excessive, and very targeted, mobilization of a few services limited in number, carries with it the seeds of the amplification of representations that are questionable on ethical and democratic levels. Digital life then becomes an extension and an echo chamber of toxic content, leaving no respite for a child or adolescent subjected to it.

2.5.1- What common imagination?

The intensification of the consumption of social networks, according to algorithmic processes which digest the preferences of users to present them with “liked” content, leads to hyper individualization of the experience lived on digital. This targeting dynamic, coupled with an amplification of the number of content viewed over a given time, leads to young people having a digital experience that is largely differentiated from that of their family and those around them.

Everyone finds themselves “side by side”, when we were together in a game of board games, or even watching a television program. This differentiation also occurs, although to a lesser extent, between young people themselves. In the absence of counter-proposals, this movement raises the question of the common imagination that can be constructed, in this hyper fragmentation of tools, uses, and individuals, including within younger generations, while this imagination is a critical point in the connection between the person and the collective, and that it constitutes an unsurpassable horizon for creating cohesion and a common societal project.

2.5.2- The amplification of representations and stereotypes that digital life can stimulate must be the subject of constant vigilance towards children.

Although it is difficult to apply, the legal arsenal exists against false information and advertisements.

On the other hand, it is much more difficult to act against the “representations” conveyed by the consumption of social networks, or even listening to influencers, which can shape in children and adolescents a vision of social relationships, relationships gender, work…
ethically questionable. These representations spread quickly, and associations like educational communities must find a space to listen and monitor to monitor, discuss and, where necessary, deconstruct toxic representations with the support of all those involved in contact with children. and families.

As such, many interviewees expressed extremely serious concerns about gender stereotypes, the objectification of women, and the ever-increasing adherence among men – particularly post-adolescence – to masculinist reflexes97 . The latest annual report for 2024 from the High Council for Equality between Women and Men is particularly alarming in this respect, indicating that sexism “ starts *at home,*

[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.

continues in school, and explodes online ." The Internet makes it possible to relay women's struggles, but also, in its most viewed content, conveys stereotypes and sexist and sexual violence. For more than half of the population, women and men are not treated in the same way on social networks (this share rising to 72% for women aged 15 to 24). According to the High Council, digital platforms constitute a " real *sounding board for gender stereotypes ":* " women *are under-represented both in professional environments and in open-air public places, while they are over-represented in private environments, linked to the intimate.*

Staged at the heart of a very heteronormative family structure, which reinforces the gendered roles traditionally assigned to them: they are often presented in a maternal role, pregnant, young mothers, devoted to their pregnancy or their young children, roles who sometimes exclusively base 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 easily adopts this term from the High Council. Indeed, faced with sexism, 9 out of 10 women have already renounced actions or modified their behavior according to the High Council.

Sexism is also at the origin of a continuum of violence, from the most seemingly harmless 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 this phenomenon and reinforce it.
" Women *are the first victims of this mechanism: thus, according to the sexism barometer, almost one in two young women aged 15-24 (45%) say they have been personally treated less well on social networks. The sexism present in the content is reproduced at high speed, allowing it to become trivialized and deeply anchored in society ."* The High Council warns of the fact that these stereotypes are even more present in services dedicated to children, running the risk of lastingly anchored representations among them. Finally, the High Council places the spotlight on the digital distribution of pornographic content, warning of the fact that " *early initiation into porn seems to have real effects on the representations that men have of women in sexual relations that they can maintain. And, according to Ifop again, the earlier young men were exposed to "hard" content, the more they adhered to violent representations. »*

These are major issues for children, who must not be left alone in the face of this shaping of realities and their social behavior. It is imperative to be able to deconstruct these representations in real time, and to have an ambition to match these alerts in terms of education.

2.5.3- "Algorithmic bubbles" and the risk of less access to information pluralism

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

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

only a "good thing" for democratic functioning.

Indeed, the digital giants have fully invaded the information space in 25 years, without legally assuming editorial responsibility for the content broadcast. If certain social media choose to protect information spaces that comply with guidelines, the algorithms of social network information feeds are built with the sole objectives of time spent online and the satisfaction of preferences. Their purpose is not to present relevant information, nor to sort the information, nor to diversify it, but to choose the one which will most capture the user's attention, which leads to highlighting messages provoking strong emotional reactions.

The confinement in hyper-personalized “algorithmic filter bubbles” according to increasingly refined processes has been at the heart of questions for 10 years; In a world flooded with information, the interface designs of services have indeed acquired an essential role, their model being able to be precisely to present a reduced and automated selection of information. Eli Pariser, who popularized the term “filter bubble” in 2011, proposed defining algorithmic confinement as a form of prison in which the possibility of a chance discovery becomes excluded. The question thus posed, in particular for young people, is that of access to information pluralism: the models of certain large platforms, which do not allow users to know what the algorithms have excluded in terms of content, Do they lead us to move from a culture of searching for information, to a logic of “confirmation” of one's own opinions? Some thus evoke the risk of communities locked in their own convictions, and refusing to “form a society” (Morin, 2021).

There is still a lack of studies today to precisely qualify the intensity of these risks, and to establish whether it is human biases or algorithmic biases which bear the primary responsibility for this limitation of information. However, the amplification effect of algorithms seems well demonstrated; and this amplification effect, even if it is limited by the use of several networks, is particularly sensitive for children and adolescents who are in the process of constructing their identity and their relationship with the world.

In addition to these issues of confinement, debates are ongoing on the impact of digital uses on the virality of false information and the dissemination, where applicable, of conspiracy theories. The Superior Audiovisual Council published a study in 2020 on the spread of false information on Twitter. It is shown 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” accounts display a numerically equivalent quantity of *Retweets ,* the subscribers of these “unreliable” accounts having a much higher propensity to spread information.

The study shows that these “unreliable” accounts largely favor current and divisive themes, such as politics, immigration, health, religion and even terrorism. The quantitative analysis thus shows an over-representation of themes linked to delinquency, immigration, Israel and Palestine, pedophilia and even Islam. All the false information studied presents a high concentration of tweets over a very short period of time, and when the level of retweets is high, the false information is not chased out by the “real” information. Note that 20% of subscribers to these accounts are not subscribers to so-called “reliable” accounts either.

Several studies also show that fake news of a political nature or in a crisis context is only consumed almost exclusively by people who agree with the point of view they express.

Also, if the level of virality of “infox” encouraged by the ease of clicking, if the quantity of this information and its deleterious effects are today uncertain in the absence of sufficient perspective, there remains

no less than the objective of fighting against these phenomena in the name of the balances to be protected is not contested.

It is difficult to determine whether young people are more or less sensitive and active in these phenomena.
Several studies show that seniors are more active in the virality of false information; an IFOP survey from March 2024 relays that 46% of 18-24 year olds have already relayed fake news in 2024, less than 50-64 year olds (77%) but more than the average French person (31%). Whatever the real level of this sensitivity of children and adolescents, it is the responsibility of adults to build the right barriers in terms of critical thinking, as well as to make known, to better thwart them, the possible cognitive biases in information processing.

Finally, beyond the issues linked to the virality of false information in the common sense of the term, the Commission wishes to draw attention to the development of deepfakes, through the mobilization of artificial intelligence. A recent IFOP survey from March 2024 indicates that only 33% of French people feel able to discern an image/video generated by artificial intelligence, a proportion however higher for 18-24 year olds (55%). Thus, 57% of French people and 64% of 18-24 year olds fear becoming victims of image manipulation, 62% fear that deepfakes will disrupt the next presidential election. As an extension of these findings, the IFOP survey indicates that 90% of French people want deepfakes to bear specific mention of their origin.

The Commission also underlines, following on from the National Pilot Committee for Digital Ethics, the need to assess the risks that the deployment of virtual universes or metaverses could entail, particularly for children, with regard to the amplification of mechanisms of disinformation, confinement and even manipulation previously mentioned98 .

2.5.4- Digital experiences can never, on their own, explain serious acts of violence, but they could contribute to a form of desensitization which must call for vigilance.

Regarding the diffusion of violence, the literature is very rich on the impacts of the diffusion of violent content on television (films, series) or in certain video games.

In no case has it been demonstrated, for example, that violent content is solely responsible for violent behavior. In particular, there is clearly no proven link between video games and violence in real life and even more so with serious acts and criminality. Many other variables are much more decisive.

However, meta-analyses show, even if the mobilization of violent content through screens constitutes one factor among others, an increase in aggressive thoughts and behaviors which can be increased, although in limited proportions, in the short term, a few tens of minutes at most after stopping the video game.

Ultimately, it is above all this accumulation of confrontations with violence through the different
media, with in particular highly violent content present on certain social networks as has already been highlighted in this report, which could raise fears of desensitization to violence following this repeated and multiple confrontation.

[98] CNPEN . Opinion n°9, Metaverse: ethical issues, April 2024: https://www.ccne-ethique.fr/fr/publications/avis-9-du-cnpen-metaverse-ethics-issues

2.5.5- Digital technology, to promote equality among children, must be supported.

The Commission considers that the main point of attention 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 the only fact of access or not to equipment, of access or not to knowledge. These questions should not mask an illusion of equality, while real equality shifts towards the capacity of families to support or not support children in their practices and uses.

2.5.6- Digital technology, with the acceleration of uses and the growth of equipment that it gives rise to, must be fully part of an environmental approach.

Although this is not the heart of its work, the Commission did not wish to ignore the theme of the environmental impact of the economic sector of information and communication technologies (ICT), both the future and the health of our children, future generations, and the ecosystem depend on the quality of the environment.

Note that the following figures only concern so-called terminal equipment (smartphones, tablets, televisions, screens, etc.), servers and network equipment (antennas, boxes, routers, etc.), excluding all components and electronic cards integrated into equipment whose main function is not information processing, such as electric and connected vehicles, medical equipment, etc.

Note also that we will only detail the direct effects, but briefly cite its indirect effects because although they are difficult to quantify, they are considerable. First of all, digital technology is also and above all a catalyst: it optimizes all the systems to which it is applied. It accelerates production and consumption in all sectors, makes relocations possible, generates “rebound effects” and induces changes in lifestyle that are not environmentally neutral.

The digital carbon footprint currently represents 3 to 4% of global GHG emissions99 ;
at least 2.5% on a French scale. This is comparable to emissions from civil air traffic, or even to that of the entire treatment of all waste. And above all, worryingly, this digital carbon footprint is increasing by 6% per year on average: this is the industrial sector with the strongest growth currently, on all levels.

A recent report from the Shift Project100 clearly illustrates the coupling between infrastructure and use in rebound effects. He underlines that ***“on French territory, the electricity consumption of the 4 main operators displays an average growth rate of +6%/ year between 2017 and 2021*** (…), including 60% for the mobile access network alone, i.e. consumption of approximately 3 million households. These dynamics specific to networks are integrated into a systemic logic: the deployment choices made at the network level have an impact on the entire digital system, while being the result of the general trajectory given to the system and its uses. ***Deployment choices aim to adapt infrastructures to the expected evolution of digital uses (use effect). Once the infrastructures are deployed, uses develop according to new dynamics (supply effect)***

99Theshiftproject.org/wp-content/uploads/2021/03/Note-danalyse_Numérique-et-5G_30-mars-2021.pdf. Environmental footprint of global digital | GreenIT
[100] Synthese-Reseaux-The-Shift-Project.pdf (theshiftproject.org

until reaching next levels, then calling for new capacities and new needs. »

Thus, according to the projections for 2030 from the Arcep-ADEME101 study, compared to 2020: *“if the current trend continues on the same upward trend, the carbon footprint of digital technology in France would increase by around 45%”.* Still according to projections for 2030, *“the consumption of abiotic resources in the manufacturing phase would increase by 14%”.*

Indeed, in addition to GHG emissions linked to manufacturing, transport, use and end-of-life management of equipment, other categories of environmental and social impacts must be taken into account which are no less important. : the depletion of non-renewable resources such as metals and pollution of soil, water and air responsible for ecotoxicity in the living world.

The question of the criticality of certain metals is obviously linked to geostrategic issues but also to energy issues and access to fresh water given the depletion of deposits for a certain number of metals which are used in digital technologies102. The problem of access to water has also become a major problem around certain mines, for example for copper mines in Chile.

As France Stratégie also points out in its report cited above, *“metal extraction and production activities, when insufficiently controlled, can be the source of intense pollution, affecting various aspects of the environment. . This pollution affects surface and underground water resources, air and soil quality and destabilizes fauna and flora.* ". We speak of eternal pollution because of the nature of the pollutants which are partly bioaccumulative and persistent. Pollutants of the same nature are found in so-called “informal” recycling sites where electronic waste is piled up in landfills awaiting “manual” recycling without any health and environmental safety. The recent E-waste monitor103 report 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 correct sector. .

The Commission also wishes to draw attention to humanitarian disasters in mining sites or informal recycling sites. The above-mentioned figures do not give the measure of their magnitude. *“Human rights abuses perpetrated by the mining industry have been denounced by the UN for decades. John Ruggie, then Special Representative of the Secretary-General of the United Nations, wrote in 2006 “Extractive industries are also accused of most of the worst abuses, which can go as far as complicity in crimes against humanity. These abuses include acts committed by public and private security forces charged with protecting corporate assets, widespread corruption, violation of workers' rights, and a wide range of abuses affecting local communities, particularly indigenous people. »104*

Furthermore, strategic minerals used in particular in digital technologies (for example Coltan, Cobalt) have fueled war and massacres for more than 20 years in the Democratic Republic of Congo: armed conflicts leading to a considerable number of deaths (more than 6 million in DRC), displacement of populations, inhumane working conditions inflicted on children, women and men, unbearable sexual violence. Doctor Denis' speech

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[101] Digital and Environmental Study - Summary note 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] Study report | Mining controversies · Part 1 - Predatory and dangerous character · Mining techniques · Deliberate discharges into aquatic environments · Former mining sites | SystExt.

Mukwege105 and his call to build a fairer world, on the occasion of his Nobel Prize ceremony in 2019, was widely disseminated, but so quickly replaced by other information.

Faced with all of these environmental and social impacts and taking into account the observed and anticipated developments if nothing is done to reverse the curves, the authors of the Arcep-ADEME report conclude as follows ***(…) The first lever for action to limit the impact of digital technology is the implementation of digital sobriety policies which begin with a questioning of the extent of the development of new products or services and a reduction or stabilization of the number of equipment. (…) To achieve the objective of the Paris agreements in 2050, digital technology must take its due part: a collective effort involving all stakeholders (users, manufacturers of terminals and equipment, providers of content and applications, network and data center operators) is therefore necessary.***

It is now that we can limit strict dependence on digital technology and design a digitalization that is resilient, more territorial, more frugal with less undifferentiated deployment and less widespread adoption. At the very least, it is a question of systematically questioning our needs, and the methods chosen for our uses (several sober gestures are poorly known to adults and children alike). It appears urgent and necessary to think about the place we wish to give to digital technology, the latest technology brought to large scale. We must do so in light of all of these considerations.

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

PART 3 – “EXPOSURE OF CHILDREN AND ADOLESCENTS TO SCREENS”: WHAT HAVE WE DONE SO FAR?

Several of the findings presented in the previous part concerning the effects of screens on health and the risks linked to minors' access to insufficiently regulated content, without appropriate support or prior training, have already been identified progressively. of the expansion of the place of screens in society. This has led to the gradual deployment of a framework seeking to regulate, advise and secure the use of screens by minors. So ;

- a legal framework has begun to be designed, with strong acceleration in the recent period, to try to regulate the practices most harmful to minors and to further secure their access to screens, digital technology and content; but it is not yet exploited to the full level of its potential, remains incomplete in certain aspects or lacks effectiveness in others (3.1);

- strategies recommended by experts, public policy guidelines and concrete actions for prevention and information on risks and excesses, awareness of good practices and support for minors and all of society in reasoned uses and secure screens have been defined and resulted in the mobilization of numerous stakeholders but they too often lack articulation, readability or even the means to be truly decisive (3.2);

- moderation, reporting and repression tools have been gradually put in place, in particular to protect young people on the Internet, but they still appear undersized given the scale of the issues (3.3);

- attempts at greater accountability and involvement of digital players have been initiated but their effects remain very limited at this stage (3.4);

- places where children are welcomed, including schools in particular, have started to provide themselves with a framework on the place and uses of screens and digital technology but which still requires investment (3.5);

- an outline of digital governance has started to be put in place but it remains very insufficient and could be improved at this stage (3.6).

3.1- A European and national legal corpus is already planned or being deployed to protect the youngest and provides a useful framework which remains to be fully invested in many aspects

The protection of minors online has led to the development in recent years of an important legal framework, both at European and national level.

3.1.1 The European Union has recently deployed an entire legal arsenal to begin to regulate the activity of digital players and limit the risks for minors

In its recommendation of April 23, 2024 relating to the development and strengthening of integrated child protection systems in the best interests of the child, the European Commission recalls that “children must benefit from protection against threats such as that (cyber)harassment in both the physical and digital environment, as highlighted in particular by the Council, in its conclusions on digital empowerment to protect and enforce fundamental rights in the digital age106 and on supporting good -be in digital education107. The new strategy for a better internet for children108 aims to ensure that children are protected, respected and have the means to act online in the new digital decade, while the protection of minors is a major concern in the within the legislative and policy framework, such as the Digital Services Regulation, the Audiovisual Media Services Directive, the General Data Protection Regulation and the EU Initiative on Web 4.0 and Virtual Worlds109 ”

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Among the main elements of the European legal framework, it is worth mentioning the General Data Protection Regulation (GDPR) of April 27, 2016 relating to the protection of individuals with regard to the processing of personal data and the free movement of such data , which aims to strengthen and unify the protection of individuals' data within the European Union. This regulation sets out a certain number of principles aimed at specifically strengthening the protection of minors111, particularly 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 then be given by the minor and their representative). This concerns in particular processing aimed at young people for canvassing marketing/advertising purposes or for the creation of user profiles on social networks and online video game platforms. The consent of the holder of parental authority is not necessary in certain very specific situations (prevention or advice services offered directly to the child, regarding contraception for example).

The SMA Directive of November 14, 2018 provides that video sharing platforms and social networks implement specific measures to combat incitement to hatred and combat the glorification of terrorism, particularly with regard to the protection of minors.

The Digital Services Regulation (or “DSA”), adopted on October 19, 2022, which aims to regulate online access, also represents a major advance in European Union law in

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

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

108 Commission Communication “A digital decade for children and young people: the new strategy European Union for an Internet better suited to children” COM(2022) 212 final.

109 Communication from the Commission "An EU initiative on web 4.0 and virtual worlds: getting ahead of the next technological transition, COM(2023) 442.

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

111 By way of illustration, recital 38 of the GDPR thus underlines that “ minors *deserve specific protection with regard to their personal data because they may be less aware of the risks, consequences and guarantees concerned and of their rights relating to the processing of personal data.*

matters of protection of young people. Concerning the main measures targeting minors directly or indirectly, it should be mentioned in particular:

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

- an evolution of the general conditions of use (CGU) of online platforms so as to make them easily understandable for children (article 14);

- a strengthening of the obligation of transparency on the functioning of the systems of recommendation (article 27);

- the obligation for platforms accessible to minors to take all useful measures to guarantee the highest level of protection of the privacy, security and safety of minors with suitable interfaces. They are also prohibited from presenting targeted advertising to minors using their personal data (article 28);

- the obligation for platforms to analyze each year the “systemic risks” induced by the design and operation of their services and to accordingly adopt measures to remediate the serious negative consequences generated on the physical and mental well-being of minors (articles 34 and 35);

- priority treatment, and within a short time frame, of content reported by trusted reporters” (including children’s defense associations);

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

- the obligation for very large platforms to offer an option for a “neutral recommendation system”, which is not based on profiling, which would reduce the occurrence and effects of possible “addictive bubbles” linked to a very advanced personalization of content feeds (article 38).

The DSA therefore represents an important step for the protection of young people. Entered into force on August 23, 2023 for the largest digital services and only on February 17 for all of the services concerned, the new framework that it installs is however still too recent to be able to be evaluated, but it offers some insight. from the Commission's point of view, the prospect of interesting action tools to invest in and test at national level as well as at European level.

3.1.2- France has also worked to protect the youngest with the establishment of a specific legal framework but the effectiveness of several provisions remains insufficient

A first series of provisions aims to explicitly limit the access of minors to sites or content inappropriate for children or young people. Thus, French law:

- establishes the principle of the responsibility of pornographic sites concerning the access of minors to their content. The framework gradually deployed has resulted in the consultation of these sites requiring the user to confirm beforehand that they are of legal age or even the blurring by default of the images and photos of these sites when they are offered by the search engines. research. This framework, however, remains largely insufficient, as revealed by the statistics presented above on the consultation of “adult” sites by minors. Since age control is based on a simple declarative process, it is very easy for minors to circumvent the system. The law of July 30, 2020 aimed at protecting victims of domestic violence strengthened the powers of ARCOM, which can now send formal notices to pornographic sites that do not respect their obligations and take legal action before the court to request their blocking. The law aimed at securing and regulating the digital space (“SREN” law) definitively adopted on April 10, 2024, and at the time of writing of this report submitted to the Constitutional Council, completes the framework by strengthening new powers of ARCOM (which can now send formal notices and has the power of injunction with regard to sites without going through the judge) and the development of a binding framework determining the requirements to which age verification systems will have to meet to be reliable while respecting the privacy of users. However, work will probably have to be continued to guarantee the true effectiveness of these provisions and protect minors from access to pornographic sites and content;

- requires gambling and chance operators “to obstruct the participation of minors, even emancipated minors, in the gaming and betting activities they offer (law of May 12, 2010);

In terms of social networks, the law of July 7, 2023 (known as the “Marcangeli law”) set a digital majority, at 15 years, for registration and use of social networks. Below this age, registration on a social network can only be done with the express authorization of one of the holders of parental authority. This important principle is, however, not yet implemented in France, notably due to concerns about consistency with European Union law. It should be noted in passing, regarding the conditions of access to social networks, the influence of American law. Indeed, the age rules determined by the networks themselves for registration are most often set at 13 years, which corresponds to the requirements of American law (COPPA Act of 1998).

Also, the law of June 9, 2023 aimed at regulating commercial influence and combating the abuses of influencers on social networks defines and regulates **the activity of influencers on social networks, whose audience is often young.** The objective is to better combat certain abuses and scams observed (incentivization to adopt dangerous diets, cosmetic surgery, excessive betting, promotion of counterfeits, etc.). Specific measures protect child influencers. The rules on child labor YouTubers on video sharing platforms, set by the law of October 19, 2020, are extended to all online platforms (social networks such as Instagram, Snapchat or TikTok). Child commercial influencers will be protected by the labor code. Their parents will have to sign their contracts with advertisers and record a share of their income.

More generally, measures have been taken to strengthen parental control and limit young people's access to inappropriate content. Provisions in this area have already existed since the mid-2000s and parental control tools were already present.

But, in 2019, only 44% of parents had configured their child's device, and only 38% used so-called parental control devices. It was therefore necessary to strengthen the

obligations in this matter. This is what was done recently by the law of March 2, 2022 (known as the “Studer law”) which now requires manufacturers of connected devices to install a parental control device and to offer its free activation upon first installation. in operation of the device. It is still too early to assess the consequences of these new provisions but, according to the feedback that the Commission has received, they still do not guarantee an optimal level of protection for young people.

Concerning the fight against online hatred, the already mentioned law of July 7, 2023 known as the “Marcangeli law” as well as the recently adopted SREN law, and currently being examined by the Constitutional Council at the time of writing this report , aimed to strengthen the arsenal by providing in particular, for the SREN law, that people convicted of online hatred, cyberharassment or other serious offenses may be banned from social networks by a judge for 6 months, one year in the event of recidivism.

Echoing these provisions, the law of February 19, 2024 aimed at **guaranteeing respect for children's image rights** modifies the Civil Code to introduce the notion of private life into the definition of parental authority. This involves expressly enshrining the obligation of parents to ensure respect for the private life of their child, including their right to their image, under their prerogatives linked to the exercise of parental authority. ; allow the family affairs judge (JAF) to prohibit a parent from publishing or distributing any image of their child without the agreement of the other parent; state that “parents jointly protect the image rights of their minor child” and that “parents involve the child in the exercise of his image rights, according to his age and degree of maturity”.

