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Artificial intelligence in education, culture and the audiovisual sector

European Parliament resolution of 19 May 2021 on artificial intelligence in education, culture and the audiovisual sector (2020/2017(INI))

(2022/C 15/04)

The European Parliament,

— having regard to the Charter of Fundamental Rights of the European Union (the 'Charter'),

— having regard to Articles 165, 166 and 167 of the Treaty on the Functioning of the European Union,

— having regard to the Council conclusions of 9 June 2020 on shaping Europe's digital future ([1]),

— having regard to the opinion of the European Economic and Social Committee of 19 September 2018 on the digital gender gap ([2]),

— having regard to the Commission proposal for a regulation of the European Parliament and of the Council of 6 June 2018 establishing the Digital Europe Programme for the period 2021-2027 (COM(2018)0434),

— having regard to the Commission communication of 30 September 2020 on the Digital Education Action Plan 2021-2027: Resetting education and training for the digital age (COM(2020)0624),

— having regard to the Commission communication of 30 September 2020 on achieving the European Education Area by 2025 (COM(2020)0625),

— having regard to the Commission report of 19 February 2020 on the safety and liability implications of artificial intelligence, the Internet of Things and robotics (COM(2020)0064),

— having regard to the Commission white paper of 19 February 2020 entitled 'Artificial Intelligence — A European approach to excellence and trust' (COM(2020)0065),

— having regard to the Commission communication of 19 February 2020 on a European strategy for data (COM(2020)0066),

— having regard to the Commission communication of 25 April 2018 entitled 'Artificial Intelligence for Europe' (COM(2018)0237),

— having regard to the Commission communication of 17 January 2018 on the Digital Education Action Plan (COM(2018)0022),

— having regard to the report of the Commission High-Level Expert Group on Artificial Intelligence of 8 April 2019 entitled 'Ethics Guidelines for Trustworthy AI',

— having regard to its resolution of 12 February 2019 on a comprehensive European industrial policy on artificial intelligence and robotics ([3]),

— having regard to its resolution of 11 September 2018 on language equality in the digital age ([4]),

— having regard to its resolution of 12 June 2018 on modernisation of education in the EU ([5]),

([1]) OJ C 202 I, 16.6.2020, p. 1.
([2]) OJ C 440, 6.12.2018, p. 37.
([3]) OJ C 449, 23.12.2020, p. 37.
([4]) OJ C 433, 23.12.2019, p. 42.
([5]) OJ C 28, 27.1.2020, p. 8.

— having regard to its resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics ([6]),

— having regard to its resolution of 1 June 2017 on digitising European industry ([7]),

— having regard to the briefing of its Policy Department for Structural and Cohesion Policies of May 2020 on the use of artificial intelligence in the cultural and creative sectors,

— having regard to the in-depth analysis of its Policy Department for Structural and Cohesion Policies of May 2020 on the use of artificial intelligence in the audiovisual sector,

— having regard to the study of its Policy Department for Citizens' Rights and Constitutional Affairs of April 2020 on the education and employment of women in science, technology and the digital economy, including AI and its influence on gender equality,

— having regard to Rule 54 of its Rules of Procedure,

— having regard to the opinions of the Committee on Civil Liberties, Justice and Home Affairs, the Committee on the Internal Market and Consumer Protection, the Committee on Legal Affairs and the Committee on Women's Rights and Gender Equality,

— having regard to the report of the Committee on Culture and Education (A9-0127/2021),

A. whereas artificial intelligence (AI) technologies, which may have a direct impact on our societies, are being developed at a fast pace and are increasingly being used in almost all areas of our lives, including education, culture and the audiovisual sector; whereas ethical AI is likely to help improve labour productivity and help accelerate economic growth;

B. whereas the development, deployment and use of AI, including the software, algorithms and data used and produced by it, should be guided by the ethical principles of transparency, explainability, fairness, accountability and responsibility;

C. whereas public investment in AI in the Union has been vastly lagging behind other major economies; whereas underinvestment in AI will be likely to have an impact on the Union's competitiveness across all sectors;