3.2- Rules and awareness messages as well as support tools have been gradually deployed but their effects on practices remain limited due to lack of knowledge of the recommendations and a harmonized action framework

Rules for the proper use of screens have gradually been established by experts, sometimes for a long time now.

Among the best-known recommendations, the “3-6-9-12” rule proposed in 2008 by psychiatrist Serge Tisseron should be mentioned. Concretely, this rule is detailed as follows: no screen before 3 years; no portable game console before age 6; no Internet before age 9 (then “supported” Internet until entering college); Internet only possible from 12 years old, but with caution. Since 2011, this rule, which has the merit of clarity and readability, has been strongly supported by pediatricians and in PMIs and has established itself as a reference.

Another recommendation, that of the “four steps” issued by clinical psychologist Sabine Duflo proposing the following rules: “no screen before going to school, no screen in the bedroom, no screen before to go to bed and no screen during meals.”

Recommendations on screen time by age could also be proposed. But, in this area, the references are plural and insufficiently harmonized. Thus, Serge Tisseron, specifying that the rule of “3-6-9-12” is necessary, but that “it is not sufficient on its own”, additionally recommends “setting screen time at all times”. age” and, in particular, prohibits screen time of more than 1 hour 30 minutes per day for children aged 3 to 5 years and 2 hours for those over 6 years old. For its part, the French Association of Ambulatory Pediatrics (AFPA) does not give time limits by age but advises parents as a basis to refer to the average attention span of their child's age group (i.e. 20 minutes from 3 to 6 years old, 30 minutes from 6 to 8 years old, 45 minutes from 8 to 10 years old and 1 hour after 10 years old). At the international level, the WHO issued first “guidelines” on digital health interventions in 2019 in which it

recommends not exposing children to screens at all before the age of 2 and to expose them “no more than one hour” per day, specifying that “less is better”, between 2 and 5 years old.

At the same time, communication actions and support tools, particularly for parents, have been deployed under the aegis of public authorities. In particular, for the most recent actions:

- an action plan “ For *reasoned use of screens by young people and children”* was launched in February 2022 as part of a partnership approach between different ministries and authorities (ARCOM, National Digital Council, MILDECA, Health Publique France…) to promote information, education and support for children, parents and professionals on screens. It plans, in particular, to raise parents' awareness of children's exposure to screens and their impact on children's development;

- a general public website “I protect my child” was created112. However, it remains relatively little known to the general public and relatively little frequented, according to the feedback that the Commission was able to receive.

At the same time, numerous national and local initiatives carried out by associations or collectives, with the support of CAFs and communities, complement the messages and institutional tools proposed with concrete actions in the territories. The Commission was obviously unable to have an exhaustive vision of the numerous initiatives organized to support young people and their families in the use of screens and digital technology, to relay good practices, to disseminate useful advice, to promote reasoned practices and to propose alternatives to “all-screen”. However, she was able to interview several association representatives or local project leaders who she considered very interesting and useful. However, she noted on this occasion that many of the proposed actions often remained too localized.

In summary, it emerges from the findings made by the Commission that:

- recommendations and advice in terms of good practices on the use of screens by children exist (whether based on their age, time spent, quality of content, etc.). Their diversity, a lack of harmonization and coordination in the messages broadcast, however, lead to confusing the readability of communication. Ultimately, these recommendations seem insufficiently known to the general public and, when they are, seem poorly implemented;

- many of the proposed rules indicate what not to do, but not always sufficiently how to do it and why;

- interesting local actions to implement some of the recommendations are proposed but they still remain very isolated and/or localized;

A need for clarification of messages seems to be necessary, as well as a large-scale communication approach to achieve the massive dissemination of useful recommendations.

[112] Many other sites also offer advice and present recommendations regarding the use of screens by children and young people such as, for example, the UNAF site “my-child-et-the-screens”

3.3- Faced with the most serious situations, moderation, reporting and repression tools exist but are challenged by the explosion of shocking content

Recent initiatives in favor of a better legal framework for the fight against shocking and illegal content bring potential improvements for the protection of minors. As mentioned above, the DSA notably sets a clear principle of accountability for platforms, and imposes transparency on the resources mobilized.

Faced with exponential growth in uses and the increase in the rate at which content is made available, mechanisms for managing offensive content (moderation, reporting, repression) are necessary but nevertheless present a certain number of limits. In particular, they intervene after the fact of the negative or even traumatic experience of children; they almost systematically miss exchanges on private messaging services largely invested by child criminals and other drug promoters; they are not calibrated to meet ever more dynamic needs; and finally they do not make sufficient room for dialogue with children who are part of the process and risk discouragement.

To the extent that the content is not processed “at the source” for children, and that the platforms, in particular, are not responsible for the content they distribute, there is no other possible consequence, despite an increasing mobilization of tools and pressure linked to the reputational effect for economic actors, to chase the “holes” and imperfections of these mechanisms.

Radical improvement in the situation, within a constant framework, would justify a commitment of resources which seems difficult to achieve. This situation has so far been progressing through strong and assertive political voluntarism, but often difficult to maintain over time (cf. the Christchurch appeal, launched following the terrorist attack of March 15, 2019, in Christchurch in New Zealand, premeditated by its author to be broadcast live on social networks). The DSA offers an opportunity to go further, but on the condition of securing the chain of intervention necessary to clarify the regulator.

The following developments specify the issues attached to the specific methods of combating the most serious situations: moderation, reporting, and repression.

3.3.1- Moderation: tools are now present everywhere on major sites, platforms, social networks.

The DSA, applicable since February 17, 2024, provides for measures to strengthen users' understanding of how moderation works. The CGU - general 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 must take appropriate and proportionate measures to ensure the highest level of protection of the privacy, security and safety of minors.

If the effects of DSA on moderation can hardly be anticipated at this time, effectiveness seems likely to come up against several realities for a long time to come:

- basically, moderation is organized according to criteria specific to each platform. As such, certain networks accept, for example, pornographic content;

- in terms of organization, artificial intelligence is very widely used, and the number of human moderators remains difficult to know, and is rather decreasing. Also, the number of moderators in French appears to be lower than in other languages, and even more so extremely low given the number of users and content exchanged each day.

3.3.2- Reporting: the processes for reporting the most serious abuses exist on any site and any platform, and are also structured via trusted national actors

Online services have all committed to identifying reporting procedures available to users. However, many of the reports made by individuals are actually expressions of dissatisfaction or disagreement and much of the content that should be reported is not in fact so reported. Or because the reporting tools are not known.

Either because users do not have confidence, they fear for their anonymity or they consider the exercise futile. The 2024 Digital Generation survey reports that only a quarter of children aged 11 to 18 make reports.

The number of reports is already at high levels to guarantee their processing, but it is clear that it does not adequately capture the reality of the situations encountered by young people.

Private or public organizations, including associations, have thus developed a reporting activity on behalf of minors, in order to improve the effectiveness of the taking into account of reports by the platforms which trust them and organize the taking into account of their approaches as a priority.

In France, the Point de contact association specifies, in its latest annual report, having received 25,977 reports over the year 2023. A little more than half (13,972) of these reports were actually qualified as relating to content illicit; and among them, child criminal content accounts for half. The Pharos public platform records, for the first half of 2023 alone, 92,221 reports, including nearly 12,000 relating to attacks on minors. The minors office (OFMIN) finally records nearly 700 reports per day online against child criminal content.

The action of these trusted third parties is now recognized and regulated by the European regulation on digital services (DSA) which integrates them into the regulatory exercise: trusted flaggers qualified as such by the competent authorities (ARCOM in France) will have to issue a report which will be useful in the exercise of regulation. For example, if a significant discrepancy appears between the content notified and that removed on a particular platform, the attention of the competent national authorities and the Commission will be drawn and they will be able to better choose the measures and possibly the sanctions to impose.

If the expected evolution of the application of the DSA is going in the right direction, several structural limits nevertheless seem to need to be lifted to strengthen the effectiveness of this system in the fight against shocking content:

- the reporting process on platforms / video games etc. exists but on the one hand, it tends to be insufficiently visible; on the other hand, it is structured by a technical and legal vocabulary that is difficult to understand with an understanding accessible to all. The misuse of these procedures, including due to inappropriate reporting (e.g. manhunt via massive request to close an account), contributes to rapid saturation of the system.

Users are also rarely informed of the follow-up given to their report, which can discourage young people from repeating the process:

- with regard to the reporting procedures carried out by the State, and the trusted actors being designated by ARCOM, their effectiveness must be reinforced by the obligation imposed on the largest platforms, under the DSA, to process priority and prompt reporting. These reporting procedures are, however, not sufficiently known, and at the same time already saturate the capacities of associations which are forced to slow down the publicity of their action aimed at young audiences. In the same way, the 3018 carried by the E-enfant association, which allows active listening to children, does not have the capacity to absorb all the requests.

3.3.3- The means of repression are rather well defined on a legal level, but given the scale of the issues, implementation on the scale of needs is a challenge.

The tools for **repressing** the most serious offenses concerning minors (in matters of child crime, cyber-harassment, etc.) exist globally, with the notable exception of the particularly impactful offense consisting of the rape of avatars of minors which are beginning to be observed in metaverses and video games. Above all, the exponential trajectory of requests (12,000 reports, for example, of sextortion in 2023 to the Minors' Office as noted above) here also confronts the question of the means to deal with it.

Furthermore, the Commission welcomes the creation by the SREN law of new offenses relating to sextortion113 as well as the dissemination of deep fakes of a pornographic nature114. It notes, however, that these provisions will only be able to fully take effect if the necessary means are put in place to facilitate the reception of victims, to encourage their filing of complaints and to conduct in-depth investigations. This will require that public prosecutors' offices are encouraged to provide a rapid, systematic and effective response, and that adequate training for magistrates in this matter is ensured.

3.4- Economic actors who do not form an alliance in the service of child protection, but find themselves passing responsibility back to parents

The Commission heard from numerous representatives of the digital sector, and covered all professions associated with “screens”: terminal designers/builders; producers of operating systems, Internet service providers (ISPs) or even content providers (sites, platforms, social networks, etc.).

Existing law provides for a strengthening of obligations towards each of these actors. Discussions are now focusing on the issues related to their deployment:

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113 According to article 5 bis A of the SREN law, article 312-10 of the Penal Code is amended to punish with 7 years in prison and a fine of €100,000 any blackmail carried out by an online communication service “at by means of images or videos of a sexual nature” (1°); “with a view to obtaining images or videos of a sexual nature” (2°).
114 According to article 5 ter of the SREN law, a new article 226-8-1 of the Penal Code is inserted to punish with two years' imprisonment and a fine of 60,000 euros "the act of publishing, without one's consent , by any means whatsoever, the montage made with the words or image of a person, and presenting a sexual nature. The act of publishing, by any means whatsoever, visual or sound content generated by algorithmic processing and reproducing the image or words of a person, without his consent, and of a sexual nature”.

- In terms of technical standards imposed on **terminal manufacturers,** it seems that the field is relatively blank with regard in particular to protecting the somatic health of users (standards relating to the light diffused by the devices, relating to the distance of reading the screen, relating to the positioning of the components according to the listening point, etc.).

  Recent regulatory developments have focused on parental controls. From July 2024, manufacturers of terminal equipment sold in France must, in application of the so-called "Studer" law of March 2, 2022, as mentioned above, provide for the integration of parental control software and allow their free activation from the date of first commissioning of the device.

  The implementing decree of July 11, 2023 specified the system of obligations applicable to manufacturers of terminal equipment, and formulated the minimum functionalities and technical characteristics that parental control devices installed on their equipment must comply with. Parental control devices must, at a minimum, allow blocking the downloading of content made available by software application stores or access to pre-installed content to which minors are legally prohibited.
  Parental control devices must make it possible to block access to content prohibited to minors, such as pornography. However, this decree does not provide for specific provisions regarding the limitation of screen use time by minors but provides that additional (optional) functionalities may be offered.

  The decree also clarified the obligations of economic operators with a view to marketing parental control devices on terminal equipment, as well as broadened the supervisory powers of the National Frequency Agency in order to integrate the control of these requirements. on terminals placed on the market.

  The SREN law goes further by requiring service provider platforms to transmit each year statistics on the use of the parental control system in France, figures that the Commission was unable to obtain through all of these hearings. which certainly masks the currently weak mobilization of these tools.

- The **producers of the operating systems** are in fact associated with the deployment of the "Studer" system by the equipment manufacturers, the latter turning to them to deploy on an operational level the compliance with the new obligations, with specific associated issues in terms of collection of children's data by these operating systems.

- **Internet service providers** are required to provide a free child protection device for fixed equipment (PC and Mac). They have also made a commitment to establish, at the time of opening the mobile line for a child (subject to declaration by the parent), the provision of a "transparent" system for families to protect children with great efficiency.

  They have also been partners for a long time identified by public authorities and judicial authorities in the fight against illicit practices on the Internet. As such, they cooperate to help identify perpetrators of online offenses or to highlight implement, at the request of administrative and judicial authorities, measures to block sites throughout the territory for the purposes of protecting the public, particularly minors (blocking access to child pornography and terrorist sites, sites hosting

hateful content, gambling, counterfeiting, etc.). However, these blocking measures can still be circumvented on a technical level by various “VPN” type processes.

- The **large platforms** mainly come under the DSA. While we are not able to anticipate the level of intervention that will ultimately weigh on them in application of this new right, we can note various initiatives taken by social networks and media to progress in the service of the protection of the 'childhood. These initiatives allow, for example, access to a summary of screen time, to plan time limits, and to slightly configure the suggested content. However, these initiatives pursue objectives that are generally antithetical to attention capture strategies, which may explain why the devices are still limited, not very ergonomic, and that they remain difficult to access. We can anticipate a still very low level of use of these devices (no data has been communicated on their effective mobilization either).

  Furthermore, it appears unlikely that the industry itself will promote, against its short-term interests, systems which give the user extensive control over their use of the service. The intervention of the regulator seems difficult to circumvent to achieve this.

Overall, the issues related to child protection are not ignored, but they are largely motivated by image and reputation issues and tend to be limited to display efforts without commitment to the effective deployment of systems implemented; economic actors unanimously focus on the responsibility of parents, required to resolve the negative externalities of the system for their children, and as such strongly value the efforts they make in terms of communication and prevention towards parents , without these efforts described having until now found any real effectiveness. The sector also values collaborations with child protection associations which, largely dependent on their funding in the current configuration, allow them to nourish their discourse.

The Commission was marked by the fact that no actor in the chain feels primary responsibility for a high standard of child protection, systematically passing this responsibility to others in the name of technological or economic constraints presented as difficult to overcome. , and agreeing to place on parents the burden of managing the complexity and negative externalities generated by economic models captive of children's attention.

Thus, we can regret that the best interests of children do not constitute the basis of a collective and productive commitment for the emergence of new solutions, more systematic and easy to access for families. In particular, no coalition of private actors has emerged for the serious design of a robust age verification system, which is not as such formally imposed to date by the DSA, so that it would nevertheless make it possible to discriminate access to certain content and to resolve critical risks for the development of children.

3.5- A reference framework on digital education to better articulate with the issues societal and health, in connection with families

The digital issue is significant in the field of early childhood, without however any real substantive debate on the practices to be promoted with regard to the protection of the youngest children, the issue being rather that of the identification of a visible and known reference framework, and its implementation. If in nurseries, exposure to screens seems rather controlled, the question of the use of screens interfering with the relationship with children seems more problematic among childminders or “nannies” recruited by families.

In the educational field, in the absence of debate and consultation, the digital issue is not the subject of a shared and explicit consensus among stakeholders (families, educational communities, communities, caregivers) as to the right level to deploy equipment according to age, as to the contribution of the digital tool for learning, or its impact on the relationship between teachers, parents and students.

In terms of equipment, the situation in schools today varies.

The level of collective facilities remains very uneven depending on the territory, and overall rather behind our European neighbors; However, certain devices have been deployed more widely over the past twenty years, such as, for example, interactive digital boards in elementary schools. Thus, according to the DEPP115, the number of interactive digital boards increased from 2 per 1000 students in elementary schools in 2009 to 17 per 1000 students in 2019. In middle schools, it increased from 3 per 1000 students to 17.7 per 1000 students. 1000 students during the same period. Still according to the DEPP, the number of students per computer increased between 2009 and 2019, from 25.3 to 15.9 students per computer in kindergarten, from 11.6 to 6.9 in elementary and from 8.1 at 3 in college. In high school, where the equipment rate was higher initially, we went from 3.1 students per computer to 2.3 between 2010 and 2019.

Local authorities, responsible for the digital equipment policy by virtue of sharing skills with the State, are at the initiative of deploying ENTs (digital work spaces) in particular, which implement the dematerialization of the relationship between parents, teachers and educational teams (messaging, communication spaces, note entry and online textbooks), and offer access to online educational resources. They also initiated and financed, via the 2015 digital plan and a reinforced post-Covid impulse, individual equipment policies (tablets, laptops) for students or the deployment of “mobile classes”. These initiatives are often carried out in collaboration with academic authorities (more rarely with the establishments themselves), but they are still too frequently deployed without constructed dialogue with the educational world, without systematic training of teachers and parents, without exchange with the representatives of parents, also in the absence of a shared reference framework on the benefits and risks expected from such approaches. This can result in costly operations on a budgetary and environmental level given the planned obsolescence of equipment and the poor support for their implementation.

Schools and families are also faced with security and child protection gaps that use the devices made available, in the absence of standards applied everywhere and given the agility of children to divert the intended uses.

However, significant progress has been made to better control the presence of smartphones held by elementary and middle school students, with the implementation of the so-called “Blanquer” law which establishes a general principle of banning mobile phones and tablets. and connected watches within schools and colleges. These phones must be turned off and put away, with establishments having the responsibility to determine the practical arrangements for applying the law. The people interviewed (teachers' unions, parents' federations, school heads' union) have a generally favorable assessment of the implementation of this legal framework, and do not highlight particularly critical points in the relationship with students. to enforce this obligation. The work carried out with middle school students, however, leads to a little nuance in this observation: the use of telephones is largely organized in

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toilets, massive exchanges of content on what is happening around or in the colleges (fight scenes for example) take place; phones are not always turned off during lessons (children say they want to check the time, for example, or even have to respond to messages from their parents, to explain checking phones during the day).

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Regarding digital educational solutions, their use has progressed in recent times, both within establishments, but also *through* requests addressed to children for their homework.

In terms of teaching practices, still according to the DEPP, French teachers are very
many frequently use digital tools to prepare their lessons (94% for first level and 88% for second level), the majority of them use digital resources to guide class sessions (respectively, 50% and 70%), but fewer let students use ICT for projects or class work (respectively, 14% and 36%).

As for students, only 40% have mastered digital literacy skills116 in 4
. and their comfort depends largely on their social environment.

The deployment of digital resources is organized in particular under the leadership of the Educational Digital Directorate (DNE) of the Ministry of National Education, and through “EdTech” mobilization programs, which make resources available to of the educational community. This large-scale provision has long been orchestrated without systematic evaluation of the educational contributions of the tool, and without support and training of staff, nor highlighting the issues attached to the educational gesture or the school context.

The experimental deployment in twelve departments of “digital educational territories” (TNE) carries the ambition of greater educational quality of digital resources, coupled with systematic training of teachers. But the planned generalization must not ignore the question of the progressive and desired level for children of access to digital resources, both in terms of equipment and educational and pedagogical uses. Also, the Commission considers that the dialogue between the General Directorate of School Education and the Directorate of Educational Digital would benefit from being structured and strengthened, to ensure that the tool is systematically put at the service of humans, the needs of children like teachers, and the progression of learning.

Contrary to this general observation, the mobilization of digital solutions to promote the learning of children with special needs, first and foremost “dys” children, seems too random and complex for families and the educational community, even though these solutions can be a real support for the children concerned who represent around 10% of students.

Digital mediation of learning, if well supported by the educational, healthcare and family community, can be a support for restoring equality of opportunity between students.

Digital uses are finally spreading into the extracurricular field, particularly during lunch break, going against the messages of limiting “screens” that parents can hear. If

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

data is lacking to precisely qualify the presence of digital technology during these break times, the hearings raised this issue quite widely, in a context of difficulty also in recruiting and retaining the facilitators responsible for children during these extracurricular times.

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Finally, **digital training for students** today remains both too fragmented and insufficient in terms of content and time spent facing the challenges that this represents. The efforts carried out through the PIX certification program, which should see new developments soon, must be continued to better take these issues into account. PIX cannot, however, alone achieve an ambition that matches the challenges in terms of digital literacy and digital support for children at school, the only place capable of guaranteeing equitable access to this support. The work carried out with the students has largely shown that they completely disconnect this certification from their daily uses, and do not see the link between PIX and their practices and difficulties or even dangers encountered in their daily uses.

In the same way, media and information education (EMI) was able to be structured within the framework of moral and civic education programs which were recently reviewed and whose strengthening has just been announced. One week a year, Media and Education Week, the first educational action carried out by the Ministry of National Education, mobilizes nearly 22,000 schools and 280,000 teachers, mainly in secondary education.

But the Commission considers that the EMI does not sufficiently routinize the keys to this learning. The issues of training in critical thinking, different media and economic models require a long time to be addressed and to see skills acquired. As such, EMI often remains structured around a classic approach to knowledge or even promotion of traditional media, which misses the issues specific to the child and their digital environment, the functioning of their brain and their relationship to information, to the reality of its daily uses and its needs. Thus, only 19% of media and information education actions delivered during press and media week in 2023 were devoted to the use of social networks.

Overall, although the digital strategy has been formalized by the Ministry of National Education, it remains both partial and insufficiently shared with all stakeholders in school and society.

In particular, consultation around the deployment of equipment policies by local authorities and digital educational solutions should be organized between representatives of the stakeholders and revolve around the educational issues raised by the teaching teams, taking into account the impacts of health and for the environment, the imperative of coherence of actions and messages between the educational field and other public policies, as well as including support for families. Digital education should occupy a more readable space, with an articulation between the parts relating to EMC, EMI which need to be strengthened, SNT and PIX.

3.6- Insufficient governance of all stakeholders, in the absence of a structural strategy, collective and interministerial

The question of digital technology and children arises, in the ministerial organization and in political communication, between different fields of intervention: health, family and child protection, digital technology itself attached to the ministry of the Economy, national education, justice... Behind this tree there are various central administrations and operators, independent organizations which play a key role in regulation (ARCOM / CNIL / Defender of Rights), agencies in charge of producing studies (ANSES, ADEME in particular), or the interministerial mission to combat addictions (MILDECA).

The Commission wishes to underline the quality of commitment and the will of all the institutional actors interviewed. However, the overall feeling is that of a great fragmentation of energies, in the absence of a defined and managed collective strategy.

Certain missions are well anchored in administrative structures (data protection for example, regulation of the television field). Others are much more recent and therefore present a level of maturity and appropriation that needs to be strengthened. Finally, others are less protected within organizations and compete with already extremely extensive ministerial roadmaps (health for example).

Also, all institutional actors are calling for stronger coordination of actions, and the linking of these to a comprehensive strategy which has not yet been produced. If some attempts have been made in favor of more transversality, under the recent impetus of the ministers of child protection and digital technology (example: steering committee led by the minister on the fight against pornographic and child criminal content) , they did not survive government changes, creating “stop and go” effects that administrations legitimately regret.

The launch of the “jeprotegemonenfant” site is a critical example, and subject to discredit among economic and associative stakeholders: it has not been invested in since its conception and launch, and appears to be a moribund entry point. of reference on the “screens”, without mentioning the debate that should be had on its financing which has been entrusted to the economic actors themselves at the cost of displaying their logos.

Likewise, communication initiatives are multiplying in all organizations. This is positive testimony to a quality investment in the service of children and families on the issues encountered in the digital field. But this risks losing effectiveness in the absence of a common brand and editorial line, given the differences in approach adopted, and the *ultimate* dispersion of budgets forcing communication actions that are insufficiently sustained over time to find solutions. the impact.

Also, the different administrations have organized spaces for exchanges with economic players and civil society. But here again, several limits can be noted: these spaces of exchange struggle to bring out the voice of the smallest players in the face of the power of the big digital players; they segment discussions and engagements; they do not always have sufficient political support to obtain serious commitments from their interlocutors.

Furthermore, these national organizations do not necessarily find an echo at the territorial level, and in particular the place of local elected officials and field actors is today poorly established, even though they must play a role of training, multiplication of the action levers, and implementation

visibility of messages, without which changes in behavior and the promotion of alternatives to “screens” will have difficulty emerging.

Finally, the Commission wishes to emphasize the financing arrangements for this public policy. In the absence of protection of public budgets, where applicable funded by the contributions of economic actors responsible for the negative externalities of "screens", institutional actors and especially associative actors, including those designated by the authorities as responsible for specific missions (see reporting for example), find themselves in a situation of dependence on the economic actors themselves. This situation is questionable in terms of ethics and efficiency: it makes the actors unsafe, it offers a discourse to economic actors contrary to the effective exercise of their responsibilities, it can create conflicts of interest unfavorable to the action with minors.
As such, the digital protection of children escapes the classic schemes which prevail over other issues, such as the fight against tobacco and more broadly against addictions, the financing of which is intermediated by a public fund. .

PART 4: “EXPOSURE OF CHILDREN AND ADOLESCENTS TO SCREENS”: WHAT AMBITION AND HOW TO MAKE IT ACTUALLY?

In view of the issues identified previously, the Commission worked to develop proposals aimed at responding to three major ambitions, all guided by the interests of the child:

- protect young people from the harmful effects of “screens” 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 the benefit of its advantages;

- create broader awareness of how children function and the essential needs for their development, and dare to make organizational and societal changes that are emancipatory for children.

Through these ambitions, it is a question of putting the tool back at the service of humans, avoiding lasting impacts on the health of children, taking into account the vulnerabilities which expose more people to the risks of "screens", by organizing dialogue with children – in the family and elsewhere – about their practices, supporting the potential benefits in terms of socialization and exchanges between peers, by giving a strong and visible place to alternative and collective interactions.

To live up to these ambitions, the Commission is convinced that we must give everyone back the ability to act and choose: to young people themselves, to families and parents, to educational communities, to all professionals. who accompany them, to institutions, to associations.

The resulting action strategy is underpinned by several principles which seem key to the members of the Commission in promoting the expected changes:

- it is necessary to put an end to the feeling of powerlessness, which paralyzes action, and leads to retaining the most immediately accessible solutions, sometimes against the interests of the children themselves, or to pointing the responsibility towards the only parents. Political leadership, at a high level, can have an impact. It must be carried out, over time, at three levels: global, European and national. It will find its strength if it can rely on an agile and robust organization within the State, integrating all aspects of the project for children;

- the impacts will be seen on a large scale if they are supported by the organization of a public and transpartisan debate, which alone will allow the emergence of a collective and shared vision necessary for the strength of the discourse, and thus for the evolution behaviors;

- the necessary rebalancing of the dialogue with the digital giants will be obtained, in addition to political pressure, by the structuring of “action coalitions”, bringing together researchers and virtuous actors of civil society, which must absolutely be released direct funding links through the digital sector.

This action strategy is broken down into around thirty guiding principles, presented in the form of “proposals”, themselves informed by recommendations for more operational measures. These principles/proposals and operational measures constitute a “system”; only their concomitant and coherent mobilization will make it possible to have a real impact on the lives of children.

In formulating its recommendations, the Commission focused on:

- have an approach that is respectful of children and differentiated according to their stage of development, their needs and their vulnerabilities;

- give importance to the issues relating to the somatic health of children;

- reposition responsibilities “in the right direction”, to put an end to the race against the negative externalities of services deployed without the informed consent of its users, and pursuing questionable objectives from an ethical point of view even though they support their model business;

- promote support and dialogue between parents and their children;

- bet on the ability of adults to make changes, including in their own relationship to digital technology, for the benefit of children;

- give full attention to vulnerable children, particularly due to disability.

These recommendations are structured around six axes:

- tackle, to ban them, the addictive and confining designs of certain digital services in order to give young people choice (Axis 1) (4.1);

- protect, rather than control, children: a battle that must be fought and can be won with economic actors (Axis 2) (4.2);

- assume and organize a progression in the use of screens and digital technology among children according to their age (Axis 3) (4.3);

- seriously prepare young people for their autonomy on screens, give them the power to act and, at the same time, restore their full place to children and young people in collective life (Axis 4) (4.4);

- better equip, better train in digital technology and better support parents, teachers, educators and all those who work with children, while organizing a society that puts the screen and digital technology in their rightful place (Axis 5) (4.5);

- put in place an ambitious governance system allowing the public authorities to define a real strategy, to have steering capacities, to be able to better support the actors who intervene with young people and families, and to inform citizens (Axis 6) (4.6).

4.1- Axis n°1: Tackle, and ban, the addictive and confining designs of certain digital services in order to give young people choice again

The Commission deliberately chose to begin its recommendations with this imperative, to place responsibility where it is primary, that is to say with the economic actors themselves who, in part, produce predatory services, with a harmful design for children.
The DSA also bears a first recognition of this responsibility, even if it largely leaves the task of evaluating their effects to the said services.

The Commission considers that this is a development that should clearly be refused for children, who must in no case become the commercial product of strategies to conquer markets and maximize their time spent online.

It is up to infrastructures to create the conditions for the protection of children. Faced with these observations, the Commission considers that it is urgent to have an offensive strategy taken to the highest political level at the global, European and French levels, to no longer suffer and have to find costly, imperfect and rapid solutions. obsolete, adjustment. Resolving risks “at the source”, in the very design of products and services, is a requirement that must be placed at the forefront of commitments.

This strategy, which will have to rely on a network of actors increasingly nourished around the ethics of design, could be structured around the following guiding principles:

- take responsibility for public order in the digital space, in particular assuming a more injunctive role in the design of products and services available, in particular for children, and bringing about standards that are more protective of physical health;

- encourage the emergence of ethical private actors, making it possible to offer young people counter-models;

- create the conditions for a productive dialogue with the major digital players.

4.1.1- Give choice back to users of digital services

If the intensive use of screens necessarily has several drivers, one of them is both known and has made it its raison d'être: the attention economy. Many platforms used on a daily basis structurally call for building their technical and algorithmic architecture so that the user stays on their service as long as possible.

The Commission promotes the need to create counter-models to that of capturing attention, and to promote uses which give back full importance, in transparency, to the expression and respect of the intentions of users, especially young people. This particularly applies to the content presented to them as well as the time devoted to their digital activities.

In this respect, the Commission considers that it is necessary, from now on, to take an initiative to both exploit to the maximum the potential offered by the DSA, and to assume more frank positions of rupture concerning addictogenic models.

Several fields of action should be invested in this sense, cumulatively taking into account the time which will be necessary to bring some of them to fruition.

The European legal framework has largely left it 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 mobilizing through an active regulatory strategy to benefit from these provisions.

With regard to a public health issue, the model adopted for medicines, for example, could be enlightening in this respect, namely requiring economic players to demonstrate, before being placed on the market, the absence of any effect. harmful and a favorable benefit-risk balance.

Given the constant developments in services, it is certainly not possible to reproduce the system in force for medicines identically, but the Commission nevertheless considers it possible to approach its objectives by adapting the methods. In particular, and in line with the obligations imposed by the DSA on very large platforms to carry out risk analyzes (article 34) and to adopt measures to mitigate these risks (article 35), informed by recitals 81 and 83, the requirement could be placed on platforms to carry out regularly (or even before any development of a new functionality) comparative tests according to so-called “AB testing” procedures in order to evaluate the effects of the different components of the algorithms, in particular on the nature of the user's engagement to measure the possible deleterious impact, and force the choices that are most protective of the health of individuals, and young people in particular. Also, and now that the obligation to share data is imposed on "qualified" people (administrations, researchers), it will be necessary to strengthen the audit system provided for by the DSA in order to ensure its regularity and independent, by linking the European and national levels: this involves avoiding the “tunnel” effect of investigation procedures which are certainly powerful in terms of sanctions, but take a long time to complete.

Proposal No. 1: Reverse the burden of proof to fight against harmful designs and algorithms of digital services and equip ourselves with regular independent audit capabilities

Examples of operational measures to be deployed:

- Deploy virtuous A/B testing procedures, that is to say integrating and favoring criteria for the well-being of end users established on the basis of the preservation of their interests;

- Carry out regular audits of platforms by independent third parties.

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Work relating to the design of platforms and addictive-type algorithmic elements is progressing rapidly, in particular under academic and associative impetus. Politics has notably taken up this issue, through the almost unanimous adoption of European parliamentarians of a resolution in November 2023 on the addictive design of online services and the protection of consumers in the single market of the European Union. . In this resolution, the European Parliament denounces the economic system by which profit is obtained, for online services, such as social media, streaming services, dating apps and online stores, through the development of “psychological tricks” aimed at keeping consumers online. It therefore calls for legislation to deploy a high level of consumer protection, it being understood that people themselves, especially children, cannot be expected to “resist” these capture mechanisms, nor be expected of economic actors to self-regulate against their private interests. While the European Commission is committed to reviewing consumer law and unfair practices in response to these expectations, there is a clear space to promote, in support of the European Parliament, much more protective legislation.

If the evaluation of interfaces and algorithmic mechanisms must further progress, the members of the Commission believe that this should not slow down strong action already making it possible to put an end to the most harmful design elements, and this in a consensual manner in the academic world. The construction, desired by social networks, of an environment of digital passivity is rather well understood by adolescents. But this awareness can hardly be

alone support a change in consumption behavior, taking into account, moreover, the sensitivity to the reward system which characterizes the adolescent brain.

For example, the mechanisms of "infinite running thread", "automatic and endless launch" of videos, hyper notifications without controversy pose difficulties on an ethical level, by erasing any choice of the user and pushing for content consumption without effort or active engagement.

Also, a first list of design elements to be prohibited, even in a minimal form, appears accessible, and can be supplemented regularly for a high level of consumer protection. In this regard, in-depth studies should be quickly carried out concerning:

- algorithms based on an addictive flow, i.e. being chosen and recommended for a specific user on the basis of their previous behavior;
- conceptions favoring the adoption of compulsive behaviors defined as any response stimulated by external factors which leads an individual to adopt a repetitive behavior likely to cause psychological distress, loss of control, anxiety or depression, and this without connection time limit;
- incentive or engagement features, including exposure to likes and comments.

At the same time, the Commission recommends creating the conditions, with committed stakeholders, for the emergence of a so-called “ethics *by design* ” standard. Some platforms already stand out from the most “irresistible” and therefore the most used models; it would be useful to encourage, through this reference framework, innovation in the service of these more ethical models.

Faced with the opacity of the functioning of social network algorithms and the deleterious impacts they can have on users, it is necessary to give back to the user the power to choose, to act. One way to achieve this, and to bring out more ethical proposals, is to consider the service offered by these platforms not as a whole but as a sum of distinct functionalities (hearing of the National Digital Council and its last two publications published117 at the start of the year in the continuation of its report on the attention economy118). These can then be the subject of a more extensive choice by the user according to their intentions, their needs and their capabilities, including technical ones. But even more, each of these functionalities (recommendation, moderation, etc.) can be provided by a third party entity to the proprietary social network. In doing so, for each of these functionalities, alternatives can be offered to the user. Each of them becomes a field of development in its own right, allowing innovations to emerge for the benefit of the user and possibly the network itself, as recommended by the National Digital Council. This opening of social networks to third parties, which may go as far as unbundling the social network, involves supervision and regulation making it possible to determine the conditions of this opening, which will need to be defined. This also involves ensuring the interoperability of services and the portability of user data.

[117] National Digital Council, Cultivating the wealth of networks, 2024: https://cnnumerique.fr/nos-travaux/cultiver-la-richesse-des-reseaux – Ensuring our freedom in the age of Artificial Intelligence, 2024: https://cnnumerique.fr/assure-nos-libertes-lere-de-lintelligence-artificielle .

118 National Digital Council, Your attention please!, 2022: https://cnnumerique.fr/votre-attention-sil-vous-plait-quels-leviers-face-leconomie-de-lattention.

It is imperative to give users the opportunity to regain control over their use of social networks. In this perspective, the Commission recommends including an action aimed at the opening and personalized configuration of social networks, following on from the proposal made by the European Parliament last December in its resolution on addictive design119 .

Proposal no. 2: Prohibit harmful practices in terms of design and create a European ethical standard

Examples of operational measures to be deployed:

- Support European-wide legal action to ban design elements addictive type;
- Make it mandatory for networks to declare their nature as online messaging or social media: in fact, too many messaging systems have been deployed in social media, without information or consent from users, and have thus made extremely accessible content shocking for young people (see Mexican violence seen everywhere by children on a Russian messaging network);
- Create a French and/or European “ethical” design framework to restore choice in the user journey, transparency understandable by all on the functioning of algorithms, guarantee eco-design, secure presence, accessibility and the effectiveness of configuration, measurement and reporting tools;
- Encourage the emergence of services that are more respectful of children by implementing the interoperability of social networks and by considering the possibility of unbundling them.

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The protection of minors (and adults with them) on social networks could trigger a new requirement in terms of settings likely to give users freedom, and therefore the power to act and decide. As such, the Commission wishes to support the recommendation, already formulated by the National Consultative Commission on Human Rights120, the National Digital Council121, considered by the Council of State122 and in work within the Ministry of the Economy, to recognize the end user of the social network as having the right to configure settings. This should lead to imposing on operators an obligation, when opening the application, during the first key actions (adding contacts, publications, etc.) as well as occasionally randomly, to present a space reserved for configuring the features (called “home screen”). This space should be easily visible and accessible on the interface, understandable and whose design must be designed in such a way as not to discourage the user from making these configuration choices by making it too complex or tedious.

119 European Parliament, Addictive design of online services and consumer protection in the EU single market, December 12, 2023 (2023-2042 (INI)).

120 CNCDH, Opinion A-2021-9 relating to the fight against online hatred, July 2021.

121 National Digital Council, Your attention please!, 2022.

122 Council of State, Annual Study 2022, Social networks: challenges and opportunities for public authorities.

It would also be appropriate to offer a choice method so that you do not have to repeat it each time you connect, in particular by offering a “make this list my default” command. It would allow the user, on the one hand, to be informed about their use of the service in terms of content consumption and screen time and, on the other hand, to be able to configure the types of content that they wishes to see and the way in which they are offered to him, without them being imposed on him. It would also be a question of offering the possibility to the user to be able to configure the time spent on the service in a granular way and to arrange the time slots of use.

To this obligation to modify the ergonomics of social network services, should be added an obligation for the platforms to strengthen the default settings aimed at protecting the child's sphere of transmission and reception in order to fully guarantee the protection of their privacy, health and safety in accordance with the requirements set out in Article 28 of the DSA, in particular to control their sphere of reception and limit their sphere of emission. Could be added the obligation to offer minimal options for advanced settings.

Such avenues of reflection could be brought to the European level in accordance with the DSA regulation. This system is a continuation of its article 28, written in broad terms, according to which “1. Providers of online platforms accessible to minors shall put in place appropriate and proportionate measures to guarantee a high level of protection of privacy , safety and security of minors on their service”. It would also extend the obligation set for very large social networks to offer a content recommendation system not based on profiling (article 38) and to take remedial measures in the event of identification of systemic risks (articles 34 and 35).

Proposal no. 3: Give power back to the user by recognizing a new “right to configure”

Examples of operational measures to be deployed:

- Consecrate in our legal corpus a “right to configuration” for users of digital services;
- Translate this “right to configuration” into specifications providing in particular:
  - a systematic opening page on the settings interface before any first navigation and key action on a social media; and, at any time, have easy, visible and accessible access to a dashboard directly from the service interface in one click; the design of these functionalities must be clear to allow efficient freedom of choice and so that the user can easily define the settings in accordance with their interests and needs;
  - an explanation accessible to children of the functioning of the algorithms and the associated parameters as well as the economic models which underlie them;
  - a default setting of a system for systematically interrupting the service after a time to be determined;
  - a default setting ensuring the protection of the transmission and reception sphere of the end user when it concerns a minor.

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By offering a diversity of gaming practices and experiences for the purposes of leisure and socialization, video games have become an important cultural object in our societies. Used in various forms and contexts, it has been able to demonstrate numerous positive impacts for the player, among them: development of visuospatial skills for first-person shooter games, training of problem-solving skills for games. roles, and more generally fight against anxiety, improve self-confidence or even strengthen creativity thanks to its practice.

Currently in France, 72% of the general population and 93% of children aged 10-17 say they play video games at least occasionally; this practice represents 19% of the screen time of 4-10 year olds and 31% of 14-year-olds. 18 years (SELL study to come). Faced with this generalization of practices and the broad diversification of the offer, the question of its regulation arises more acutely, particularly for young people, some of whom develop so-called problematic gaming behaviors which can go as far as addiction123 .

Let us point out that, as in any addictive behavior, there is generally a vulnerability in the problem gambler. And psychiatric comorbidities are more the rule than the exception.
Gambling, for some, can mask this fragility and become an attempt at an inappropriate response to their comorbid disorder. All psychiatric pathologies of children and adolescents may be affected. The behavior is also sometimes associated with disorders linked to the adolescent's family environment (dysfunctions in relationships and parental practices in particular). Even if the prevalence of these disorders remains rare, it is useful to keep this possibility in mind in order to identify, act and plan measures to control these activities.

For this regulation, the approach is not to call into question the very principle of the game, but to acculturate young people to good video game practices and to protect them effectively from the harm that could be caused by improper use of the game. video games (inappropriate content, addictive behavior) and the development of new economic models.

Regarding content, the PEGI signage, supported by the sector itself and recognized by the French legislator, is recommended in Europe to indicate the age below which the content is not suitable and to describe the problematic content of the game. using pictograms: sex, violence, foul language… and more recently microtransactions. But this signage is not obligatory and when it is present, it is only an indication for families, and does not have any automatic consequences. Also, many children play games that are not their age.

The growing convergence between certain video games and games of chance, and sometimes misleading designs, the ongoing mobilization of new technologies such as the metaverse, or even the deployment of network games carry new risks in terms of protection minors who must now be voluntarily taken into account in the regulation of uses.

The unregulated development for several years of more aggressive economic models means that the use of games based on these models tends to come closer to that of gambling and gambling.

123 Can lead to addiction. “Internet gaming disorder ” has been included in the latest International Classification of Diseases and in the DSM-V. (American Psychiatric APA - Diagnostic and Statistical Manual of Mental Disorders Fifth Edition Text Revision DSM-5-TR (appi.org). 1% of user addicts are approximately 380,000 players in France.

chance, and raises fears of an increase in risks for the most vulnerable young people who would be led to make excessive and compulsive purchases, as well as to develop addictive behaviors like gambling.

In conjunction with this, the integration of randomness into in-game purchases can also contribute to excessive gaming behavior and psychological overinvestment. The case of *loot boxes* (items which can be purchased in-game but which give a random reward and an uncertain in-game value) raises questions, but the fact of considering them as something associated with gambling still remains controversial, in particular on the consideration of value (for the player) of the reward obtained.

Gaming signage tools have introduced information to indicate the presence of in-game purchases and purchases including random content, but there is still a lack of transparency on when *loot boxes occur,* their costs, the probability of winning, whether it influences gameplay or is purely cosmetic, or whether they can be redeemed.

Misleading designs and non-transparency of microtransactions pose a risk to players. In order to protect minor players, adequate regulation must be established. Video games being complex artistic creations of different genres (role-playing games, platform games, battle royale games, etc.), available in several forms (solo or multiplayer games, online or locally, requiring skills or based on luck, etc.), and with varied economic models, it is however difficult to give a simple definition. To be able to establish effective regulation capable of anticipating developments in different media and their uses, we would need to have a tool for assessing potential damage based on their structural characteristics.

This objective of a new regulation could thus be structured, at national and European levels, around the following principles aimed at better protecting young people from inappropriate content and behavior by:

- regulating the labeling of films and video games in a uniform manner;

- putting in place rules prohibiting sales according to age categories, and enforcing them (visibility, readability and control); following the United Kingdom model, the Commission supports going as far as banning the sale of games to children who are not of the required age. Certainly, this ban could have limits (presence of siblings making it more difficult to regulate access to games in homes based on ages, possibility of purchasing through another child/adult making it possible to escape to the age barrier, etc.), but there is no doubt that it will produce effects, and that it will send a strong signal to families and society;

- organizing a campaign to relay information to families, in particular by promoting parent-child dialogue allowing the rules of use to be established together, and by widely disseminating good practice guides (see for example the project “Civicism and video games: let’s reinvent the codes” led by DILCRAH).

If video games are built on a logic of player engagement, we must protect young people from a drift of this engagement in certain games towards more harmful mechanics of capturing attention and capturing the time spent playing (examples: practice of banning in the event of withdrawal of a player, peerstripping, etc.).

To effectively deal with this:

- develop, under the aegis of research, an effective evaluation grid in order to determine the risks of damage linked to design and economic models; support research in this sense ;

- make major video game players responsible, in the same spirit as the DSA, by committing them to carry out an analysis of systemic risks concerning their minor users, and to take measures to reduce the risks identified, in particular with regard to designs and their economic model;

- ensure effective sanctioning of deceptive and manipulative designs;

- regulate in particular the development of microtransactions, which complement an economic model contrary to the interests of minors and their families. The use of *loot boxes* must be the subject of an in-depth analysis in this sense. The Commission already recommends setting a maximum spending limit per game, making it possible to limit excessive spending, whether requested by children or carried out directly by them without the intervention of adults (when the card banking can be activated, without constraint, from the game account);

- better protect against the risks associated with networking, and in particular strengthen reporting requirements to combat the predation carried out by child criminal networks on these spaces where children are;

- organize specific monitoring of technological deployments at work in the world of games, from the point of view of children's interests. As such, it is appropriate to act now on the development of the metaverse, which exposes children to worlds where traumatic acts can occur, as the National Pilot Committee for Digital Ethics has highlighted. The Minors' Office also questioned the Commission on new cases of rape of avatars of minors which are taking place in these worlds, with very significant traumatic effects, especially on the youngest. The creation within the Penal Code of a dedicated offense would make it possible to punish the perpetrators.

This reinforced and adapted approach to regulation cannot ignore the support needs of young people and families in the world of video games. The Commission therefore recommends increasing the number of physical places where young people can be welcomed to play together and under the supervision of an adult able to carry out prevention. It also supports the integration of video game education at school as well as in places of cultural mediation and to inform more broadly on knowledge of content and ecosystems. She also recommends an additional effort in terms of information and support for families, understanding children's games, and the dialogue that feeds on them, being very important for them.

Proposal No. 4: Strengthen “safeguards” in video games to secure the experience of young players, and thus better protect them from inappropriate content and fight against the development of microtransactions and misleading designs

Examples of operational measures to be deployed:

- Provide better protection for minors from inappropriate content by:
  - o labeling films and video games in a uniform manner;
  - o implementing rules prohibiting sales according to age categories, and enforcing them (visibility, readability and control);
  - o strengthening reporting process standards, to fight against networks child molesters;
  - o taking into account the most harmful developments linked to the deployment of the metaverse, and network games; in particular by recognizing in the law an offense for rape of minors, of a highly traumatic nature;

- Promote new regulation, at national and European level, of microtransactions present in games and fight against misleading designs:
  - o support research for the development of an effective assessment grid to determine the risk of damage linked to design and economic models; and force stakeholders to be more transparent by giving them, based on the DSA model, responsibility for assessing and mitigating systemic risks to the health and safety of minors;
  - o ensure effective sanctioning of deceptive and manipulative designs;
  - o promote and support the development and respect of an ethical design charter;
  - o regulate microtransactions, with particular attention to *lootboxes* to prohibit any unfair use, and to cap the level of possible spending on a video game to reduce the consumption pressure exerted on young players (pay to win, pay to skin, etc.);

- Make these issues more visible to young people and families, by: o strengthening information for families through targeted and recurring campaigns (notably signage);
  - o strengthening support for young players, through the development of a range of places recognized as allowing playing together, with the assistance of adults and students;
  - o strengthening media education with a video game component (diversity of content, good practices, ecosystem) at school and in cultural mediation centers.