D. whereas an integrated approach to AI and the availability, collection and interpretation of high-quality, trustworthy, fair, transparent, reliable, secure and compatible data are essential for the development of ethical AI;

E. whereas Article 21 of the Charter prohibits discrimination on a wide range of grounds; whereas multiple forms of discrimination should not be replicated in the development, deployment and use of AI systems;

F. whereas gender equality is a core principle of the Union enshrined in the Treaties and should be reflected in all Union policies, including in education, culture and the audiovisual sector, as well as in the development of technologies such as AI;

G. whereas past experiences, especially in technical fields, have shown that developments and innovations are often based mainly on male data and that women's needs are not fully reflected; whereas addressing these biases requires greater vigilance, technical solutions and the development of clear requirements of fairness, accountability and transparency;

H. whereas incomplete and inaccurate data sets, the lack of gender-disaggregated data and incorrect algorithms can distort the processing of an AI system and jeopardise the achievement of gender equality in society; whereas data on disadvantaged groups and intersectional forms of discrimination tends to be incomplete or even absent;

([6]) OJ C 252, 18.7.2018, p. 239.
([7]) OJ C 307, 30.8.2018, p. 163.

I. whereas gender inequalities, stereotypes and discrimination can also be created and replicated through the language and images disseminated by the media and AI-powered applications; whereas education, cultural programmes and audiovisual content have considerable influence in shaping people's beliefs and values and are a fundamental tool for combatting gender stereotypes, decreasing the digital gender gap and establishing strong role models; whereas an ethical and regulatory framework must be in place ahead of implementing automatised solutions for these key areas in society;

J. whereas science and innovation can bring life-changing benefits, especially for those who are furthest behind, such as women and girls living in remote areas; whereas scientific education is important for obtaining skills, decent work and jobs of the future, as well as for breaking with gender stereotypes that regard these as stereotypically masculine fields; whereas science and scientific thinking are key to democratic culture, which in turn is fundamental for advancing gender equality;

K. whereas one woman in ten in the Union has already suffered some form of cyber-violence since the age of 15 and whereas cyber-harassment remains a concern in the development of AI, including in education; whereas cyber-violence is often directed at women in public life, such as activists, women politicians and other public figures; whereas AI and other emerging technologies can play an important role in preventing cyber-violence against women and girls and educating people;

L. whereas the Union and its Member States have a particular responsibility to harness, promote and enhance the added value of AI technologies and to make sure that these technologies are safe and serve the well-being and general interest of Europeans; whereas these technologies can make a huge contribution to achieving our common goal of improving the lives of our citizens and fostering prosperity in the Union by helping to develop better strategies and innovation in a number of areas, namely in education, culture and the audiovisual sector;

M. whereas most AI is based on open-source software, which means that source codes can be inspected, modified and enhanced;

N. whereas certain adjustments to specific existing EU legislative instruments may be necessary to reflect the digital transformation and address new challenges posed by the use of AI technologies in education, culture and the audiovisual sector, such as the protection of personal data and privacy, combatting discrimination, promoting gender equality, and respecting intellectual property rights (IPR), environmental protection and consumers' rights;

O. whereas it is important to provide the audiovisual sector with access to data from the global platforms and major players in order to ensure a level playing field;

P. whereas AI and future applications or inventions made with the help of AI can have a dual nature, much like with any other technology; whereas AI and related technologies raise many concerns regarding the ethics and transparency of their development, deployment and use, notably on data collection, use and dissemination; whereas the benefits and risks of AI technologies in education, culture and the audiovisual sector must be carefully assessed and their effects on all aspects of society thoroughly and continuously analysed, without undermining their potential;

Q. whereas education aims to achieve human potential, creativity and authentic social change, while using data-driven AI systems incorrectly may hinder human and social development;

R. whereas education and educational opportunities are a fundamental right; whereas the development, deployment and use of AI technologies in the education sector should be classified as high risk and subject to stricter requirements on safety, transparency, fairness and accountability;