4.1.2- Create “coalitions” with research and civil society to support dialogue with digital stakeholders and support an adapted action strategy

To arm the ambitions mentioned above, and more generally the overall strategy of action, it is essential to be able to progress on the evidence relating to “screens”, and at the same time to be able to equip the regulator and the judge, both national as well as European. In this sense, as presented above, the DSA opens up new obligations for large platforms in terms of data transmission, both with regard to so-called “public” data and less directly accessible so-called “private” data.

However, both research and “specialized” associative action are today too heavily dependent on funding from the sector itself, which is detrimental to the sustainability, intensity and independence of the action.

As opportunities open up to confront platform models, whether through the multiplication of investigations and lawsuits brought against social networks on a European and global scale, as well as developments in the legal framework in favor of a strengthening regulation, the Commission considers it essential to release complementary energies constituting essential support for State action. The assistance of these actors appears in fact essential to strengthening the power to act of the regulator itself.

As such, the law already protects, for example, the role of “trusted flaggers”, whose consideration must be prioritized by economic actors in application of the DSA. We can, however, regret that this recognition, and the requirement for independence associated with it, being implemented by ARCOM have not (yet) been accompanied by reflection on the conditions necessary for their action (level of resources required to meet demand, financing arrangements guaranteeing the imperviousness of their action to the controlled actors themselves, whereas associations are today largely financed by the private sector).

In these circumstances, the Commission considers that there is a short-term challenge in being able to further mobilize this issue of national resources on a European scale, which is also supported by the National Digital Council. The DSA provides for the contribution of large platforms to the financing of European regulatory resources (“supervision costs”). We can estimate the sums expected each year at around 45 million euros, and certainly much more in the future. At this stage, only the European Commission has been identified to benefit from these amounts, even though the effectiveness of its action will depend on the vigor of national actors and networking with all civil society actors active on the European plan. The debate must therefore be based on the addition of national, public and private forces, through dedicated European programs, whether it concerns the research effort to be promoted or the necessary support from associative actors. This debate does not seem to have been posed until now, nor by a coalition of States
members, nor by France in particular. While the terms of deployment of the DSA are currently being discussed in different fields (upcoming delegated act on access to data, work on age verification, tools for investigation work by the European Commission in terms of facts convincing, etc.), the Commission recommends pushing the spotlight on this issue of sharing the resource from the economic actors targeted by the DSA. Beyond the supervision costs provided for by the DSA, the strategy could usefully also include the proceeds of fines, whether notified by the regulator, or the result of actions before the judge. This could be a relatively quick way to support and secure the ambition of the structural strategy proposed by the Commission and to be deployed on the national territory, in a French context which is also very constrained in terms of public finances.

Furthermore, given the issues at stake, the Commission considers that it would be useful for the State to help drive the organization of priority areas of intervention and the complementarities to be encouraged between academic, economic and associative actors, so as to maximize their impact.

Finally, the Commission points out that the SREN law, already presented, provides for the creation of a “digital citizen reserve” with the aim of contributing to the transmission of the values of the Republic, respect for public order and the fight against against hatred in digital interfaces as well as missions of education, inclusion and improvement of online information. As such, its vocation is to welcome “volunteers because of their skills, their experience or their interest in digital issues, for a commitment for a period of one year, renewable after explicit agreement of the parts”. Such citizen mobilization could prove virtuous on issues of protection of children, youth and populations most exposed to the risks conveyed by certain uses of digital technology, provided however that this mobilization

is well supported by the State, animated, accompanied, nourished and made visible, and that teams from State services are expressly designated to support this deployment. The benefits of this commitment to citizen involvement could be significant, both to ensure a strengthened democratic bond throughout the country but also to involve the entire population, ensure an increase in collective competence and ultimately better understand and therefore protect.

Proposal no. 5: Secure, structure and amplify the action of civil society, as an essential relay for managing the negative externalities of platforms

Examples of operational measures to be deployed:

- Establish a citizen alert reserve on new uses and new practices to be taken into account reactively and provide strong support and structuring from State services;

- Promote collective actions and complementarities, by helping to structure the action associations and NGOs;
- Remove the risks attached to their financing and their sustainability, and take into account the needs exponential challenges that associations must face.

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In the same logic, the Commission considers that it is essential to resolutely support independent research on all the questions raised by the development of digital technology and the growing place it now occupies in our daily lives, particularly among children. and adolescents.

Such support appears essential to have the studies and analyzes necessary for good knowledge and understanding of current phenomena and their effects. But it is also necessary to better understand the precise operating conditions of the digital sector and to be able, in doing so, to support the dialogue of regulatory authorities with the major digital players.

This research must therefore be able to intensify in each of the disciplines in which this digital boom is accompanied by questions or profound developments (health, education, law, sociology, etc.). But it must also be carried out from a truly multidisciplinary perspective in order to combine approaches and analyses.

To support this ambition, the Commission emphasizes that it appears necessary to commit appropriate resources. These means can obviously concern financing aspects. On this point, the Commission considers that part of the contributions from the platforms paid under the DSA could help to structure a research program, primarily European, on, in particular, the systemic risks of social media, which the Platforms must now assess and mitigate. Beyond the question of funding, these means must also concern the possibility for researchers to access, in compliance with the fundamental rules which govern the communication of automated and personal data, the data necessary to carry out their work and base their analyzes .

There is a real challenge in this aspect of access to data, if only in terms of implementing the provisions of the DSA. Thus, access to private data from large platforms is essential to evaluate the processes at work, measure the amplification impacts of algorithms and captology phenomena. Across France, a dedicated and known circuit for reporting platform blockages against data requests made within the framework of the obligations set by the DSA must be developed based on the model, for example, of what is made in Germany.

Proposal no. 6: Send a clear signal of investment in multidisciplinary research and opening of data in order to strengthen the position of the regulator in dialogue with the forces economic

Examples of operational measures to be deployed:

- Support and finance research and epidemiological studies, in particular the creation of cohorts, for health and education issues linked to the use of screens (with the particular issue of data interoperability in the context of cohorts : reduce the complexities/constraints of access to public data (issue of public statistics), remove the obstacles to the collection of data for research recognized as being of public utility, in particular in the field of health and education ;

- Organize on a French scale, to support the position of the European regulator, a dedicated and known circuit for reporting platform blocking against data requests made within the framework of the obligations set by the DSA;
- Make accessible to researchers, in compliance with the rules regarding the communication of automated and personal data, data allowing independent and objective analysis of the processes at work;
- Support evaluation programs, including *through* experiments, the contributions/opportunities/risks of digital technology and " low *tech "* in educational matters; - Support and promote in an offensive manner on a European scale the mobilization of part of the contributions of the platforms under the DSA for the structuring of a research program, particularly European but also at national level;
- Build a national framework for regular surveys to monitor different uses.

4.2- Axis n°2: Protecting, rather than controlling, children: a battle that must be fought and can be won from economic actors

4.2.1 Amplify ambition in terms of protecting minors against inappropriate content by mobilizing "third party" actors dedicated to this mission

Concerning the protection of minors, economic actors continued to pass the responsibility to each other during the hearings, seeing it only as an obstacle to the development of their activities and a cost center.

The word "parental control" is a catch-all term in which each economic actor associates something different depending on what serves their economic objectives.

Economic actors offer parental control to enter into families by reassuring parents but they do not necessarily consider their real effectiveness. No data on

the use of these solutions could not be communicated to us, which suggests a very limited use.

Focusing entirely on parental control, which all economic players tend to favor in order to distance their own responsibility, can deceive us. This runs the risk of exempting digital service companies from the requirements and standards of protection that exist in any other sector (example: gambling, television production, toy production, road safety, etc.).

Concerning their operation, these solutions place the responsibility on parents to configure parental controls on each of the platforms (Youtube, Instagram, TikTok, etc.) and each of the devices used by their child, and they must manage the complexities of compatibility and the operating limits specific to each of these control systems. Whatever one may say, parental control mechanisms, which are deployed in different forms in all dimensions of digital life, shift the burden of managing complexity onto families in the absence of interoperable systems. Furthermore, not all families are equally equipped to deal with this complexity.

In addition, this parental control, when it is effectively deployed on devices, often deprives children of a more meaningful dialogue with their parents, which is nevertheless necessary about their uses and practices. We must be able to tell parents that they will not have resolved in a few clicks the issues related to their child's digital life and their parental authority. Even more so when we know that children quickly learn to overcome the blocks imposed on them on their own device.

Children favor the fact of being protected and being supervised, but not of being controlled, especially when their parent has not even told them that they have activated one of these solutions on their device, nor shared with them the restrictions put in place. in place, which nevertheless appears to be an essential element in the child's understanding of the framework in which he can evolve.

Parental control has existed for more than 20 years and we cannot say that it has produced its effects.
Children's online time continues to increase and their exposure to inappropriate content has skyrocketed. The Commission notes that parental control in its current state is not the solution, and should in any case not overshadow the search for more effective solutions.

Also, by removing parents from this sole injunction to implement control, we are in reality encouraging them to re-engage with their children.

Finally, the tools are mainly developed today by GAFAM, without control over their mobilization and effectiveness.

Based on these findings, the Commission considers that public authorities would have an interest in opening another path by betting on “ethical”, interoperable technological solutions, therefore not linked to a single platform or a single OS, making it possible to eliminate the complexities generated by protection broken down by platform or OS. The idea would be that a single interface allows you to control all the protections available to support and protect your child.

This solution would make it possible to approach child protection in a more transparent way for families and the children themselves.

In particular, supporting the emergence of other solutions would make it possible to stop entrusting the protection of children to digital giants, who are thus transferred in exchange for the provision of their

free solution, all of children's usage data, which can enable them to pursue objectives other than just protection.

The intervention of innovative actors, serving the objective of protecting children, would make it possible to change doctrine by no longer leaving the keys to their “well-being” to economic giants, nor to parents in the end. racing to absorb and manage the complexity of experiences and models.

Furthermore, we must focus on protecting children against illegal content, not by constraining them but by making them active participants.

Minors' access to illicit content is alarming. All the surveys show it. The children and adolescents, ever younger, are accessing shocking and traumatic content, which in some cases can have lasting effects. Children and adolescents themselves very strongly express their need to be protected from such content. This protection must be effective in all areas, and it is one of the essential conditions for positive use of digital technology.

Massaging the protection of children in their digital lives against illicit content requires the mobilization of everyone: State, local authorities, private sector actors. In this sense, it is necessary to promote proportionate and effective solutions which preserve the interests of the child, namely their protection against this illicit content as well as the protection of their private life and the preservation of their freedom of expression and information. as well as his freedom of thought and opinion.

This protection could also extend to social networks themselves, on the condition that they provide this ecosystem with APIs or “virtuous” entry points allowing them to know when a child connects to their platform. and adjust accessible content in real time. Given the framework of requirements set by the DSA, and the expectations on the side of social networks, we could imagine that, subject to political impetus, certain platforms are ready to work on this hypothesis, and ultimately create a ripple effect in the system. This method bias would have the advantage of a form of speed, and could be tested before taking the legal route of an obligation to make these child protection APIs available in the event of failure.

Several obstacles would need to be removed to free this market from private third-party players, and it would be useful to entrust their resolution to an agile *task force* bringing together public and private players to:

- guarantee the interoperability of systems, and remove the barrier currently constituted by the closure of APIs as deployed by certain economic actors for their sole benefit; the risk is indeed significant, for competitive advantages, of a closure of the market, contrary to the objective to be pursued of the design and production of effective because systemic solutions; the guarantee to be provided for the opening of the market must constitute an objective of economic regulation on the part of the public authorities;

- support the economic model of innovative players to strengthen their freedom to act, and guarantee the systematic deployment of protection measures for parents, at no additional cost for the user; ensuring that “ethical” reference specifications are established to authorize this support;

- to bring out virtuous actors, in the field of technological protection solutions as well as in the field of uses for the benefit of children.

Proposal no. 7: Develop and promote more efficient and accessible private protection solutions, particularly for families

Examples of operational measures to be deployed:

- Encourage the growth of a market for solutions for the protection of ethical minors by ensuring the interoperability of systems, and by assuming the general opening of a market which tends to close around the major digital players;
- Support the emergence of a viable economic model, guaranteeing access to families of protection solutions without burden or complexity;
- Strengthen “all-round” protection:
    - o For families:
        - ÿ At the heart of the network, to protect navigation from individual devices for all mobile lines when subscribing for a minor declared as such by parents or third parties;
        - ÿ Form an alliance with box suppliers, in conjunction with operators, to offer this same protection via Wi-Fi;
        - ÿ Ensure communication twice a year by telecom operators to their subscribers of the availability of child protection solutions that they make available to them against illicit content;
        - ÿ Open the Edu-Connect authentication system, if a route is legally possible, to guarantee the identity of children and the collection of parental consent;
    - o For educational establishments:
        - ÿ Organize the protection of Internet access for schools, colleges and high schools against illegal content;
        - ÿ Ensure the same protection against illicit content from individual equipment made available to students by local authorities;
    - o For public places:
        - ÿ Organize, for public Wi-Fi points or those open to the public, the implementation of default protection against illicit content for minors;
    - o More specifically for social networks and platforms:
        - ÿ Take resolute action towards these social media with the aim of making child protection APIs available to them.

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Access to pornographic content by increasingly young minors is certainly one of the most critical elements of the digital experience of young people, taking into account all the elements described above. If this access is legally prohibited to those under 18, only an age declaration process, by nature very imperfect, is currently implemented by said pornographic sites.

Faced with online access to pornographic content, public authorities find themselves in a completely defensive position, and suffer from legal circumventions and technological arguments from the sector in the absence of precisely established countermeasures. The recent referral to the Court of Justice of the European Union by the Council of State, under pressure from pornographic sites, attests to this: it aims to verify compliance with European law of the decree of October 7, 2021 entrusting to the President of the ARCOM a power of formal notice and referral to the judge in matters of prohibition

dissemination of a pornographic message likely to be seen by a minor. The obligation of results for digital services themselves has been replaced, under pressure from economic actors, by an obligation to define technological means for States.

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

As such, it remains difficult to measure the reality of the impact to be expected from the deployment of the DSA, which imposes on the main pornographic sites the obligation to assess the systemic risks of their services on minors and to take measures of protection. mitigation ; as well as the impact of the law for the security of the digital space and the technical reference system for age verification currently subject to consultation by ARCOM. These developments are going in the right direction, and it will be important for France to do its part in supporting the European Commission to benefit from the new regulations, and transfer the burden of age verification to the sites concerned.

Also, the Commission wishes to draw the attention of the authorities to the fact that this fight against pornographic sites, if it must continue including through sanctions, must not obscure the underlying question. Young people today have very little or no access to content that meets their needs for discovery and awakening to sexual and emotional life. Their only option often remains viewing pornographic content. There is thus a missing middle ground, between very “trashy” pornographic sites, and the absence of any support for the questions that young people legitimately ask themselves, particularly in adolescence. We therefore need to have informational countermeasures to disseminate different content on emotional life, love, sexuality and consent *(see* below the measures envisaged on the question of emotional and sexual life). Repopulate libraries with novels and educational books; making resources available to young people online, on television, in series, on “podcasts”: these are all steps which should help to move away from the hyper-consultation of pornographic content so as not to leave them alone. exclusivity on this land.

Proposal no. 8: Support the firm deployment of the DSA with regard to pornographic sites, to force the adoption of age control tools already available, and at the same time invest in the production of resources adapted to the questions legitimate rights of children regarding their emotional and sexual lives

Examples of operational measures to be deployed:

- Have an offensive strategy to support the European approach for the effective deployment of protection solutions against pornographic content reconcilable with the issues of fundamental rights and freedoms; - At the same time, mobilize the public and private sphere in the service of content

adapted and accessible to young people with regard to their legitimate questions about emotional and sexual life, to create a substitution effect compared to pornographic content which tends today to constitute the only proposal.

As young audiences find themselves captive to toxic content online, they have little trust in reporting tools, if they are aware of them. Reporting tools are not sufficiently effective to date, and only represent a minimal part of moderation

effectiveness of online content. If the entry keys in the reporting process are diversifying (platforms themselves, Pharos, justice, trusted reporting associations, etc.), which is favorable to a strengthening of the effects, it is important to act in several places to guarantee more efficiency: accessibility of reports, by adapting the language to children and facilitating the user's journey in the most standardized way possible to create “reflex”; keep users informed of the consequences of reporting, without which young people are likely to become discouraged by considering the process futile; strengthening information sharing between all networks; the strongest application of the DSA with regard to the platforms' obligations.

Proposal no. 9: Guarantee the scaling up of the reporting policy to make it an important lever for action towards platforms

Examples of operational measures to be deployed:

- Create a repository of the best ergonomics and best user journeys in terms of reporting to move towards uniformity, and greater visibility, of integrated processes on platforms and video games (positioning of reporting buttons, accessibility of the language used with young people, simplification of stages and legal specifications by category, etc.);

- Organize the conditions for reporting to the European level evaluations on the effectiveness of reporting procedures, to support the control and possible sanction attached to the obligations imposed on platforms in application of the DSA;
- Accompany these actions with reinforced learning for children and digital mediators on online rights and duties, on those involved in reporting, and on legitimate cases of these reports (see below).

4.2.2. Promote research and innovation to bring out the best standards for the protection of physical health and for the eco-design of digital services

It is not a question here of having a recommendation aimed at children alone, but of considering that the issues which are particularly attached to the preservation of their physical health and the prevention of severe chronic diseases in adulthood , justify even more the emergence for the digital sector of standards and norms that protect human health.

To these considerations must be added those of the environmental challenge, in which digital services must take their full place while they drive, in a distinctive way compared to other sectors, growth in uses and dynamic consumption of resources. The digital sector has until now been integrated as a component of other economic sectors in the European and global governance of the ecological issue. The question needs to be asked from a more specific approach.

On all these issues, the work is either insufficient or too confidential. It is important that research and innovation be used to reduce risks to human health, and that of developing children in particular. Through the support of “virtuous” behavior, through the emergence of new, more protective technological standards, through the strengthening of commitments attached to the eco-design framework for digital services, through the resolute commitment to control number and duration

equipment in collective places, and ultimately an approach which puts need and utility at the center of the analysis, whatever the place of life (professional, school, family, public service, etc.).

Proposal n°10: Actively promote the best standards of protection of physical health and the environment for technological tools and digital services

Examples of operational measures to be deployed:

- Support research and innovation programs enabling the emergence of new technological standards that are more protective of physical health (e.g. alternatives to LED emitting blue light);
- Strive towards a binding approach, based on the GDPR model, of the new general ARCEP framework relating to the eco-design of digital services, at least in the short term by imposing the systematic evaluation of the usefulness of the digital service at the time of its design by integrating the environmental approach into this evaluation (from this point of view, the Commission points out the recommendation made by ADEME suggesting to " encourage *changes in behavior and the implementation of digital sobriety policies in order to reduce the number of equipment used and limit our uses by systematically questioning our needs "* 124) ;

- Study the possibility of strengthening default settings allowing more protective behavior of resources (example: lower resolution of images and videos by default to consume fewer network resources among operators);
- Support the increase in the duration of use of equipment125 through the development of repair, the economy of functionality or the sharing or pooling of equipment;

- Prioritize funding towards open digital solutions (commons, open source data) in the service of the ecological transition while ensuring upstream quantification of the benefits of the proposed solutions (solid methodologies with a medium-term vision and taking into account account of rebound effects); - Support the
development of knowledge of the environmental impacts of new technologies such as generative artificial intelligence (AI), immersive universes or quantum digital technology to control the massification of uses.

4.3- Axis n°3: Assume and organize a progression in the use of screens and digital technology among children according to their age

In view of the various findings established in the preceding sections, in particular on the proven effects of screens on health, on the need to satisfy the essential development needs of children and then adolescents and to protect them from the abuses and dangers to which they could be exposed. presented, a consensus emerged within the Commission on the importance of organizing a real

124https://cheminsdetransition.org/les-ressources/defi-numerique/ ;
https://www.temporel.fr/upload/media/content/0001/06/b2be9a22d052f9e36065e4a6ad765c6536942939.pdf
125 7 years for example is the warranty period obtained via the Matinfo public markets (https://www.matinfo-esr.fr/ecoinfo)

progressiveness throughout childhood and then youth in the use made of screens and in access to the content they allow.

This involves proposing a certain number of rules and support for the proper use of screens in a process logic, as secure and educational as possible, adapted to the young person's level of maturity. This progressiveness aims to support the child, then the adolescent, from a situation in which he is, at the start of his life, strongly protected from exposure to screens to a progressive conquest of his autonomy in uses and in terms of equipment.

This process proposed by the Commission is punctuated by stages at symbolic moments in the young person's life, so as to constitute clear milestones intended to support and support parents in their necessary dialogue with their children on digital technology.

From this perspective, it is therefore proposed to define a certain number of major principles making it possible to guide practices from early childhood to adolescence (4.3.1) and at the same time to build a framework that is as appropriate as possible. , and coherent, in the uses made of screens and digital technology at school (4.3.2).

4.3.1- Organize progressive access for young people to screens and certain uses

Among the various milestones that it is proposed to establish in the definition of the process of progressive access of young people to screens and their uses, ***a clear consensus was expressed within the Commission on the need to proactively preserve the younger children from exposure to screens,*** with particularly heightened vigilance during the first years of life.

At the end of these reflections on the benefit/risk, the Commission proposes the following principles of action:

- reinforce the current recommendation not to expose children under 3 to screens;

- advise against the use of screens until the age of 6, or at least that it be strongly limited, occasional, with content of educational quality and accompanied by an adult;

- after 6 years, call for moderate and controlled exposure.

If we take into account other activities considered necessary to promote health, development and learning, recreational activities on screen hardly find their place on school days. They are not necessarily essential on days off, always with a view to achieving a fulfilling balance with varied activities. Let us remember that the use of the screen is not necessary for the child's development and that, on the contrary, there are
stimulating alternatives: reading but also audio books and interactive stories, free play, board games, role plays, creative, sporting and artistic activities, discussions with peers126 .

The Commission is careful, in the current state of knowledge, to issue recommendations in terms of screen time, because screen time is a very imperfect variable for regulating activities.

[126] The importance of controlling children's screen time - File (afpa.org).

digital whose effects often turn out to be “use-dependent”. Furthermore, still in the current state of knowledge, any threshold would necessarily be arbitrary and not based on conclusive evidence.
To the extent that public authorities decide to broadcast prevention messages with limits linked to screen time, the Commission is in favor of abandoning the logic of "maximum time per day", which insidiously delivers the message that looking at screens every day is acceptable for a young child. The Commission suggests that a weekly time limit would be more likely to mean that it is acceptable to watch, from time to time, programs adapted to the child's age, at designated times and accompanied by an adult. .

This must therefore translate, first of all, into appropriate behaviors from the child's first days where the bond that he must build with his parents is essential and primordial. From this point of view, the Commission recommends limiting as much as possible the use of mobile phones in maternity wards and supporting parents in using television screens in rooms as moderately as possible, in particular avoiding their operation sometimes. uninterrupted: a calm environment is indeed essential for both the newborn and the mother.

The approach must be continued at home and in the family circle, where screens are not recommended until the child is 6 years old, without excluding some targeted and supported uses around very good quality content (specific actions, presented below , in terms of awareness, communication and support for parents must therefore be considered for this). It is specified that this recommendation of good practice, formulated for a long time, does not naturally lead to condemning certain one-off uses limited in terms of duration, during which the child may, for example, have an exchange with a member of his or her family. family via a digital tool with a screen (the example of the exchange with grandparents in video format *via* a screen often came up in the Commission's hearings and discussions). The Commission also proposes to prohibit the use of “connected toys” intended for children under 6 years of age, excluding connected story boxes.

Beyond the question of the situation of the young child at home or in the family context, one of the essential issues in view of the observations made on the state of practices concerns the need to further protect young children from screens in the places that welcome them outside of their time at the family home.

This particularly applies to young children in care between 0 and 3 years old, whether the care is collective, in a young child care establishment (ECEC) (crèches including parental ones, micro-crèches, daycare centers, daycare centers). children, etc.) or individual (childminders, at their home or in a childminder's home, childcare at parents' homes, nannies, etc.), an issue taken up by parliamentarians. Screens must be banned from spaces dedicated to children within these places where young children are welcomed (no screens in nurseries for example, outside of course offices or administrative services to which children are not supposed to have access). In situations where children are cared for in spaces equipped with screens, for example among professionals who provide home care, these screens must not be used in the presence of children, whether in simple “background” or to “occupy” them. The Commission therefore pleads in favor of the implementation of reinforced actions for childminders and “nannies”, via local authorities127, allocation funds

[127] Local authorities, departments and municipalities have already planned to include the regulation of the use of screens in contracts for the care of children by a childminder (the Commission has become aware, for example, of initiatives of this type in the Ain department).

family (CAF) and maternal and child protection services (PMI) in particular, to raise even more awareness among professionals than is currently the case on the dangers of screens for toddlers and on the virtuous practices to adopt in this area .

Particular attention must also be paid to the uses made of their own personal screens (mainly mobile phones) by early childhood professionals, including in ECECs, when they are in contact with young children. These tools must not be used in the presence of the child, both for safety reasons (the use of the telephone can excessively mobilize the attention of the professional and distract him from his duty of vigilance with regard to the young child) than with regard to the risk of technoference mentioned above.

By the same logic, when the child grows up and enters nursery school, he must remain as little exposed to screens as possible. Television and computer screens therefore have no place in nursery classrooms. The use of broadcasting cartoons instead of playtime, in bad weather for example, or during certain times of the day should be avoided.
Some exceptions must naturally be possible in certain situations, in particular that of children with neurodevelopmental disorders and for whom, on the recommendation of professionals from coordination and orientation platforms, the use of adapted screens allowing access to appropriate content would be required.

Finally, as in early childhood care, and for the same reasons, all staff working within these establishments (teachers, ATSEM, maintenance workers, external workers, etc.) must avoid using their personal telephone in the presence of children.

Proposal no. 11: Protect young children under the age of 6 from exposure to screens, particularly in childcare settings (nurseries, childminders, nursery schools, etc.)

Examples of operational measures to be deployed:

- Regulate the use of screens in maternity wards;
- Completely ban screens from spaces dedicated to children in collective early childhood settings;

- Raise awareness, via communities, CAFs and PMIs, childminders and all those involved in home care of the need to protect young children from screens and provide in childcare contracts, or even in child care clauses. approval of childminders, a clause on the non-use of screens in the presence of young children;
- Supervise the use of smartphones by early childhood professionals (childminders and ECECs), during their work with young children;
- Ban screens from nursery schools except for students with special educational needs, particularly children with neurodevelopmental disorders, on the recommendation of professionals from coordination and guidance platforms;
- Ban all connected toys apart from connected story boxes.

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A second important milestone from the Commission's point of view in the process of young people gradually gaining their autonomy in the face of digital tools and uses and strengthening their protection in the face of threats to which they could be exposed concerns the question of access to social networks.

As mentioned in the developments relating to the findings, the current situation is absolutely not satisfactory. Young people, including when they are not of the age required by the social networks themselves to access their services (13 years old most often), are present in large numbers on these networks or on platforms or services messaging systems which unilaterally transform into real social media (see above). However, several of these actors use potentially harmful and potentially addictive attention mobilization mechanisms, and their content is insufficiently regulated, leading many young people to be regularly confronted with images, videos, information, comments or situations that are shocking, inappropriate and sometimes dangerous for their own safety.

The new legal framework permitted by the DSA, and the regulatory measures proposed above by the Commission (axes 1 and 2) if they are implemented, should make it possible to very significantly improve the situation. But, in addition, the Commission considers it necessary to provide a system guaranteeing that young people can no longer be exposed to the risks which have previously been widely presented and denounced.

It therefore recommends defining new rules regarding the registration of young people on social networks, compatible with the logic of the process that it wishes to prevail. For this, it proposes to now subject the possibility of registering on a social network to compliance with two cumulative conditions:

- an age condition, as is already the case currently in principle but, with a reinforced logic: by establishing this age at 15 years (no more exceptions possible before 15 years) and by providing the means to enforce compliance with this condition;

- a condition linked to the very design methods of the social network, the operation of its algorithms, the definition of its settings. The idea would therefore be that, for minors aged 15 and over, the possibility of registering on a network or platform would be limited only to networks considered ethical because they operate according to known principles and guarantee the absence of mechanisms addictive and restrictive as well as harmful content for young people.

The Commission considers that, if it is necessary to support young people in meeting their needs, in terms of socialization and exchanges with their peers in particular, it is important that this experience can take place in a secure manner for them. Also, the Commission is in favor of a clear and uniform rule allowing the mobilization of social networks from the age of 15, but with virtuous actors, and not predators.

On the first condition, the age of 15 was retained by the Commission because it is consistent with both the current age of sexual majority and the age of numerical majority established by law. known as Marcangeli" already presented above. This age of 15 years also corresponds to an important age limit already set by the GDPR in terms of the exchange of personal data. Finally, and this is not incidental, the age of 15 most often corresponds to the age of transition to high school, which represents an important stage in adolescence and in the young person's journey towards progressive autonomy. Beyond the signal, which in itself can produce effects, one of the challenges will consist

naturally to be able to enforce this age limit of 15 years. From this point of view, the Commission considers that the current developments, with the implementation of the DSA as well as the measures it proposes above in axes 1 and 2, should make it possible to strengthen the possibility of enforcing this age minimal.

Concerning the second condition, the Commission is naturally not in a material position to draw up itself a "white list" of "ethical networks" on which adolescents
could register from the age of 15 and considers that, even if she were materially able to do so, this task could not fall to her.

It nevertheless notes that, from this age, it is a question of protecting minors not from all social networks but much more specifically from certain contents, functionalities, models and environments which could generally be described as toxic128 , following on from the provisions of the Digital Services Regulation (DSA) aimed at protecting minors online from certain behaviors identified as harmful (articles 28, 34 and 35).

The question is then above all how to identify the most toxic services, environments and activities for minors and then impose strict age control, in addition to the measures that can be adopted as part of the implementation of age control. systemic risks under Articles 34 and 35 of the DSA, it being specified that age control measures should meet the requirements of proportionality control and therefore be most likely to meet the intended objective while carrying the least of attacks on the rights and freedoms present.

Taking into account the judgment of November 9, 2023 of the Court of Justice of the European Union129, States may only impose additional obligations in accordance with Article 3 of Directive 2000/31 known as “eCommerce” provided that these obligations do not cover entire categories of actors but only specifically designated actors. Thus, it should be up to state authorities to identify social networks which should be subject to an obligation of strict control of non-accessibility. In France, this role could be entrusted to ARCOM, under the control of the judge.

A set of indices could be defined for this purpose and composed for example of the following behaviors:

- harm children in general;
- lead to children suffering or being the target of harmful contacts without activating by default the security settings regarding the sphere of transmission and reception;
- subject children to harmful behavior without effective recourse;
- expose children to exploitation through harmful contact;
- collect sensitive personal information;
- harm children through its advertising systems;
- harm children through its algorithms, in particular those based on addictive flows (ie being chosen and recommended for a specific user based on their previous behavior);

[128] On this need to target specific environments, functions and models and not general categories services, see the report of the National Digital Council on the attention economy.

[129] CJEU 9 November 2023, Google Ireland and others, C-376/22.

- harm children through incitement or engagement features, including exposure to likes and comments;

- lead to the adoption of compulsive behaviors without time limits.

More broadly, the Commission recommends that a convergence process be initiated at European level, under the aegis of France and all the Member States which wish to associate, so that compliance with this two-condition system becomes the rule. for the registration of young people on social networks throughout the European Union.

Finally, the Commission emphasizes the importance that it considers that young people under the age of 15, who are still too young to access social networks, can nevertheless benefit as much as possible from prior support and moments of “preparation” for their future encounter with social networks that meet the challenges so as not to arrive completely helpless at the age of digital majority. This must be constructed and proposed within the framework, in particular, of the measures envisaged in terms of training, awareness and preparation of young people for digital technology (see the measures on this aspect in axis 4 below).

Proposal n°12: Authorize access only to ethical social networks from the age of 15

Example of operational measures to be deployed:

- Ritualize the digital majority at 15 years (proposal in particular to give a symbolic significance to this “15 year mark” and to make it a special event, a rite of passage, under the aegis of prefectures and/or town halls, in connection where applicable with local networks);
- Create an alert and referral system to reinforce the request addressed to social networks to close accounts under the age of 15; and where appropriate to sanction negligent actors;

- Install a system allowing the selection of “ethical social networks” by entrusting ARCOM with the task of developing the list of non-compliant and harmful devices, and updating it annually, based on criteria defined in accordance with the European framework and the principles established by the legislator and the regulatory power;
- Initiate a French initiative at the level of the European Union in order to promote these new rules regarding the registration of young people on social networks in a logic of convergence.

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Finally, in this logic of process leading to a progressive evolution of the uses of digital technology and digital equipment according to age, the Commission also looked into the question of equipping young people with mobile phones and smartphones. in particular, which we could see crystallized a large part of the issues and reflections regarding screens. If the identification of age limits is necessarily an imperfect choice in the face of risks and uncertainties, it seems essential to the Commission, including to respond to the request of parents who sometimes seek to be supported in their decision regarding their children.

From this point of view, the Commission considers that equipping children under 11 with telephones, and even more so with smartphones, should be strongly discouraged. Such a tool possessed before the age of 11 in fact exposes children too strongly to the various health risks mentioned above.

high, at an age when they are particularly vulnerable, whether for example the risks of myopia, exposure to blue light, sleep disorders or even the risks of a sedentary lifestyle.
It also exposes them, when the telephone allows Internet access, to shocking uses and content, which can create lasting difficulties.

A first step is possible at the age of 11. This age corresponds to an important stage in the life of the young person who gradually leaves childhood and prepares for his entry into adolescence.
This is the age at which, most often, they enter college. The bond with the parents evolves and the young person begins to enter a life cycle in which he will be a little more independent.
The distance of the school from the family home, the use of transport without parental accompaniment or even the start of certain activities independently (outdoor leisure or sporting activities for example) can justify an often greater need to be able to contact or be contacted by one's parents. parents, his educators, even his friends. For all of these reasons, it seems coherent to propose that the 11-year mark is accompanied by the possibility for young people to have their first telephone. This phone must, however, be limited to the sole possibility of calling and sending messages, with limited packages, but not yet being able to go on the Internet independently.

The Commission therefore recommends favoring “brick” or “flip” phones at this age. She considers that digital players have an essential role to play in terms of offering suitable devices and packages limited to telephone communications and text messages, and thus cheaper. A market exists and the implementation of this recommendation should strengthen it. A

Strong political support is necessary to support economic players in investing in this market.

The question of knowing from what age it is appropriate to remove the obstacles to acquiring a first smartphone has been widely discussed within the Commission. In the current state of the situation, the difficulty in protecting young people from addictive and toxic content, and somatic health issues (notably visual), the 15-year limit for access to a smartphone could be defended; it also has the consistency of being compliant with digital majority and the GDPR which opens the possibility of sharing personal data without parental consent at this age; to be consistent with the symbolic stage of entering high school while cell phones cannot be used in middle school; and would finally make it possible to significantly reduce social pressure on the acquisition of the telephone, expectations that certain groups and actors in civil society were able to express.

But, at the same time, at 13 years old, the children have fully entered adolescence and have further progressed in autonomy. Their activities outside the home are more numerous and if they always naturally need the support and accompaniment of their parents, the place of peers and the information that they can obtain by themselves takes on a greater importance. more important share. And some argue that this age can be considered, provided that the connected telephone stage is strongly prepared with children.

At the end of its reflection, the Commission considered that, without encouraging equipment from the age of 13, it could be considered possible to equip young people with telephones with Internet from the age of 13, on the condition that access to social networks and illegal content is not permitted.

These age limits should be regularly reassessed to both qualify the improvements actually achieved in the protection of minors, and benefit from the latest advances in science.

Proposal no. 13: Organize a gradual takeover of telephones:

- **before 11 years: no telephone;**
- **from 11 years old: telephone without Internet connection;**
- **from 13 years old: connected phone without access to social networks or content illegal;**
- **from 15 years old: additional access to ethical social networks.**

Examples of operational support measures to be deployed:

- Provide for the systematic declaration of the user's date of birth when purchasing a smartphone and subscribing to a mobile phone plan;
- Provide for the addition on all smartphones purchased in France of the notice “do not not suitable for under 13s”;
- Encourage economic players to deploy “entry-level” offers adapted to ages of children:
    - o encourage mobile telephony players to develop and market phones (non-smartphones) adapted to young people based on recommendations by age;
    - o encourage operators to offer “youth packages” or adapted telephone packages (without the possibility of an Internet connection, possibly with lower capacities in terms of call time and limited number of text messages and, in doing so, less expensive).

4.3.2- Have a coherent, controlled and evaluated strategy on the place of digital technology in schools

The question of the place of screens and digital technology in school, both during school time and outside school time, is a subject which constituted an important point of debate within the Commission. The latter was in fact animated by the same questions and the same debates as those which can run through the whole of society on the subject.

Health and environmental issues call for limiting the use of screens (particularly individual screens) in schools, as well as limiting use at home, including taking into account the risks associated with difficulties. support for parents and possibilities for circumventing practices.

Faced with these challenges, there are those, also strategic and significant, of the essential training in digital uses of students, progressively during their learning, as well as the deployment of uses which can accompany the educational gesture in high quality standards, combining teacher training and taking into account the school context.

There was thus no general consensus within the Commission on what the ideal level of mobilization of digital tools should be in terms of equipment and educational uses. The Commission therefore recommends that the subject of digital education can be better taken up by society as a whole and public authorities.

This debate having been raised, the Commission wished to highlight its agreement on the principle according to which it is absolutely necessary to regain mastery of screens and digital technology offered to children, in terms of equipment and educational matters. This allows it to present, in the developments which follow, four strong proposals, fully consensual between the members,

and having made it possible to bring together the entire Commission beyond the differences mentioned above.

Several principles guided the Commission's reflection on the place of screens in schools and led it to formulate its recommendations; Among these principles, it should be noted as a priority:

- the fact that digital technology must not remain “unthought of”, nor be considered solely through the prism of technological deployment. The issues of health, equal opportunities and pedagogy must be considered to build a structured reference framework shared between all school stakeholders: educational communities, parents, students, local authorities and administrations, in the interests of the children themselves;

- the strategy deployed in schools must be consistent with the messages sent elsewhere to parents on the uses to be made in the private circle of screens and digital technology in order to avoid confusion which creates inefficiency, and to strengthen parents in their dialogue with children;

- children must in all cases be supported in their use of digital technology and trained to enable them to develop sufficient critical thinking and to have the necessary understanding and perspective in relation to the tool and the possibilities it offers. .

Once these principles had been established, ***the Commission first considered that it was important to re-specify the framework within which the policy for equipping schools with digital materials must be defined.***

Indeed, as was noted above, the sharing of skills between actors (State, local authorities, establishments, etc.) leads to policies regarding the equipment of establishments with digital materials that are insufficiently coordinated, too little linked to projects and to educational uses which should nevertheless be the generating fact, sometimes insufficiently supported in terms of training of their users (teachers or students) and costly for public funds when they are not linked to a proven need and to real uses, such as to training.

The Commission therefore proposes to organize a real review of the principles that should guide the initiatives of all stakeholders in terms of digital equipment in schools so that each screen that enters the school is associated with educational purposes. identified, is proportionate to needs and is accompanied by the information and training necessary for its use. At the same time, it is important that real needs can be met and that the level of equipment is calibrated accordingly and with quality educational resources that meet the challenges.

A set of general principles can already be mentioned concerning the overall strategy to be redefined in terms of equipment, in particular the fact that this strategy must be mindful of health imperatives (the policy of deployment of screens in the environment school must be defined taking into account issues in terms of health), pedagogy and education (screens and digital devices associated with school must correspond to an educational purpose), but also in terms of the environment (taking into account taking into account the environmental impact) and even public funds (real usefulness of the tool 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 connection with and within the framework of an educational and pedagogical establishment project, constructed and shared with parents.

On a more operational level, although it is not up to the Commission to go into detail about what the future equipment strategy should be, it nevertheless proposes that it be built while respecting the following considerations, consistent by in relation to the uses by age of screens that the Commission intends to promote:

- no screens in nursery school, in class or during extracurricular time, nor for occupational use during break times, except in special situations (support for children with special needs for example);

- no individual equipment given to children in elementary school and avoid “fun” screens (broadcasting cartoons for example) during after-school time;

- guaranteeing access, as soon as necessary, to appropriate equipment and materials for children with special needs (“dys” children, sick children, etc.), without wandering and without delay for families.

The Commission notes in passing that this strategy must also clarify the place of TNI, in elementary schools in particular, whose effects on the health, visual in particular, of children located nearby should imperatively be evaluated, as well as the analysis of their life cycle on the environmental aspect.

Proposal no. 14: Define and manage a digital equipment policy that respects children, and reconciles the issues of health, pedagogy, education and the environment

Examples of operational measures to be deployed:

- Establish a shared framework between the State and local authorities on the deployment of individual and collective equipment, as well as concerning the standards required for materials, in schools and in extracurricular time. Involve parent federations in this work. This policy must be managed on the basis of common and shared principles (including those presented above);

- Supervise the deployment of digital teaching and education at school to serve children :
  - o set a strict framework for evaluating any new tool intended to be widely used broadcast;
  - o systematically train the educational community in the use of any new tool.

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Beyond the question of screens as tools, the Commission was also interested in the educational and pedagogical digital content offered, particularly at school.

The observation regarding the contents offered by the various educational digital programs and resources is close to that made previously for the material equipment. Many things can be deployed, even though the framework and strategy that should guide this deployment were insufficiently defined, or even not defined, upstream. In addition, the contribution and added value of these digital programs and resources are often insufficiently analyzed and supported by public decision-makers.

The Commission therefore recommends that any deployment of educational digital programs or resources in the school context is part of an educational approach and is systematically associated with prior experimentation in order to be able to evaluate, where applicable, the educational contribution, the benefits , the risks of the tool. It also recommends the systematization of preliminary impact studies in order to be able to clarify and support the opportunity to deploy a tool on a large scale.

The Commission proposes to label digital educational solutions that have scientifically validated their positive impact on learning and to make them available to teachers via a dedicated and secure interface.

Once the choice of large-scale distribution, or even the generalization of a digital resource is made, it is important, probably even more than for materials, to provide support
and appropriate training for teachers so that they can fully appropriate the resource, evaluate its interest for their own practice and derive the best benefit from it in the service of their students.

Finally, it is specified that, as with materials, access for students with “special needs” (“dys” children) or those far from school to the resources necessary for their best support is essential. Likewise, the imperatives of educational continuity (to cope, for example, with an episode such as a health crisis) make it necessary to be able to have quality resources available in all circumstances, easily usable and fully controlled.

Proposal no. 15: Systematically associate the deployment of educational digital programs and resources in a school setting with an experiment, a preliminary impact study before wider dissemination and training of teachers in their educational uses. Guarantee access to digital tools adapted for students with special educational needs, children away from school or situations where there is a break in educational continuity. Label educational digital solutions that have scientifically validated their positive impact on learning and make them available to teachers via a dedicated and secure interface.

Examples of operational measures to be deployed:

- Undertake a precise inventory of the place of digital technology in the current teaching and educational strategy;

- Carry out systematic impact studies making it possible to analyze on a case-by-case basis the real pedagogical and educational contribution of digital teaching and educational resources before their generalization in particular;

- Guarantee access to digital educational content appropriate for “children with special needs individuals”;
- Guarantee educational continuity through the mobilization and availability of resources adapted digital;

- Create a label to distinguish digital educational solutions that have made the mark proof of their positive impact on learning.

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The Commission also considers that a precise framework must be proposed concerning the use of ENTs and "Pronote".

ENTs are now widely deployed even if uses can vary depending on the establishments and, within them, according to teachers, as well as within families. Designed to support a whole range of services in a dematerialized way, they have become a daily tool for a large majority of school stakeholders.

However, some of the uses can pose a problem, as has already been pointed out above, sometimes with a paradoxical injunction which leads young students to spend time on ENTs or to consult them at odd hours even though, in the same time, they are asked to moderate their use of screens.

From the Commission's point of view, it is therefore appropriate to better regulate the use made of ENTs and to provide protective settings for young people.

Among the rules likely to constitute an overall framework on the use made of the ENT, the Commission first recommends no longer using the ENT for primary school children. This does not prevent exchanges between parents and teachers, but students should not have to use ENT when they are in elementary school in particular.

For students beyond primary school (middle and high school students), it is recommended:

- systematic configuration of children's access so that updates and notifications sent to them are cut off from 7:00 p.m., with a resumption the next morning from 7:30 a.m. This will make it possible to "sanctuary" a space of time during which the student is protected from the arrival (and wait) of any new information and thus benefits from a real right to disconnect. However, entries remain possible at any time for the teaching staff, as well as the possible sending of information to parents;

- that grades can no longer be seen by parents before children have been informed in class of their results. This would make it possible to re-establish a more peaceful environment for the students, and a more ethically desirable mode of operation, consisting of the principal concerned being informed first of the elements concerning them.

More broadly, it seemed important that families be better informed about what ENTs are, how they work and their uses. One hour of training at the start of the year would meet a real need and could thus be offered to them systematically for a "get started with the tool" session, with the possibility at the same time of accessing training in line. The message that it is not necessary to provide your child with an individual digital terminal to access the ENT could be broadcast on this occasion and then regularly thereafter.

Proposal no. 16: Set a strict framework of use for “Pronote” and ENTs with the implementation of default settings to protect children

Examples of operational measures to be deployed:

- Do not develop ENT for primary school children (use reserved for parents or by parents) ;
- Beyond primary school:
  - configure the ENTs so as to organize a cutoff of updates/notifications after 7:00 p.m. with resumption at 7:30 a.m. the next morning and avoiding the receipt of notifications during school holidays;
  - guarantee that there will be no notes distributed to parents on the ENT before information of the student in class;
- Organize regular communication from establishments to parents about ENT and the fact that there is no need to equip children with individual equipment to have access to ENT;
- Systematize, preferably at the start of the year, an hour of “hands-on” training for parents in ENT and at the same time plan for referral to online training.

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Finally, the Commission was interested in the place of mobile phones in educational establishments, more precisely in middle and high schools.

Taking into account the elements provided to it during its work and during the hearings, in particular with stakeholders in the educational world (administrations, school heads, teacher representatives, parents' representatives, etc.), the Commission considers that , overall, the ban on cell phones in college is respected and does not present any major difficulties.
Certain localized or occasional situations of less respect or tension may nevertheless persist.

It is therefore proposed to seek to further strengthen the effectiveness of the ban measure when necessary by accompanying it with the deployment of complementary tools compared to those that already exist. A “toolbox” for establishment managers could thus be designed, including:

- the presentation of a panel of tools that can be used, inspired in particular by the practices of certain establishments, which can range from “flexible” measures (ritual of switching off the telephone at the start of the day) to the implementation of more restrictive measures (such as implementation in a given establishment of “cellphone boxes” or secure lockers at the entrance to colleges in which students should leave their phones). College managers would have complete freedom, if they deem it necessary, to draw from this “toolbox” to consider, after consultation with educational staff and parents of students in the establishment, or even the students themselves. themselves, the implementation in their establishment of some of the proposed measures;

- concrete actions aimed at reducing the incentives to consult the telephone in class. As such, two of the main reasons for consulting the telephone in class being the messages sent by parents themselves to their children during school time and the fact of being able to consult the time for students could be limited by:

- o having all parents sign a charter reminding them of the rule prohibiting mobile phones in the establishment, presenting the recommended good practices, or even, where applicable, the rules specific to the establishment, and asking them to commit to do not send messages during the day to middle school students;

- o put clocks in all classrooms to inform children about time.