S. whereas high-quality, fast and secure pervasive connectivity, broadband, high-capacity networks, IT expertise, digital skills, digital equipment and infrastructure, as well as societal acceptance and a targeted and accommodating policy framework, are some of the preconditions for the broad and successful deployment of AI in the Union; whereas it is essential that such infrastructure and equipment be deployed equally across the Union in order to tackle the persistent digital gap between its regions and citizens;

T. whereas addressing the gender gap in science, technology, engineering, arts and maths (STEAM) subjects is an absolute necessity to ensure that the whole of society is equally and fairly represented when developing, deploying and using AI technologies, including the software, algorithms and data used and produced by them;

U. whereas it is essential to ensure that all people in the Union acquire the necessary skills from an early age in order to better understand the capabilities and limitations of AI, to prepare themselves for the increasing presence of AI and related technologies in all aspects of human activity, and to be able to fully embrace the opportunities that they offer; whereas the widespread acquisition of digital skills across all parts of society in the Union is a precondition for achieving a fair digital transformation beneficial to all;

V. whereas, with that aim in view, the Member States must invest in digital education and media training, equipping schools with the proper infrastructure and the necessary end devices, and place greater emphasis on the teaching of digital skills and capabilities as part of school curricula;

W. whereas AI and related technologies can be used to improve learning and teaching methods, notably by helping education systems to use fair data to improve educational equity and quality, while promoting tailor-made curricula and better access to education and improving and automating certain administrative tasks; whereas equal and fair access to digital technologies and high-speed connectivity are required in order to make the use of AI beneficial to the whole of society; whereas it is of the utmost importance to ensure that digital education is accessible to all, including those from disadvantaged backgrounds and people with disabilities; whereas learning outcomes do not depend on technology per se, but on how teachers can use technology in pedagogically meaningful ways;

X. whereas AI has particular potential to offer solutions for the day-to-day challenges of the education sector, such as the personalisation of learning, monitoring learning difficulties, the automation of subject-specific content/knowledge, providing better professional training and supporting the transition to a digital society;

Y. whereas AI could have practical applications in terms of reducing the administrative work of educators and educational institutions, freeing up time for their core teaching and learning activities;

Z. whereas new AI-based applications in education are facilitating progress in a variety of disciplines, such as language learning and maths;

AA. whereas AI-enabled personalised learning experiences can not only help to increase students' motivation and enable them to reach their full potential, but also reduce drop-out rates;

AB. whereas AI can increasingly help make teachers more effective by giving them a better understanding of students' learning methods and styles and helping them to identify learning difficulties and better assess individual progress;

AC. whereas the Union's digital labour market is lacking almost half a million experts in big data sciences and data analysis, who are intrinsic to the development and use of quality and trustworthy AI;

AD. whereas the application of AI in education raises concerns around the ethical use of data, learners' rights, data access and protection of personal data, and therefore entails risks to fundamental rights such as the creation of stereotyped models of learners' profiles and behaviour that could lead to discrimination or risks of doing harm by the scaling-up of bad pedagogical practices;

AE. whereas culture plays a central role in the use of AI technologies at scale and is emerging as a key discipline for cultural heritage thanks to the development of innovative technologies and tools and their effective application to respond to the needs of the sector;

AF. whereas AI technologies can be used to promote and protect cultural heritage, including by using digital tools to preserve historical sites and finding innovative ways to make the datasets of cultural artefacts held by cultural institutions across the Union more widely and easily accessible, while allowing users to navigate the vast amount of cultural and creative content; whereas the promotion of interoperability standards and frameworks is key in this regard;

AG. whereas the use of AI technologies for cultural and creative content, notably media content and tailored content recommendations, raises issues around data protection, discrimination and cultural and linguistic diversity, risks producing discriminatory output based on biased entry data, and could restrict diversity of opinion and media pluralism;