The Commission examined the question of banning smartphones in high school, based on what is done in middle school. The feedback she was able to obtain on this point indicates that the problems linked to cell phones in high schools are rather limited. Given this situation, the fact that the students concerned are older (sometimes even adults in final year or in preparatory classes) and the fact that they generally have more "mature" uses of the telephone than middle school students, it was not considered necessary to extend the prohibition rule.

On the other hand, the Commission considers it interesting, and useful, that the definition of a shared strategy on the place and use of telephones could be proposed in high schools. To this end, she suggests that, for example:

- the definition of “laptop-free” spaces (in addition to classrooms) to be determined in connection with and around the establishment project, and in agreement with the High School Life Council (CVL);

- support for voluntary establishments for experiments with “high schools without smartphones” (experiments made possible by article 34 of the Education Code), on the basis of which can be done for example in an establishment in Sommières in the Gard, and to evaluate the impacts of this action, in particular on the general atmosphere of the establishment or the relationships between students.

Proposal no. 17: Strengthen the application of the ban on telephones in middle schools, and systematize in each high school a shared framework on the place and use of telephones in the life of the establishment

Examples of operational measures to be deployed:

- For colleges:
  - o identify good practices to facilitate the implementation of the ban on mobile phones in college. Develop a “toolbox” to offer to establishments and from which they could draw;
  - o Have parents of middle school students sign a charter to avoid sending messages in daytime ;
  - o Put clocks back in all classrooms;
- For high schools:
  - o offer “mobile-free” spaces linked to and around the establishment project, in agreement with the High School Life Council;
  - o support voluntary establishments for “high school” experiments without a smartphone” and assess its impacts.

4.4- Axis n°4: Seriously prepare young people for their autonomy on screens, give them the power to act and, at the same time, restore their full place to children and young people in collective life

Put young people back at the center of society's concerns, enable them to best achieve their progressive journey towards achieving autonomy, free them from some of the constraints that currently bind them in their relationship to screens, empower them and give them back The prospect of mastering digital tools as fully as possible by putting them back in their rightful place are priorities from the Commission's point of view.

To do this, several series of actions must be carried out simultaneously. The first consists of educating and training young people in digital technology by resolutely supporting them, at school but more generally also in all the spaces which welcome them and through different relays, in their discovery and learning of tool, its uses, its advantages but also its risks (4.4.1). The second aims to offer them appropriate responses to their needs with the proactive and systematic deployment of “countermeasures” to compensate or limit some of the effects of screens (4.4.2). The third relates to alternative measures to screens that could be offered to young people and, more generally, to restoring their full visibility and their full place to children and young people in society (4.4.3).

4.4.1- Educate and train young people in digital technology and support them in their discovery and learning of uses

Information and digital training are essential prerequisites to enable young people to master screens, promote virtuous practices and prevent possible dangers. This is an issue for young people themselves, for their culture, for their understanding of the contemporary world, for their ability to integrate into modern society and to protect themselves against possible abuses.

Action regarding information and training of young people on digital technology must be carried out at school (4.4.1.1.) but also, more broadly, outside of school (4.4.1.2).

4.4.1.1- Students must be better aware of and trained in digital technology throughout their schooling

School must help prepare young people to grow up, to work, to master the grammar of the digital world and to acquire the essential knowledge and ~~te~~chnical skills of “digital literacy”: knowing how to use a computer, having basic skills in word processing, knowing how to learn and do research on the Internet, knowing how to carry out the most common actions useful both for personal life and in a professional world, knowing the basics of coding and now mastering the "prompt", that is -say the expression of a command to a generative artificial intelligence….. Digital training must thus irrigate the entire school curriculum from elementary to high school, backed by a solid scientific and humanist corpus.

Recent developments (overhaul of moral and civic education programs, strengthening of media and information education130, introduction of a digital and computer sciences (NSI) specialty in high school, development of learning to code and deployment of PIX digital certification) are, in this sense, to be cited and welcomed. These developments must nevertheless be thought of and integrated into an ambitious, less fragmented and coherent continuum, from the proportionate and reasoned educational use of digital technology, to the mastery and progressive knowledge of digital technology as an environment and medium, from the elementary level in high school.

From this point of view, it should be emphasized that training and good mastery of digital tools by the youth of our country also represent a real issue of sovereignty and national competitiveness at a time when digital technology occupies a place cardinal in the economy and where the economic giants who dominate the digital sector are overwhelmingly from great powers outside Europe and where the accelerated development of generative artificial intelligence marks a new technological revolution.

But, beyond the acquisition of technical skills, the school is also one of the essential places within which awareness and education about digital technology, its issues and its culture must be offered to best support young people in full mastery of the tool and in their process of building a critical, free and distanced mind with regard to technology and the content to which screens allow access.

To do this, it appears important to:

- introduce digital learning early enough (from elementary school), naturally adapting it according to age, while remaining consistent with the message to be conveyed on the need to favor reasoned uses, taking into account in particular the health effects among young people of some of the technologies associated with screens.
  This training must therefore be able to be done, as is already the case, even without resorting to the digital tools themselves (for illustration, learning the fundamentals of programming can thus be done by manipulating small robots) ;

- guarantee continuity in this learning, rather than one-off sequences that are fragmented and unevenly deployed depending on the territory;

- greatly enrich and consolidate, in line with research contributions, the content of digital training at school to address all aspects useful to young people and the achievement of secure autonomy. In particular, it seems useful for the school to be able to give children the main keys to:

    - o the functioning of the brain when faced with screens, and the cognitive biases that can arise to allow it to understand its own emotions and reactions;

    - o issues related to health (awareness of health risks, increased in the event of excessive use) and environmental issues linked to digital technology;

[130] New programs were published in January 2024 by the higher program council of the Ministry of National Education. They provide for an hourly reinforcement of the teaching of EMI within the moral and civic education programs, and encourage an interdisciplinary approach, from preparatory courses to high school.

- o the economic model of the digital sector and knowledge of the design principles and drivers of certain social networks, algorithms, video games, artificial intelligence systems;

- o the rights and duties in digital life so that young people are aware that the digital space is not a lawless zone and that the abuses that they may experience or of which they could be at the origin have the same severity, and the same potential consequences, as in real life;

- o “key” or so-called “21st century” skills to enable one to emancipate oneself: critical thinking, collaboration and communication, creativity, mastery of language, collective problem solving.

In addition, it could be useful to mobilize schools to support young people in their progressive journey of empowerment in the use of screens. Thus, in connection with the main stages by age of the process presented above, the school could be mobilized at certain key moments in the ritualization of the passage of certain milestones (for example access to smartphones, access to social networks, etc.).

In a non-exhaustive manner, to concretely implement these different principles, the Commission concretely proposes that:

- media and information education included in moral or civic education programs, as well as the PHARE anti-harassment program, are adapted to focus them more on the needs of the child and the reality of his relationship to the media digital, for example by integrating into the EMI information on the functioning of the child's and adolescent's brain, its sensitivity to reward mechanisms, the cognitive biases that may be present in the access and sorting of the information, or the functioning of social networks and digital platforms;

- librarian teachers in middle and high school can be mobilized, recognized for this mission and valued to coordinate an educational project serving children, guaranteeing a more integrated and more practical understanding of digital issues which are today fragmented and too fragmented between different subjects or programs;

- each establishment identifies within it a team of referent adults serving children with regard to their digital issues, allowing for both responsiveness and confidentiality in exchanges. This team may in particular call on supervisors, CPEs, librarian teachers, psychologists, etc. depending on the human resources present locally available and trained for this;

- each program revision systematically integrates a reflection on the means of promoting, through the disciplines taught, the skills necessary for digital life as in real life (empathy for example), as well as the drivers of the functioning and uses of digital tools and media.

Proposal no. 18: Train and inform students from elementary school and then throughout their schooling, in an appropriate manner depending on their age, about digital technology, its model, its content, its uses, and the opportunities it offers. offers and the dangers it may present

Examples of operational measures to be deployed:

- Introduce digital learning from elementary school, including without using digital tools/through disconnected activities, and guarantee a routine for this learning;

- Enrich the content of digital training by integrating all aspects useful for young people's uses and secure autonomy (how the brain functions when using screens, issues related to health, the environment, rights and duties in life digital…);
- Prepare and ritualize at school all the key moments for the child in their digital life;
- Adapt the PHARE, EMI and EMC programs to better focus them on the needs of the child
- Mobilize and promote the essential role of librarian teachers in middle and high school to coordinate an educational project for children;
- Establish in each establishment a team of adult advisors on their digital issues, formed according to the resources present locally;
- Integrate during program reviews a reflection on the means of acquiring the skills necessary for digital life.

4.4.1.2- Young people must also be able to be trained, supported and secure in their discovery of digital technology outside of school hours

The idea of multiplying the opportunities, vectors and resources to enable young people to benefit from support, accompaniment and to be secure in their learning of digital life is not new. Many actors and systems are already strongly mobilized to provide their support and respond to the expectations and questions of young people regarding digital uses. However, they are not always sufficiently known to young people, nor their action sufficiently coordinated, particularly locally.

It therefore appears necessary to further develop the possibilities for young people to use, when they need it, referents to exchange ideas, to support them or to advise them.

The Commission therefore proposes:

- to encourage initiatives, online and offline, as part of this approach to supporting young people on digital technology, subject however to taking good care beforehand to ensure the quality of the support offered and, above all, , of the obviously well-intentioned character of the speakers. In particular, she suggests that:

    - o the approach of “net walkers” which makes it possible to support young people in their digital activities and to ensure an online educational presence is more valued and structured at the national and local level, under the aegis of the CAF in particular;

    - o students, closer in age to the young people concerned, and who can therefore propose a different approach, can also be mobilized in this approach, as is already the case in certain territories;

- to make children and young people better aware, by all means (school, town hall, sports and cultural associations, etc.) of the mapping of adult contacts to help them face a request or difficulty relating to their digital life. This first involves carrying out diagnostics and evaluating the state of the existing situation. This mission of

territorial diagnosis and mapping could be carried out by municipalities (by “youth” services for those who have them);

- to ensure that the methods of access to this confidential and secure dialogue are increased (online but also offline via physical offices, for example in community halls, or in places which usually welcome young people: MJC, media libraries, homes neighborhoods…);

- to seek to further structure and coordinate the actions deployed at the local level by organizing, under the aegis of communities wishing to get involved and/or CAFs for example, or even associations themselves. Regular meetings of stakeholders involved in the issue could thus be planned to discuss territorial issues, practices, and share resources. Along the same lines, common and uniform training for stakeholders could be considered, with specifications;

- to encourage communities to take advantage of major annual digital awareness events (for example “Safer Internet Day”, “No Harassment” day, 10 days without screens, etc.) to carry out actions with young people, in conjunction with professionals and local youth reception centers.

Proposal no. 19: Have adults and students as digital advisors online and offline and create secure spaces for dialogue for children

Examples of operational measures to be deployed:

- Carry out local diagnostics and mapping of actors and systems active in the region to support young people in their discovery of digital life:
- Disseminate widely to young people and families, by all means (town hall, schools, associations, etc.) the map of the actors present in the territory and the methods for contacting them;

- Structuring everywhere, under the aegis of the CAF in particular, the “net walkers” and making them to know ;
- Promote the commitment of students, facilitators and other professionals and volunteers in these approaches, allowing them both to better understand the habits of young people, and to feel more comfortable in their role of advice and support ;
- Guarantee access to reference resources to support this commitment and organize regular multi-professional exchanges between stakeholders at the territorial level
- Organize places allowing “screens together”, particularly for video games, with the aim of better supporting young people, to help them better understand the functioning of these ecosystems.

4.4.2- Setting a level of ambition consistent with the needs of children, with the proactive and systematic deployment of “countermeasures”

Apart from the training and support that can be provided, better support for children and young people also involves taking better account of their essential needs and deploying a whole series of “countermeasures” to compensate for the negative effects for the health of

the use of screens and counteract some of the harmful underlying messages or trends that thrive online.

Therefore, measures must first be proposed to compensate as much as possible for some of the harmful effects of screens on the health of children and young people. As mentioned above, screens have proven and significant harmful effects in terms of sleep, sedentary lifestyle and reduced physical activity as well as on vision. Beyond precise, necessary measures aimed at acting on these different aspects of somatic health, it is more generally a whole message of taking control of children's health which seems to be necessary with, as a guiding principle, the need to strengthen health education among young people, which goes far beyond the scope of this reflection and the question of screens alone.

The Commission therefore proposes to strengthen health education for children, partly on the aspects most undermined by the significant presence of screens in their daily lives. An overall plan could thus be designed with targeted messages and appropriate actions deployed, including awareness raising:

- the issues of sleep and the need to better take into account the “natural cycles” of children and adolescents. On this point, the Commission recommends strong communication actions on the importance of sleep throughout life, and particularly during childhood. This can notably involve the dissemination of information and the mobilization of networks of health professionals on the subject. She also proposes that all consequences be drawn, in social organization, from the need to give a more important place to young people's sleep. She suggests considering in particular a change in school schedules in middle and high school so as to adapt them to the real physiological needs of young people (including without the impact of screens) by, for example, pushing back the start time to 10 a.m. courses in middle and high school;

- the challenges of physical activity and the fight against a sedentary lifestyle. Much has already been done in this area, whether through awareness campaigns and “eat-move” type messages or what has been undertaken to promote the practice of sport. The Commission recommends on this point to go further and, in particular, to study the possibilities of strengthening physical activity within school grounds, particularly among those under 10 years of age with the idea of going further beyond the objective of 30 minutes per day;

- vision issues among young people and in particular, to combat myopia, the need to increase outdoor time (at least 2 hours per day), whether at home or at school.

As part of the plan proposed by the Commission, it is also recommended to carry out a systematic assessment of physical condition in elementary school, then each year in middle school, to have annual data on the state of health of children, and to identify vulnerable children. This could for example be done as part of PE lessons.

Proposal No. 20: Strengthen health education, and specifically:

- **the issues of sleep, and therefore assume responsibility for opening up reflection for a better adaptation of school organizations to the physiological needs of young people;**

- **the risks linked to a sedentary lifestyle and insufficient physical activity, and consequently better mobilize physical education and sports classes for enhanced monitoring of children;**

- **risks concerning eyesight by increasing the opportunities for time spent outdoors.**

Examples of operational measures to be deployed:

- Design a plan to promote health education for children and young people, taking particular account of the issues of sleep, vision and the fight against a sedentary lifestyle;

- Adapt school organizations to better take into account the physiological rhythms of children, for example by deploying, if necessary through experimentation in the initial phase, the start of classes in middle and high school at 10:00 a.m.; it being specified that this is not a response which could be substituted by the intention of “going to bed earlier” for adolescents, it is not an issue linked to the sole quantity of sleep, but an issue that directly relates to the biological rhythm of children and adolescents.

- Carry out a systematic assessment of physical condition in elementary school and then each year in middle school to have annual data on the state of health of children, and to identify vulnerable children;

- Study the possibilities of strengthening physical activity within school grounds, particularly among those under 10 years old (going beyond the objective of 30 minutes per day).

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Measures must then be designed to combat the messages and certain harmful trends that develop online and can have a strong impact on young people.

Indeed, as mentioned above in the findings, and without the list being exhaustive, young people are regularly exposed via screens to violent, hateful, sexist, misleading content, oriented with the objective of manipulation by the person who emits it or still of a pornographic nature. However, they find themselves at a point in their lives where they still lack references, have a need for experimentation and a search for validation, and may receive these messages as the expression of the “norm” with which to identify. . They may thus be particularly disturbed by this content and affected in their own construction process.

More generally, the whole question of “living together” is raised and sometimes compromised in an amplified manner by certain content.

The measures to be constructed must therefore make it possible to provide real “counter-messages” in terms of gender equality, respect for women, sexuality, empathy, acceptance and respect.

of others or even the fight against hatred to allow the young people concerned to know that there is an “other reality” than that which is offered to them by the content to which they access.

Proposal no. 21: Make a serious and comprehensive place for all education “about living together” (education about sexual and emotional life, education about gender issues, education about psycho-social skills, education civic…) which are systematically crossed by issues of amplification in the face of digital

Examples of operational measures to be deployed:

- Systematize the consideration of the issues related to digital life in all these education when it already exists;
- Find the means of access that meets the challenges for this learning at school;
- Offer alternative content and access to it in collective places (libraries, media libraries, neighborhood centers, health centers, etc.).

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4.4.3- Build a massive plan to diversify the activities offered to young people in order to develop accessible and visible alternatives to “all screen”, and to give young people their place in society

Finally, the Commission considers that it is essential to invest massively in the development of real "alternatives" to screens that are easily accessible and allow young people to escape from "all-screen" by rediscovering other activities and other realities that those offered through televisions, computers, tablets, smartphones, game consoles and other digital devices. Indeed, the screen is often akin to “a safe haven” which is essential in the absence of any other possible activity.

A major approach must be taken in this area. It implies the responsibility of all of society (public authorities, businesses, associations, families, etc.).

These actions must allow the child to “get out of the house” and therefore to separate themselves from the screens at home or, when they are outside, to wait in a waiting area (station, airport, metro or bus station, in a shopping center or various organization in which he accompanies his parents) to be able to mobilize other alternatives to occupy him during this time other than the sole use of a smartphone or any other mobile digital tool or toy.

Among the possible avenues to exploit, in addition to what can already be promoted and organized in terms of regular sporting activities, in clubs or associations in particular, to make these alternatives and "off-screen" massively visible and accessible, the Commission has notably identified the need to:

- set up play areas (without screens) in all waiting areas, particularly in the transport sector (train stations, metro stations, bus shelters, airports) and in administrations and organizations open to the public;

- guarantee the availability of spaces designed for children (with board games and book boxes) in various public spaces or places where children are likely to spend time (shopping centers, trains for example);

- repopulate public spaces with fun, “good and useful” urban furniture for children (for example by replacing certain digital advertising screens in bus shelters and in cities with games such as abacus/wooden games; book boxes …);

- launch a massive plan for the deployment of street libraries, without forgetting the associations who bring the oral culture and transmission to life;

- plan for all children to visit collective places in their city (libraries, media libraries etc.) to encourage their participation.

The systematic mobilization of the availability, experience, commitment and initiatives carried out by retired “seniors” as well as by volunteers to offer activities to younger people may be sought. The development and support of places and events promoting intergenerational encounters (around fablabs, media libraries, neighborhood centers, etc.) and all opportunities for the exchange of knowledge between generations should be encouraged from this point of view.

Proposal no. 22: Populate public spaces with alternatives to screens for children, and give them back their rightful place, including noisy ones

Examples of operational measures to be deployed:

- Mobilize communities in this strategy of developing alternatives (action on street furniture, on visits to cultural places in the municipality or department, etc.) and support registration in libraries and media libraries;

- Mobilize administrations and organizations open to the public as well as transport companies so that they provide spaces and tools (without screens) suitable for welcoming children, including on trains, for example by creating play areas in each train in a dedicated wagon;

- Promote and publicize the places and events around the meeting intergenerational (around fablabs, media libraries, neighborhood centers, etc. which are all opportunities for the exchange of knowledge);
- Strengthen reading among children and adolescents, drawing on their practices and their tastes in this matter.

4.5- Axis no. 5: Better equip, better train in digital technology and better support parents, teachers, educators and all those who work with children, while organizing a society that puts the screen and digital technology back to their rightful place place

Beyond digital support and training actions for children and young people, it is all adults, first and foremost parents and educators in the broad sense, who need to be supported and equipped to , in turn, be able to support young people in their relationship with screens.

It is therefore appropriate to give parents and families, through determined actions to support parenting in particular, the power to act and to foster a constructive and reasoned dialogue with young people on digital technology (4.5.1). At the same time, all professionals and volunteers in contact with young people and children must also be equipped to be part of the same

positive dynamic of overall support for young people with regard to digital technology and towards digital technology (4.5.2). Finally, more broadly, given the health, environmental and even anthropological issues raised by the omnipresence of digital technology in our modern world, it is the whole question of the place of screens in our society that deserves to be asked, in order to these tools in their rightful place, that is to say in the service of humans (4.5.3).

4.5.1- Give parents and families back the power to act

According to the Commission, parents alone cannot obviously be held responsible for the developments, and sometimes the excesses, observed in the use made of screens by their children. The various preceding proposals also aim to act on the various factors, other than those linked to parental supervision, contributing to the current state of uses and harmful abuses.

Parents nevertheless have an essential role to play, both as educators and as protectors of their children. Thus, parenthood, if not the only resource to be mobilized, represents one of the critical issues identified by the Commission.

It therefore appears essential to support parents as soon as possible, starting in particular with future parents, on the place of screens and digital technology in order to put humans and the parent/child relationship at the center of uses.

To achieve this, 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 considered from this perspective:

- the systematization of awareness-raising, accompaniment and support measures for future parents and parents of very young children with, in particular, the dissemination of appropriate information from the period of pregnancy concerning the issues linked to screens and the risks of technoference, awareness of good practices, the presentation of recommendations concerning the exposure of children to screens in the first months and then the first years of their life and explanations relating to the reasoned use of screens in the presence of young children. In terms of operational measures, the health record given at the birth of the child must be a vector of useful information on the subject of screens and the information it provides must be updated as much as necessary on the version " online” of the notebook. The Commission took note of the work undertaken on this point under the aegis of the Ministry of Health. A “monitoring grid” of screen use and time to be completed and questioned at each prenatal visit then in the time following birth and throughout early childhood would also constitute a very useful tool for assessing the reality of situations and being able to provide further support and provide appropriate advice to families who need it most;

- the organization of discussion times, throughout childhood and then adolescence, on the child's state of exposure to screens. This time could thus be organized at certain of the key stages of the health journey, for example during the “annual health visits” planned from the age of 3 to the age of 6 then at the three “periods” planned until at 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 benefit from an outside perspective on the state of their child's (and possibly the entire family's) use of screens, to be once again made aware alongside their children, to good practices and to be advised and supported if necessary by health professionals;

- the strengthening and systematization of an offer of appropriate quality of support actions for “digital parenthood” implemented in all territories by public authorities, the various actors involved and the associative sector in particular. That implies :

  - o the deployment, in all territories, of parent/child workshops devoted to digital technology with a collective organization to be designed, under the aegis of department prefects, in conjunction with national education, early childhood stakeholders,
    CAF and popular education and associative networks in order to bring together all the initiatives and benefit from a real “synergy” effect;

  - o the essential support for the deployment of a quality offer through the labeling of the actions proposed but also of structures, systems and tools to support digital parenthood to make virtuous initiatives prosper (on the model for example of the label “ Parents Let's Talk Digital", extended to any device, including online, allowing a parent to be informed and supported on the subject to show that this support can be provided in different ways). Beyond the recognition of specific actions of interest, this labeling strategy must usefully be able to identify support networks (actors, places, projects, etc.). A site dedicated to this label would make it possible to find all labeled devices, near you or online;

  - o guarantee, via the school and town halls for example, specific communication at each “key moment” spent by the children (entry to middle school, arrival at the age of acquiring a smartphone, arrival at the age of 'registration on social networks, etc.) on the support systems available and available for use regarding digital parenting;

- the deployment of a “global health” program for the most vulnerable families131, with a reinforced dimension on the issue of screens. As part of this approach, a program of “resource parents” trained in digital parenting to organize and facilitate transmissions between peers in less advantaged neighborhoods would benefit from being promoted.

Warning systems could be designed for potentially dangerous digital phenomena (comma game, for example) with advice to allow adults to be informed of risky situations and to know how to act. These alerts could be broadcast on social networks to massively reach parents, but also health and education professionals.