AH. whereas AI-based personalised content recommendations can often better target individuals' specific needs, including cultural and linguistic preferences; whereas AI can help to promote linguistic diversity in the Union and contribute to the wider dissemination of European audiovisual works, in particular through automatic subtitling and dubbing of audiovisual content in other languages; whereas making media content across languages is therefore fundamental to support cultural and linguistic diversity;

AI. whereas AI drives innovation in newsrooms by automating a variety of mundane tasks, interpreting data and even generating news such as weather forecasts and sports results;

AJ. whereas Europe's linguistic diversity means that promoting computational linguistics for rights-based AI offers specific potential for innovations which can be used to make global cultural and information exchanges in the digital age democratic and non-discriminatory;

AK. whereas AI technologies may have the potential to benefit special needs education, as well as the accessibility of cultural and creative content for people with disabilities; whereas AI enables solutions such as speech recognition, virtual assistants and digital representations of physical objects; whereas digital creations are already playing their part in making such content available to people with disabilities;

AL. whereas AI applications are omnipresent in the audiovisual sector, in particular on audiovisual content platforms;

AM. whereas AI technologies therefore contribute to the creation, planning, management, production, distribution, localisation and consumption of audiovisual media products;

AN. whereas while AI can be used to generate fake content, such as 'deepfakes', which are growing exponentially and constitute an imminent threat to democracy, it can also be used as an invaluable tool for identifying and immediately combatting such malicious activity, for example through real-time fact checking or labelling of content; whereas most deepfake material is easy to spot; whereas at the same time, AI-powered detection tools are generally successful in flagging and filtering out such content; whereas there is a lack of a legal framework on this issue;

General observations

1. Underlines the strategic importance of AI and related technologies for the Union; stresses that the approach to AI and its related technologies must be human-centred and anchored in human rights and ethics, so that AI genuinely becomes an instrument that serves people, the common good and the general interest of citizens;

2. Underlines that the development, deployment and use of AI in education, culture and the audiovisual sector must fully respect fundamental rights, freedoms and values, including human dignity, privacy, the protection of personal data, non-discrimination and freedom of expression and information, as well as cultural diversity and IPR, as enshrined in the Union Treaties and the Charter;

3. Asserts that education, culture and the audiovisual sector are sensitive areas as far as the use of AI and related technologies is concerned, as they have the potential to impact on the cornerstones of the fundamental rights and values of our society; stresses, therefore, that ethical principles should be observed in the development, deployment and use of AI and related technologies in these sectors, including the software, algorithms and data used and produced by them;

4. Recalls that algorithms and AI should be 'ethical by design', with no built-in bias, in a way that guarantees maximum protection of fundamental rights;

5. Reiterates the importance of developing quality, compatible and inclusive AI and related technologies for use in deep learning which respect and defend the values of the Union, notably gender equality, multilingualism and the conditions necessary for intercultural dialogue, as the use of low-quality, outdated, incomplete or incorrect data may lead to poor predictions and in turn discrimination and bias; highlights that it is essential to develop capabilities at both national and Union level to improve data collection, safety, systematisation and transferability, without harming privacy; takes note of the Commission's proposal to create a single European data space;

6. Recalls that AI may give rise to biases and thus to various forms of discrimination based on sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, political or any other opinion, membership of a national minority, property, birth, disability, age or sexual orientation; recalls, in this regard, that the rights of all people must be ensured and that AI and related technologies must not be discriminatory in any form;

7. Emphasises that such bias and discrimination can arise from already biased datasets that reflect existing discrimination in society; recalls, in this context, that it is essential to involve the relevant stakeholders, including civil society, to prevent gender, social and cultural biases from being inadvertently included in AI algorithms, systems and applications; stresses the need to work on the most efficient way of reducing bias in AI systems in line with ethical and non-discrimination standards; underlines that the datasets used to train AI should be as broad as possible in order to represent society in the best and most relevant way, that the outputs should be reviewed to avoid all forms of stereotypes, discrimination and bias and that, where appropriate, AI should be used to identify and rectify human bias wherever it exists; calls on the Commission to encourage and facilitate the sharing of de-biasing strategies for data;