The Commission finally specifies that in educating their children on the issue of screens and digital technology, parents naturally have a very strong role to play in terms of “exemplarity”.
Adopt reasonable practices yourself, give all the necessary space to real time for discussion within the family, share joint activities, avoid breaking the relationship too frequently

[131] The Commission proposes to draw inspiration for this from the “Smart Program” approach which was presented to it during this work and which aims to promote access to infant nutrition adapted to the needs of families in situations of socio-economic fragility. needs of the young child.

between the parent and the child by giving excessive space to screens are all behaviors to be promoted.

Proposal no. 23: Deploy a real policy of help and support for parenting in terms of screens and digital technology

Examples of operational measures to be deployed:

- Systematize awareness from the pregnancy period of future parents about the risks of screens, their reasonable use with children and the risks of “technoference” (therefore integrate this dimension into prenatal consultations and/or preparation times for the 'childbirth) ;

- Include useful information on the screens in the child's health record given at birth and update it in the “online” version of the record. At the same time, provide a grid for monitoring screen usage and time to be completed and questioned during prenatal visits and then during visits following birth;

- Provide time to discuss “the child's state of exposure to screens” at some of the key stages of the health journey (during annual visits from the age of 3 to 6 years and then at the three “planned periods until 'at 16 years (8-9 years; 11-13 years; 15-16 years);
- Support and strengthen a quality offer in terms of support for “digital parenting” by deploying parent/child workshops in all territories, with: a collective organization under the aegis of department prefects (in connection with education national and early childhood stakeholders, CAFs and popular education and associative networks); the deployment of labels (actions, structures, systems and tools to support digital parenting); specific communication at each “key stage” of the child’s digital journey;

- Deploy a global health intervention program in the most vulnerable families with a reinforced dimension on screens;

- Provide warning systems for potentially dangerous digital phenomena.

4.5.2- Teachers but also all educators and adults in contact with children must be trained and equipped to best support young people in their appropriation of digital tools

As noted above, parents are not the only adults to be involved in supporting young people with screens and digital technology. All educators and adults in contact with children and young people must also be able to make their contribution.

Among all the adults working with young people, and in line with what has been said above about the crucial role of schools in terms of digital awareness and training, priority attention must naturally be reserved for teachers. , their own training on these subjects, mastery of digital technology but also knowledge of the uses that young people make of it, the needs they feel and the difficulties they may face, with a real challenge of acculturation .

These imperatives must therefore be fully integrated, both during the initial training of teachers, during which it is important to make the digital approach consistent in the

training with the heart of the teaching profession, as well as during continuing training, which must in particular allow them to always be aware of the developments at work.

On this occasion, the Commission underlined that beyond just the practical mastery of the digital tool, it was important that teachers be made aware of the health and environmental impacts of screens, the issues of digital citizenship as well as the different uses educational methods that have been able to prove themselves.

Proposal no. 24: Allow teachers to master the fundamentals of digital technology, the challenges of digital citizenship and the educational uses of digital technology from their initial training and guarantee the possibility of updating their knowledge throughout their careers

Examples of operational measures to be deployed:

- Strengthen the initial training of teachers in digital matters by giving everyone the basics in computing, scientific culture, general knowledge of digital technology and screens, their strengths and dangers, introducing them to how algorithms work, introducing them to how they work of the brain facing screens;

- Strengthen continuing training systems guaranteeing teachers up-to-date digital knowledge and its integration into educational uses;
- Invest in training for educational use, reasoned and informed by research, of digital tools;

- Lead and promote a network of peers/trainers/referent teachers sharing resources and training as closely as possible to meet face-to-face and remote needs.

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In addition to teachers alone, all adults are required to intervene with children, whether professionals (health professionals, social educators, after-school sports educators, etc.) and volunteers (in sports clubs, associations etc…) must be able to be “relays” and contribute to spreading the right messages concerning the digital issue. As such, they must also participate in “setting an example” on the reasoned link to be maintained with the tool and on the need to put human relationships back as a priority.

Proposal no. 25: Raise awareness among all professionals and volunteers working with children of digital issues and build a framework for recommending the uses of their screens during interactions with children

Examples of operational measures to be deployed among professionals and volunteers in contact with children (educators, health professionals, social workers, association leaders, managers and stakeholders in sports clubs, etc.):

- Deploy new vigilance among all people in contact with children regarding technoference;

- Define a strict framework of use for all professionals in contact with children on their own uses in the presence of children (excluding needs which would be specifically attached to their professional gesture);

- Empower adults working with young people, professionals and volunteers alike (via professional networks, sports federations, associative networks, etc.) by reminding them of the duty of exemplarity that they have towards young people in construction;
- Guarantee awareness/training activities adapted to each stakeholder audience.

4.5.3- More broadly, rethink the place of screens in society, for the benefit of everyone and young people in particular

Finally, the Commission supports the idea of a vision of society in which the presence of screens would be more controlled and, in certain aspects, limited, in particular with the aim of offering young people a framework more appropriate to their needs and freeing up time. space for more direct human relationships. In this reasoning, it is not a question of seeking to ban screens in principle but of putting them back in their "right place", in the service of humanity, by allowing us to question the sometimes excessive link which can link young people to the 'tool.

For this, the Commission proposes, without calling into question individual freedoms of course, to encourage sobriety and a slowing down of uses, in the interest of all, adults and young people alike, and also in connection with health and environmental concerns. already mentioned. To do this, she suggests starting to put an end to the process of unlimited development of screens in public space and seeking an enrichment of “off-screen” to rediscover collective moments.

Concretely, several actions could be promoted consisting of:

- encourage places to disconnect, without screens. This could in particular be considered:
    - o in public spaces and places likely to accommodate children, with the exception of pediatric emergency services, in this case favoring a dedicated space so as not to impose screens on all families. This involves making the organization of public space as consistent as possible with the public health messages disseminated on the health risks associated with screens (instruments, such as tablets or computers allowing health professionals to carry out medical procedures for children are naturally not covered by this recommendation);
    - o in businesses or certain public places. “Zero connection” spaces to be determined on a case-by-case basis and with the employees or agents concerned could be set up in companies or public organizations, for example in certain meeting rooms, in spaces dedicated to catering or relaxation (“coffee area”). Such “zero connection” spaces would also find their place in public places (museums, dedicated rooms in communal spaces, neighborhood centers, etc.);
    - o in places of leisure, culture or outings. Among the projects imagined, a new label “restaurants/bars without screens” could be created, in response to child-free spaces which are developing more and more frequently, ignoring the discriminatory nature of such spaces.

- encourage time to disconnect, without screens. By the same logic, it could be:

    - o established disconnection rituals, on certain dates, on certain occasions, certain days of the week, at certain times of the day, etc.;

    - o established a symbolic right to “disconnect parents”, thus leaving them more space and time to interact with their children (dedicated settings should be designed accordingly to avoid the arrival of any new notifications).

Other actions corresponding to this same strategy can be proposed, such as the establishment of a “digital sobriety month” (on the model of the tobacco-free month of “Dry January” or Pink October).

Concerning public authorities (State and communities), actions must be taken to limit the place of screens in public spaces, for considerations of both public health (effects of blue light in particular) and environmental perspectives, as well as these are advertising screens, informative screens or recreational screens.

Finally, even if this falls outside the strict scope of its field of analysis, the Commission observes that it is important to take into account the issues linked to the place of screens in the policies of increased “digitalization” of public services. If the use of dematerialized services is often a source of gains, for the administration as well as for its users, "all-digital" can also pose problems in the proper management of some of the needs of users and, in connection with the subject of the present reflection, to be a signal which is in contradiction with several of the messages carried within the framework of the work of the Commission, in particular on the place of humans in relation to digital technology and on the reception of notifications or messages on inappropriate times.

Proposal No. 26: Promote “disconnected” and screen-free places and times, in particular to encourage adults to ask themselves the question of their own relationship with screens

Examples of operational measures to deploy

- Denormalization of screen use in public spaces and places likely to accommodate children, with the exception of pediatric emergency services, favoring in this case a dedicated space so as not to impose screens on all families;
- Creation of “zero connection” spaces in companies, in administrations and public places;
- Deploy a new “screen-free restaurants/bars” label;
- Establish disconnection rituals;
- Promote parents’ right to disconnect;
- Establish a “digital sobriety month”;
- Limit the space of screens (advertising, informational, recreational) in public spaces.

4.6- Axis no. 6: Establish an ambitious governance system allowing public authorities to define a real strategy, to have steering capacities, to be able to better support the actors who intervene with young people and families, and to 'inform citizens

Acting on the relationship between children and adolescents and screens cannot be reduced to setting limits. Acting on young people's relationship with screens is necessarily acting FOR, it is thinking about and bringing to life an attractive project in the service of children and society in general, it is making other horizons and other horizons attractive. emancipations.

However, the strength of this project will only be won at the price of the collective commitment of a new ambition going beyond political and administrative borders, going beyond fears to get back to the level of a child, going beyond speeches 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 accessible on the condition of political impetus falling within a medium-term horizon, and assuming a new organization for the sustain.

The project proposed by the Commission involves planning and managing a structural and collective vision, strategy and roadmap; to hear young people and make room for their words; to intervene at different levels, global, European and national; to orchestrate a sustained, continuous and entirely coherent dialogue with the various public and private actors such as political actors; to articulate and mobilize at the interministerial level fields of action as diverse as health, national education, the economy, culture, sport, support for families and parenthood, justice, the interior etc., for which the project is today variously positioned in terms of priorities given the immensity of all the challenges; to lead all local networks relaying the strategy as close as possible to parents, families and living areas; to guarantee strong listening and responsiveness to the evolution of social phenomena that move quickly online; to structure coherent and sufficiently routinized public communication, particularly at key moments in children's lives, to achieve impact; to invest in prospective projects as well as immediate action; to have loudspeakers in public spaces; and to secure resources, taken but redistributed in complete independence from economic actors, towards the State and all the public and private actors mobilized.

The recommendations below are intended to establish some elements that the Commission considers essential in terms of governance, financing and communication, to find impact and support real changes at the scale of society.

4.6.1- Organize a framework of action allowing the long-term and collective structure of the strategy in favor of a renewed project serving youth

To provide a structural and collective strategy for the benefit of children and young people, the Commission calls for promoting a new organization within the State, which will provide guarantees of sustainability and coherence to public action in all its components. , which can embody a societal project and be identified by all parties, which will create the necessary synergies between all administrations and public and private actors.

The Commission considers that the absence of a strategic framework and collective roadmap today constitutes a major obstacle to achieving the desired results, as does the absence of

recognized and legitimate force for steering this strategy at the interministerial level and in conjunction with the entire research, associative and economic ecosystem.

Also, it is important that work is carried out to identify the best administrative configuration allowing this ambition to be implemented, it being understood that it will be necessary to guarantee it operating resources commensurate with the challenges, to find a visible and audible ambassador. in public opinion, and to organize the assistance of different administrations and organizations with established skills, and committed to serving the collective. **An agency-type format, like the Australian eSafety Commissioner, would seem an interesting avenue.**

This agency would aim to establish a lasting and structured working framework with all academic, associative and economic stakeholders, adapted according to the objectives and fields of investigation. This working framework, beyond leading the collectives for the effective deployment of the strategy and the roadmap, must ensure the organization of France's assistance to the European authorities responsible for regulating large platforms. It must also guarantee a space to listen to any alerts from civil, educational or associative society on the emergence of new phenomena requiring rapid responses. Finally, it must be constructed in such a way as to avoid the excessive weight of the largest digital players, and to make an active place for the smallest players, in particular involved in the subjects of protection, ethical design, and the proposal of alternative models. . This structuring work will also have to find the modalities of co-construction with

all elected officials, whether parliamentarians or local elected officials, who all have concerns and a role to play within the framework of a shared strategy.

This organization must also guarantee local, public and associative networks as close as possible to the field, which are in direct contact with young people and families, who are responsible for leading project groups, who are responsible for explain the preferred choices and give them meaning, which are the first detectors of practices and fragilities.

Finally, the Commission would like to emphasize what it considers essential to complete this organization.

First of all, the Commission claims to **give a visible and real place to the voices of young people,** in support of public action. It doesn't have to be about picking a cosmetic organization, just to check a box. It is about believing, and this is particularly true on digital technology, that dialogue between adults and young people is the key to their well-being, in addition to being absolutely necessary in order not to act based on representations. often very different from the reality of their practices and their experience. Young people are also much more aware of the risks, and are waiting for support and listening. Finally, they can be active relays of a project serving their security and their emancipation. The Commission therefore recommends setting up a dedicated Council, according to methods of effective association with public action to be rethought in the service of effective co-construction.

Next, the Commission calls for the identification of an **independent Observatory** capable of producing reference figures on everything relating to digital technology and young people, with the expected methodological rigor. Today, data sources are both very fragmented, produced in conditions that are not always controlled, and do not make it possible to follow the evolution of some key data, which are nonetheless important, over time. screen, to measure usage as well as to inform the public debate on the state of children, and their access to alternatives.

Finally, the Commission advocates enriching the system by setting up a **Foresight Committee**
dedicated, allowing several disciplines and expertise to work together over the long term, with the aim of monitoring and anticipation. Technologies are evolving so rapidly that it is

It is essential to devote dedicated space and time to this work. Such a committee could be tasked more broadly with a number of issues surrounding the impact of digital technology on large open areas of reflection, such as the functioning of our democracies.

Proposal no. 27: Install new governance and organizational strength in the service of a global project for digital mastery, protection and emancipation of young people

Examples of operational measures to be deployed:

- Build agile/open governance that meets the challenges around it
    - o A dedicated Agency, equipped with sufficient resources to coordinate the entire strategy, to be visible in the public debate, to be sufficiently embodied to structure the dialogue with all stakeholders around clearly established objectives, to pilot an integrated communication strategy;
    - o A Youth Council to ensure that the voices of young people are taken into account youth ;
    - o An independent Observatory, making it possible to display data from reference on uses, time spent, convincing impacts, etc. ;
    - o A Foresight Council making it possible to engage in advance all the useful reflections on new technological deployments;
- Identify in the territories, through the prefects, operational relays for mobilization and support of local networks;
- Guarantee a “fast track” operating mode to listen to alerts from civil society on the development of new harmful practices, and to be able to have an immediate communication strike force.

4.6.2- Guarantee appropriate and lasting resources for those who support, train, protect and raise awareness among young people and families about digital technology

The question of means is critical today in the service of a project of protection and emancipation of children and young people.

If this is a usual debate, especially in a context of very strong constraints weighing on our country's public finances, the Commission wishes to emphasize two fundamentals:

- The first is to create a seal between the financing of child protection actors, research programs, initiatives by public authorities, particularly communication, and the contributions of economic actors themselves . As said above, collective action is today largely dependent on the support obtained from the economic actors themselves, with motivated people each being required to engage in bilateral dialogue with these actors to guarantee the sustainability of their commitment and find the means development of their projects. Without talking about the insecurity that this system creates for sustained action over time, and without talking about the energy that has to be spent there rather than on the final objectives, the Commission wants to draw attention to the risks that such a situation brings in terms of independence, and of guarantee in the speeches of those who have the most predatory models towards children. It is absolutely necessary to develop the system by creating a state fund, financed if necessary by the assistance of economic players, and seeking to allocate the means, in line with the overall strategy. This model is the one used in many other fields, notably that of the fight against addictions, and seems accessible to restore clarity in the system, and to have an exchange on the level of resources invested and the expected results.

- The second is to defend the vision according to which this policy, in all its aspects, must be largely at least financed by those who produce the negative externalities. In this respect, two axes are to be favored. The first, already mentioned above, relates to the discussion to be opened energetically with the other Member States and the European Commission on the possibilities of sharing the expected gains from the supervision costs for which the large platforms are liable under the DSA, and fines which will be imposed by the judge and the regulator, on a European scale but also on that of the Member States hosting the headquarters of said companies (such as Ireland, which for example obtained more than 1 billion dollars from Max Schrems). If the DSA provides that the supervision costs consolidate the missions of the European regulator, the latter cannot act alone and needs the collective of actors serving these European objectives to be structured into an active and reactive network in each of the States. The second axis of financing, certainly less accessible in the short term, would be the general recognition in law of a polluter/pays principle, on the model of environmental law. We are facing unprecedented capitalistic powers, and we are asking associations and volunteers without secure support to exhaust themselves day and night to manage negative externalities.

Proposal no. 28: Ensure the sustainability of the necessary means through the application of the polluter pays principle by supplying a dedicated fund to finance research, public policies and virtuous actors

Examples of operational measures to be deployed:

- Create a financing fund dedicated to digital security and the emancipation of children;
- Free associations from the pressure of economic actors and the insecurity they face, by granting 100% public funding. ;

- Support research programs from the public to also avoid confusion of genres.
- Engage in a European dialogue for the retrocession of DSA funds from digital players on the one hand, and fines imposed at European level or in certain Member States on the other;

- Examine the legal means to protect a polluter/pays principle for child predators.

4.6.3- Invest massively in an information and prevention system for the French

Information and prevention are essential keys to supporting the strategy proposed by the Commission.

Several principles seem to be retained in this important and necessarily multidimensional ambition:

- Do not limit the communication approach to "screens" alone: there is a very strong need to raise awareness of the issues related to the child's development, the functioning of their brain, and physical health issues, particularly with regard to from sleep and physical activity, to the needs that are essential to him, to what is important to promote in his “daily journey”. Messages should focus on promoting positive ambition for children.

- Communication on “screens” must encompass all aspects, including those necessary for understanding the digital world and its models; rights and duties; the behaviors to be promoted (also from the point of view of environmental preservation);

to resource people.

- It must highlight the need for dialogue between children and adults, which is an unsurpassable horizon for giving screens their rightful place, while respecting the experience of children.

- The communication could usefully not focus its remarks solely on the uses of children, but also shed more light on the issues linked to the exemplarity and availability of adults.

- It will be important to avoid any “one shot” approach, because only the routinization of campaigns and actions will create impact. In particular, this communication strategy will have every interest in articulating with key moments in the child's life (whether for example at high points such as the start of the school year, Christmas, going on vacation which punctuate the lives of all children). children globally; or in a more decentralized manner at the local level at the time of important transitions, such as access to secondary school, reaching the age of 15, etc.).

- It will be necessary to deploy a strike force dedicated to taking into account in real time emerging and risky phenomena on social media (promotion of practices or challenges, dissemination of questionable representations for example).

- It will be necessary to continue to ensure the consistency of messages. For example, the promotion of “e-sport” with troubling semantics when we want to encourage children to participate in physical activities, or even to enrich their “off-screen”, may raise questions.

In terms of organization, the Commission recommends particular attention to the following conditions:

- Public communication must be built under a common brand and editorial line, guaranteeing the coherence of messages and their identification as a reference. Today, the procedures are completely split between the various

administrations, agencies and operators, which can harm collective efficiency. In the same way, the consolidation of budgets that are currently dispersed would make it possible to strengthen ambition.

- All channels must be mobilized to disseminate these messages, both in a logic of very general public communication and of more targeted communication as close as possible to needs.

- It is necessary to ensure the accessibility of messages, to guarantee their proper appropriation by all audiences.

Finally, the Commission wanted to draw the attention of all public and political leaders to the benefit of ensuring consistency in their own communication strategy when addressing children, by avoiding, for example, the mobilization of networks non-virtuous social systems whose use would be dissonant with the guidelines set out in this report.

Proposal No. 29: Deploy a massive, recurring, general public communication strategy to raise awareness and information on health, education and environmental issues largely linked to “screens”, as well as to promote the needs of the public. child and alternative responses

Examples of operational measures to be deployed:

- Build a multi-channel and multi-dimensional communication strategy with an important place for health education and issues related to child development, and positively promoting essential ingredients in the child's daily life;
- Support a dynamic of communication and information structured over time, making it possible to routinize key moments of dissemination of messages linked to the lives of children and young people;
- Build an editorial line and a brand common to the State, supported by a dedicated fund to consolidate all investments and align the initiatives of different administrations and public bodies;

- Install a communication system dedicated to real-time control of emerging risk phenomena (e.g. challenges broadcast on social media);
- Mobilization, through prefects, in conjunction with regional health agencies and the academic world, of all local networks to implement the national strategy as close as possible to people.

Summary table of proposals

n°	Proposition
Axis n°1: Tackle, and ban, the addictive and confining designs of certain digital services in order to give young people choice again	
1	Reverse the burden of proof to combat harmful designs and algorithms in digital services and equip ourselves with regular independent audit capabilities
2	Prohibit harmful practices in terms of design and create a European ethical standard
3	Give power back to the user by recognizing a new “right to configure”
4	Strengthen “safeguards” in video games to secure the experience of young players, and thus better protect them from inappropriate content and fight against the development of microtransactions and misleading designs
5	Secure, structure and amplify the action of civil society, as an essential relay for managing the negative externalities of platforms
6	Send a clear signal of investment in multidisciplinary research and opening of data in order to strengthen the position of the regulator in dialogue with economic forces
Axis n°2: Protecting, rather than controlling, children: a battle that must be fought and can be won with economic players	
7	Develop and promote more efficient and accessible private protection solutions, particularly for families
8	Support the firm deployment of the DSA with regard to pornographic sites, to force the adoption of age control tools already available, and at the same time invest in the production of resources adapted to children's legitimate questions about their emotional and sexual life
9	Guarantee the scaling up of the reporting policy to make it an important lever for action towards the platforms
10	Actively promote the best standards of protection of physical health and the environment for technological tools and digital services
Axis n°3: Assume and organize a progression in the use of screens and digital technology among children according to their age	
11	Protect young children under the age of 6 from exposure to screens, particularly in child care settings (nurseries, childminders, nursery schools, etc.)
12	Allow access to only ethical social networks from the age of 15
13	Organize a gradual handling of the phones: - before 11 years old: no telephone - from 11 years old: telephone without Internet connection - from 13 years old: connected phone without access to social networks or illegal content - from 15 years old: additional access to ethical social networks.
14	Define and manage a digital equipment policy that respects children, and reconciles the issues of health, pedagogy, education and the environment
15	Systematically associate the deployment of educational digital programs and resources in a school setting with an experiment, a preliminary impact study before wider dissemination and training of teachers in their educational uses. Guarantee access to digital tools adapted for students with special educational needs, children away from school or situations where there is a break in educational continuity. Label educational digital solutions that have scientifically validated their positive impact on learning and make them available to teachers via a dedicated and secure interface
16	Establish a strict framework of use for “Pronote” and ENTs with the implementation of default settings to protect children
17	Strengthen the application of the ban on telephones in middle schools, and systematize in each high school a shared framework on the place and use of telephones in the life of the establishment

n°	Proposition
Axis n°4: Seriously prepare young people for their autonomy on screens, give them the power to act and, at the same time, restore their full place to children and young people in collective life	
18	Train and inform students from elementary school then throughout their schooling, in an appropriate manner depending on their age, about digital technology, its model, its content, its uses, the opportunities it offers and the dangers it he can present
19	Have adults and students as digital advisors online and offline and create safe spaces for dialogue for children
20	Strengthen health education, and specifically: - to the issues of sleep. and therefore assume responsibility for opening up reflection for better adaptation of school organizations to the physiological needs of young people - the risks linked to a sedentary lifestyle and insufficient physical activity, and consequently better mobilize physical education and sports classes for enhanced monitoring of children - risks concerning eyesight by increasing the opportunities for time outdoors
21	Make a serious and comprehensive contribution to all “living together” education (education about sexual and emotional life, education about gender issues, education about psycho-social skills, civic education, etc.) which are systematically crossed by challenges of amplification in the face of digital
22	Populate public spaces with alternatives to screens for children, and give them back their rightful place, including noisy ones
Axis no. 5: Better equip, better train in digital technology and better support parents, teachers, educators and all those who work with children, while organizing a society that puts the screen and digital technology in their rightful place	
23	Deploy a real policy of help and support for parents in terms of screens and digital technology
24	Enable teachers to master the fundamentals of digital technology, the challenges of digital citizenship and the educational uses of digital technology from their initial training and guarantee the possibility of updating their knowledge throughout their careers
25	Raise awareness among all professionals and volunteers working with children of digital issues and build a framework for recommending the uses of their screens during interactions with children
26	Promote “disconnected” and screen-free places and times, in particular to encourage adults to ask themselves the question of their own relationship with screens
Axis no. 6: Establish an ambitious governance system allowing public authorities to define a real strategy, to have steering capacities, to be able to better support actors who work with young people and families, and to inform the citizens	
27	Establish new governance and organizational strength in the service of a global project for digital mastery, protection and emancipation of young people
28	Ensure the sustainability of the necessary resources through the implementation of the polluter pays principle by supplying a dedicated fund to finance research, public policies and virtuous actors
29	Deploy a massive, recurrent, general public communication strategy to raise awareness and information on health, education and environmental issues largely linked to “screens”, as well as to promote the needs of the child and the responses alternatives

Appendix 1: Presentation of the members of the Commission

Servane Mouton, is a neurologist and neurophysiologist, specializing in school learning disorders. Member of the subcommittee working on neurodevelopment of
Reflection Group on Cognitive Evaluations (GRECCO). President and co-founder of the association Neuro-Environnement Réseau Francophone (NERF). She is “coordinator” of the collaborative book “Humanity and Digital: dangerous connections”, Eds Apogée 2023, in which 25 scientists and caregivers offer a synthetic overview of the health, environmental and societal issues of NICTs.

Amine Benyamina is an Addictologist Psychiatrist at the Paul Brousse University Hospital in Villejuif, he is also a University Professor at the Paris Saclay Faculty of Medicine. He is Head of the Department of Psychiatry and Addictology at Paul Brousse Hospital and head of the Psycomadd Research Unit. He is responsible for several national and international University Diplomas. He is President of the French Federation of Addictology (FFA), President of the Addictology Intersection at the CNU (National University College) and President of Addict Aide. He is editor-in-chief of the journal Alcoologie et Addictologie and administrator of the French Society of Alcoology (SFA), the French Association of Biological Psychiatry and Neuropsychopharmacology (AFPBN). He is the author of more than 140 referenced scientific articles dealing with questions of therapeutics, 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 works

“general public” dealing with addiction issues, particularly cannabis and alcohol. He is the founder of the Albatross Congress, an international addiction congress which is 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 University of Paris-Saclay and the authorization to direct research in epidemiology and public health from the University. Paris City. At the Center for Research in Epidemiology and Statistics (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 directs a vast research program on the characterization of screen use in the general population, and the identification of their determinants and their impacts on the cognitive development, behavior, sleep and physical health of children.

Grégoire Borst is Professor of Developmental Psychology and Cognitive Neuroscience of Education at Paris Cité University and Director of the Child Development and Education Psychology Laboratory (CNRS). He obtained his thesis in 2005 at the University of Paris Sud and joined LaPsyDÉ in 2010 after 4 years of post-doctoral work at Harvard University. This research focuses on the role of high-level cognitive functions (metacognition, resistance to automatisms, emotional regulation) in cognitive and socio-emotional development and in academic learning in children, adolescents and young adults by combining behavioral and neuroimaging approaches (EEG, NIRS, MRI). Author of more than 90 scientific articles, he is also the author of various educational works (The brain and learning) but also of works for the general public (My brain – Questions/Answers, It's not me, it's my brain) . He is a senior member of the International Bureau of Education (IBE - UNESCO), senior member of the Institut Universitaire de France (IUF), member of the International Science Council, directs the Network

Multidisciplinary theme "Research around educational issues" at the CNRS, member of the committee of experts for young audiences at ARCOM, and member of the commission "Development of reading among specific audiences" at the CNL. In 2021, he received the Dagnan-Bouveret Prize from the Academy of Moral and Political Sciences (Institut de France) for his research program on cognitive psychology and contemporary education.

Axelle Desaint is director of the digital education division of Tralalere and Internet Sans Fear, Commission's national digital awareness program for young people and families European, which Tralalere has been operating for 15 years. Graduated in hypermedia science and technology, Axelle Desaint has worked for 25 years in the field of digital education for young people. After 10 years in the associative sector designing and running training and animation programs around digital youth practices for professionals and the general public, she joined the Tralalere teams in 2011 to develop the digital publishing branch and coordinate research and development projects on digital reading. After several years as

responsible for the education and awareness program, then editorial and educational director, she now directs the European program “Internet without Fear”, a national awareness center for more than 200 free digital education resources.

Florence G'sell is currently a visiting professor at the Cyber Policy Center at Stanford University. She is an associate professor of private law and criminal sciences, professor at the University of Lorraine, and holder of the Digital, Governance and Sovereignty Chair at Sciences Po. She works mainly on issues related to the regulation of online platforms and on governance. of artificial intelligence.

Since 2020 , **Marie-Caroline Missir** has been general director of Réseau Canopé, the public operator of National Education in charge of continuing teacher training, and of CLEMI, a center for media and information education. She previously joined the Digischool group, a French edtech company specializing in apps for young people, as development director. A journalist specializing in education, she was editor-in-chief at the AEF press agency, journalist in the political department then deputy digital editor-in-chief of L'Express, correspondent in Lyon for Les Échos before being appointed editorial director of The Student group. At the same time, she wrote a weekly column in the show Rue des écoles, broadcast on France Culture. Co-founder of the association of Women in Education, she is the author with Louise Tourret of “Mothers, free yourself! » (Plon, 2014). Marie-Caroline Missir is a graduate of Sciences Po Paris and the Media and Entertainment Program at ESSEC.

Catherine Rolland, a doctor and engineer by training, worked for 12 years in research for the pharmaceutical industry before devoting herself to video games and their applications, particularly in health and education. With an MBA in “Video Game Management”, she has been designing and developing games and R&D and innovation projects for 15 years within studios and companies specializing in health applications, professional training, education and popularization of science. She has been involved in courses at renowned video game schools for 12 years and has worked

in different associations for the organization of acculturation and reflection events around video game applications. For almost five years, she has been project manager for the Science and video games chair at École Polytechnique, where she supervises scientific projects related to video games.

Grégory Véret is founder and president of the company Xooloo, a French company specializing in the protection of children on the Internet. Its teams invent new secure digital services to help children develop their own autonomy and take control of their digital lives. The company notably publishes the first mobile application for children aged 8 to

12 years in France. Xooloo is the winner of the “Best of Innovation Award” at CES in Las Vegas and the government's Future Investment Program for its real-time content analysis solution to protect children on the Internet. The company is a member of the Internet Child Protection Laboratory. Grégory began his career in the children's program unit of the TF1 group. Passionate about what technologies can bring to children, he then created the company Xooloo. Driven by ecological issues, Grégory is also an organic farmer.

Célia Zolynski is Associate Professor of Private Law at the Sorbonne Law School of the University of Paris 1 Panthéon-Sorbonne where she co-directs the Research Department in Intangible Law at the Sorbonne (IRJS-DreDis) as well as the 'Observatoire de l'Intelligence Artificial de Paris 1. Member of the National Pilot Committee for Ethics and Digital (CNPEN), she is also a qualified personality within the National Consultative Commission on Human Rights (CNCDH) and the Council Superior of Literary and Artistic Property (CSPLA). His research activities focus on digital law, intellectual property law, market law and fundamental freedoms. She is the author of various publications in these fields, particularly concerning the regulation of the attention economy. She leads several interdisciplinary working groups and collective research projects relating to the regulation of digital services and algorithmic systems.

The Commission's rapporteurs were **Carole Bousquet-Bérard** (State Administrator) and **Alexandre Pascal** (member of the General Inspectorate of Social Affairs – IGAS).

Appendix 2: List of people interviewed and contributions received

The Commission would like to sincerely thank all the interlocutors who agreed to be interviewed or who sent it written contributions.

She endeavored to collect all the testimonies, points of view, findings and proposals formulated during these exchanges in complete independence. She would like to emphasize that the shared experience, the analyzes presented, as well as the numerous discussions born during the various interviews were essential to nourish and enrich the reflection.

The Commission takes this opportunity to particularly thank the students of the 3rd year classes of the Louis Braille college in Esbly (Seine-et-Marne) and the Paul-Verlaine des Mureaux college (Yvelines) as well as their teachers Ms. Stéphanie TUR and Mr. Olivier MENARD, for their valuable participation in the “hackathon” organized on March 29 with the support of the DITP and Réseau Canopé.

She also thanks the students of the 3rd and 4th grade classes of the Gassicourt college in Mantes-la-Jolie as well as Mr. Cyril NORBEC and the members of the teaching team of the Gassicourt college who welcomed several members of the Commission.

During its work, the Commission heard and/or received contributions from the following people and organizations.

1/ Persons interviewed or having contributed on behalf of the organizations they represent

Paris Academy:

- Ms VELTCHEFF Caroline, Academy Inspector, in charge of harassment prevention at school for the Paris Academy

Environment and Energy Management Agency (ADEME):

- Mr. FANGEAT Erwann . Coordinator of the Digital and Sustainability division
- Mr. WELLHOF Mathieu, Head of the Digital program at ADEME

National Agency for Food, Environmental and Occupational Health Safety (ANSES):

- Ms ROTH-DELGADO Olivia, Scientific Project Manager; Physical Agents Unit, new technologies and major developments
- Mr. SCHULER Matthieu, Deputy Managing Director of the “Sciences for expertise” division

Apple :

- Ms. LAVET Julie, Director of Public Affairs of Apple France and Benelux

French Association of Digital Industries (AFNUM):

- Mr. CERQUEIRA Lloyd, Director of Institutional Affairs of Dell France and President of the AFNUM Public Affairs group
- Mr. DE CUETOS Philippe, Director of Technical and Regulatory Affairs of AFNUM
- Ms. MARXER Eva, Public Affairs and Communication Officer
- Mme MORABITO Stella, General Delegate of the AFNUM
- Ms. PRAS Emma, Audiovisual and public protection officer

Regulatory Authority for Electronic Communications, Posts and Press Distribution (ARCEP): - Mr. LE RUYET

Rodolphe, Technical Advisor to the President - Ms. MATHOT-DE RAINCOURT Virginie, Advisor to the President - Ms. PENIN DE LA RAUDIERE Laure, President

Regulatory Authority for Audiovisual and Digital Communication (ARCOM):

- Ms. MIELLE Alexandra, Head of the public protection and prevention department
- Ms. PECAUT-RIVOLIER Laurence, member of the college
- Ms. PETIT Lucile, Director of online platforms

AXA :

- Written contribution

Babilou Family:

- Mr. OUVRARD Xavier, Chief Executive Officer of the Babilou Family group - Ms. PERRIER Dominique, Executive Director of Institutional and Corporate Relations

National Family Allowance Fund (CNAF):

- Mr. GRIVEL Nicolas, Managing Director

Chameleon Association:

- Ms. LIGIER Laurence, Founder and Managing Director
- Ms. MONMARCHE Violaine, Deputy Director General
- Ms. SIM Socheata, Head of the Social Mission France

Training centers for active education methods (CEMEA): - Ms. CHISIN Alice, Digital media and anti-discrimination project manager - Mr. LABOULAIS François, Deputy Director

National Center for Scientific Research (CNRS):

- Ms. BERTHOUD Françoise, Researcher at CNRS -
Mr. LONGARETTI Pierre-Yves, Researcher at CNRS -
Mr. RAMUS Franck, Research Director

Generative Artificial Intelligence Commission: - Mr. PAITEL Erwan, General Rapporteur

National Commission for Information Technology and Liberties (CNIL): - Mr. ARFAOUI Mehdi, Sociologist at the CNIL Digital Innovation Laboratory - Mr. DELPORTE Xavier, Director of Public Relations - Mr. DUTHEILLET DE LAMOTHE Louis, Secretary General - Mr. TOUBIANA Vincent, Head of the parental control and age control laboratory

Liaison center for media and information education (Clémi) (Réseau Canopé):

- Ms. SONNAC Nathalie, president of the Clemi Orientation Council
- Ms. SASSOON Virginie, deputy director

National Digital Council (CNUM):

- Mr. CATTAN Jean, Secretary General

“CoLINE” Collective (Collective for the Fight against Digital Invasion at School):

- Ms. PEREL Julie, Member of the collective
- Ms. VINEL Audrey, Member of the collective

Reasoned digital education collective: - Ms. FABRE Agnès, Middle and high school teacher - Ms. FERSCHNEIDER Cécile, School teacher - Mr. LESAGE Michel, General and technological high school principal;

Screen overexposure collective (CoSE):

- Ms. DUCANDA Anne-Lise, PMI Doctor, member of the Collective
- Ms. DUFLO Sabine, clinical psychologist, member of the Collective

European Commission: - Mr. AGARWAL Prabhat, Head of the DSA team at DG “Connect”
- Mme LOWERY-KINGSTON June
- Mme MERISIO Silvia
- Ms. REMICHE Adélaïde

Interministerial delegation for the fight against racism, anti-Semitism and anti-LGBT hatred (DILCRAH):

- Ms. BENOUALID Shani, Digital Advisor and responsible for digital strategies

“Ethical designers”:

- Mr. PINEAU Karl, co-president of the “Ethical Designers” association
- Mme BROCHIER Flora

Interministerial delegation to the national strategy for neurodevelopmental disorders: - Mr. POT Etienne, Interministerial Delegate

General Directorate of Social Cohesion (DGCS):

- Mr. VOISIN Benjamin, Head of the social and medicosocial policies department, deputy to the Director ·

General Directorate of School Education (DGESCO):

- Mr. HUBAC Jean, Head of the educational policy support department

General Directorate of Enterprises (DGE):

- Ms. RUBIN Chantal, Head of the Digital Platforms Regulation Department Ministry of Economy

Directorate General of Health (DGS):

- Ms. BARROIS Julie, Head of the Mental Health Office
- Ms. GODIGNON Maud, Child psychiatrist, medical advisor to the Mental Health Office
- Ms. SAUNERON Sarah, Head of Department

Digital Department for Education (DNE)

- Ms BIOT Florence, Deputy Director in charge of digital training - Mr LE BARON Audran, Director

Ecoles Waldorf :

- Written contribution

EdTech :

- Ms. GUENEAU Aude, Vice-President of EdTech and founding president of “Plume”
- Mrs LEDROIT Orianne, General Delegate EdTech France

e-Childhood:

- Ms. ATLAN Justine, General Director of the e-Enfance association

French Telecoms Federation: - Mr. DURAND Corentin Durand, Public Affairs Manager for Bouygues Telecom - Ms. GAY Carole Public Affairs Manager for Orange - Mr. GUINARD Paul, Project Manager at the French Telecoms Federation - Ms. DE MONTESQUIEU Alix, Head of public affairs at SFR
- Mr. RIFFARD Olivier, DGA of the French Telecoms Federation

National Federation of Francas:

- Mr. BOISBOUVIER Fabrice, Deputy General Delegate of the national federation of Francas - Mr. PREVOST Hervé, National Director of teaching programs and educational practices

“La main à la pâte” Foundation:

- Mme PASQUINELLI Elena, Philosopher

Children's Foundation:

- Ms. LISEMBARD Clémence, Operations Manager
- Ms. SICAMOIS Joëlle, Director of the Children’s Foundation

Google:

- Mr. ESPER Olivier, public affairs manager - Ms. RADVANYI Charlotte, Public affairs manager

Gulli:

- Ms. BOITRELLE -AIGLE Coralie, Director of youth programs in France for the M6 Group - Mr. BONY Philippe, President of the Gulli channel - Mr. FIGUE Julien, Deputy Managing Director

National Institute for Research in Digital Sciences and Technologies (INRIA): - Mr. GIRAUDON Gérard, Research Director - Mr. NINASSI Benjamin, Deputy Head of the Digital and Environment Program - Mr. ROCA Vincent, Research Manager - Mr. ROY Didier, Associate Researcher at the Polytechnic School of Lausanne and member of the team Flowers from Inria

National Institute of Health and Medical Research (INSERM):

- Ms. DELCOURT Cécile, Epidemiologist and director of research on eye diseases
- Ms. LIORET Sandrine, Epidemiologist and director of research on social inequalities in child health

Innovation and Digital Laboratory for Education:

- Ms. ROMERO Margarida, University Professor at the University of Côte d'Azur in France, associate professor at Laval University in Canada

Squaring the Net

The child's voice:

- Ms. BROUSSE Françoise, President

“Lift your eyes”: -

Mr. MARRY Yves, General Delegate

Teaching League:

- Mr. MUSELET Mathieu, Head of the national digital center - Mr. TOURVE Sébastien, Digital educational development project manager

Méta: -

Mr. BATTESTI Anton Maria, Director of Public Affairs France - Mrs. TUFFIER capucine, Head of Public Relations at Méta

Interministerial mission to combat drugs and addictive behavior (MILDECA): - Mr. MASSON-HALIMI Olivier, “Digital practices” project manager

- Mr. PRISSE Nicolas, President

National Museum of Natural History :

- Mr. FINI Jean-Baptiste, Professor

National Institute of Environmental Health Sciences and National Toxicology Program :

- Ms. BIRNBAUM Linda, Former Director

Nomad Education: -

Mr. CITTI Nicolas, Consultant - Ms. MAITROT Caroline, Founder of Nomad Education

Observatory of Parenthood and Digital Education (OPEN):

- Ms. HAZA Marion, President - Mr. ROHMER Thomas, Director – founder of OPEN

Pro-BTP health observatory:

- Contribution

Minors Office of the Ministry of the Interior (OFMIN):

- Ms. BECHU Véronique, Head of the OFMIN strategic center

Organizations representing parents of students: - Mr. CHABAULT Olivier, FCPE - Mr. DEMARQUET Gilles, APEL - Mr. GUIDONI Marc, APEL

- Mr. SALAÜN Patrick, UNAAPE - Ms. WITTRANT Marie, PEEP

Pan European Game Information (PEGI) :

- Ms. WACRENIER Jennifer, Director of Operations and Communication

Parliamentarians:

- Mrs. JANVIER Caroline, Member of Parliament for Loiret
- Mr. MARCANGELI Laurent, Member of Parliament for Corse-du-Sud

- Mr MIDY Paul, Member of Parliament for Essonne
- Mr STUDER Bruno, Member of Parliament for Bas-
Rhin - Ms VAN SPARRENTAK Kim European Member of Parliament for the Netherlands
- Mr VOJETTA Stéphane, Member of Parliament representing French people established outside France

Paris Juvenile Prosecutor's
Office: - Mr. BROUILLET Aurélien, Deputy Prosecutor, deputy head of section

Point-of-contact :
- Mme MARISCAL-LOPEZ Alejandra, Juriste

Digital regulation expertise center (PEReN): - Ms. BONNET
Hélène, Project Director Public policies and institutional relations - Mr. DEFFIEUX Nicolas, Director

"MALIN" Program: - Mr.
CAVALLI Benjamin, Director of the MALIN Program

Samsung :
- Ms. ROGEON Amandine, Public Affairs Director of Samsung Electronics France
- Ms. CHAZAL Catherine, CSR Director of Samsung Electronics France

Public Health France: -
Mr. ARWIDSON Pierre, Deputy Director of Prevention and Health Promotion

Snapchat :
- Ms. BOUCHAHOUA Sarah, Public Relations Manager

SQUARE:
- Mr. BESANÇON Hugo, Deputy General Delegate - Ms.
BOUGNERES Alice, General Delegate

Union of Leisure Software Publishers (SELL):
- Mr. NIANG Benjamin, Public Affairs Manager - Mr. VIGNOLLES
Nicolas, General Delegate

Representative unions of teachers: - Mr.
BRAMS Tristan, SGEN-CFDT - Ms.
DEVANSSAY Stéphanie, UNSA Education - Ms. MAGNE
Sylvie, FSU - Ms. ROYER Carine,
SGEN-CFDT - Mr. VANHEE Julien, SNES
-FSU - Mr. VAYSSETTE Jean-
Christophe, FO

Unions representing establishment directors:
- Mr. BOBKIEWICZ Bruno, Representative of SNPDEN -UNSA - Mr.
RESNAIS Francois, National Secretary of SNPDEN-UNSA

TikTok:
- Mr. GARANDEAU Eric, Director of Public Relations - Ms. KHEMIS
Sarah, Head of Institutional Relations and Public Affairs France

National Union of Family Associations (UNAF):

- Mr. GERARD Olivier, Coordinator of the “media” center at UNAF
- Ms POURIA Stéphanie, Project Manager, digital parenting and cyber threats

Brunel University London:

- M. GEE David, Expert

X/Twitter :

- Ms. DILE Claire, Public Relations Manager

YouTube :

- Mr. GUIROY Thibault, Public Relations Manager for YouTube

2/ Persons interviewed or having contributed in a personal capacity, in respect of former functions, their expertise on one of the aspects of the subject or actions they carry out

- Mme ANCENAY Adeline, Orthophoniste
- Ms APTER Gisèle, Child psychiatrist
- M. BEGUE-SHANKLAND Laurent, Professor of social psychology
- Ms. BEHAR-COHEN Francine Ophthalmologist Paris Descartes University
- Mr. BOULLIER Dominique, Professor of sociology
- Ms. BROADBENT Stefana, Digital Anthropologist
- Mr. CARRE François, Cardiologist
- Mr. CAYUELA David, teacher in a high school in Sommières (Gard)
- Ms. CHEVALLIER Coralie, Researcher in cognitive and behavioral sciences (ENS)
- Ms. DANET Marie, HDR lecturer in developmental psychology and clinical psychologist
- Mr. DE FILIPPO Gian Paolo, Pediatric Endocrinologist, Robert Debré Hospital
- M DE SEZE René, former research director at the National Institute of the Environment Industrial and Risks (INERIS).
- Mr. DERVAUX Alain, Professor of psychiatry and addictology
- M JD DURRIE, Ryan Associate Director of the Cornell Institute
- Ms ERHEL Séverine, Lecturer, specialist in digital education
- Mr. FADDOUL Marc, AI Forensics, Director, expert in transdisciplinary technology, specialist recommendation systems and algorithmic auditing.
- Mr. FALISSARD Bruno, Child psychiatrist and professor of biostatistics at the University of Paris-Saclay
- Ms. GUYON Aurore, Doctor in neuroscience, clinical research associate, Lyon1 University, Lyon.
- Ms. HARTZOG, Woody Professor of Law at Boston University

- Mr. HERCBERG Serge, Epidemiologist and professor of nutrition at Sorbonne University Paris North
- Ms. HODENT Célia, Psychologist
- Ms. HURON Caroline, Psychiatrist, research fellow at Inserm, president of the association the Fantasy Satchel
- Ms. KLONICK Kate, Associate Professor of Law at Saint John University
- M. LACHANCE Jocelyn, Sociologist-anthropologist
- Ms. LEMERCIER-DUGARIN Maud, Lecturer in clinical psychology and clinical psychologist, psychotherapist
- Mr. MERRIAUX Jean-Marc, Former Director of Digital for Education, Director General of the French Secular Mission
- Mr. MONTEIL Jean-Marc, university professor, former rector, former director general of higher education, in charge of the E-Fran and Pro-Fan programs
- Ms MOREL Lydie, Speech therapist
- Mr. NGUYEN HOANG Lê, Mathematician, web videographer and writer, expert in algorithms and artificial intelligence, founder of the Tournesol collaborative platform
- Mr. PHAN Olivier, Child psychiatrist-addictologist
- M. RICHARDS Neil, Professor of Law, Washington University in Saint Louis, Director of Cornell Institute
- Ms. ROMO Lucia, clinical psychologist
- Mr. SORIANO Sébastien, Current Director General of IGN
- Mr. STORA Michaël, clinical psychologist and psychoanalyst
- Mr. TADAYONI Ramin, Head of the ophthalmology department at the Adolphe Foundation Hospital in Rothschild
- Mr. TAQUET Pierre, clinical psychologist and researcher
- Mr. TISSERON Serge, Psychiatrist, doctor in psychology, member of the Academy of technologies
- Mr. WEBER Niels, Psychologist -Psychotherapist
- Ms. ZEIDE Elena, Professor of Law, University of Nebraska - College of Law