8. Calls on the Commission and the Member States to take into account ethical aspects, including from a gender perspective, when developing AI policy and legislation, and, if necessary, to adapt the current legislation, including Union programmes and ethical guidelines for the use of AI;

9. Calls on the Commission and the Member States to devise measures that fully incorporate the gender dimension, such as awareness-raising campaigns, training and curricula, which should provide information to citizens on how algorithms operate and their impact on their daily lives; further calls on them to nurture gender-equal mindsets and working conditions that lead to the development of more inclusive technology products and work environments; urges the Commission and the Member States to ensure the inclusion of digital skills and AI training in school curricula and to make them accessible to all, as a way to close the digital gender divide;

10. Stresses the need for training for workers and educators dealing with AI to promote the ability to identify and correct gender-discriminatory practices in the workplace and in education, and for workers developing AI systems and applications to identify and remedy gender-based discrimination in the AI systems and applications they develop; calls for the establishment of clear responsibilities in companies and educational institutions to ensure that there is no gender-based discrimination in the workplace or educational context; highlights that genderless images of AI and robots should be used for educational and cultural purposes, unless gender is a key factor for some reason;

11. Highlights the importance of the development and deployment of AI applications in education, culture and the audiovisual sector in collecting gender-disaggregated and other equality data, and of applying modern machine learning de-biasing techniques, if needed, to correct gender stereotypes and gender biases which may have negative impacts;

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12. Calls on the Commission to include education in the regulatory framework for high-risk AI applications, given the importance of ensuring that education continues to contribute to the public good, as well as the high sensitivity of data on pupils, students and other learners; emphasises that in the education sector, this deployment should involve educators, learners and the wider society and should take into account the needs of all and the expected benefits in order to ensure that AI is used purposefully and ethically;

13. Calls on the Commission to encourage the use of Union programmes such as Horizon Europe, Digital Europe and Erasmus+ to promote multidisciplinary research, pilot projects, experiments and the development of tools including training, for the identification of gender biases in AI, as well as awareness-raising campaigns for the general public;

14. Stresses the need to create diverse teams of developers and engineers to work alongside the main actors in education, culture and the audiovisual sector in order to prevent gender or social bias from being inadvertently included in AI algorithms, systems and applications; stresses the need to consider the variety of different theories through which AI has been developed to date and could be further advanced in the future;

15. Points out that taking due care to eliminate bias and discrimination against particular groups, including gender stereotypes, should not halt technological progress;

16. Reiterates the importance of fundamental rights and the overarching supremacy of the legislation of data and privacy protection, which is imperative when dealing with such technologies; recalls that data protection and privacy can be particularly affected by AI, in particular children's data; underlines that the principles established in the General Data Protection Regulation (GDPR) ([8]) are binding for the deployment of AI in that regard; recalls, moreover, that all AI applications must fully respect Union data protection law, namely the GDPR and the ePrivacy Directive ([9]); stresses the right to obtain human intervention when AI and related technologies are being used;

17. Calls on the Commission and the Member States to implement an obligation of transparency and explainability of AI-based automated individual decisions taken within the framework of prerogatives of public power, and to implement penalties to enforce this; calls for the implementation of systems which use human verification and intervention by default, and for due process, including the right of appeal and redress as well as access to remedies;

18. Notes the potentially negative impact of personalised advertising, in particular micro-targeted and behavioural advertising, and of the assessment of individuals, especially minors, without their consent, by interfering in the private life of individuals, asking questions as to the collection and use of the data used to personalise advertising, and offering products or services or setting prices; calls on the Commission, therefore, to introduce strict limitations on targeted advertising based on the collection of personal data, starting with a ban on cross-platform behavioural advertising, without harming small and medium-sized enterprises (SMEs); recalls that the ePrivacy Directive currently only allows targeted advertising subject to opt-in consent, otherwise making it illegal; calls on the Commission to prohibit the use of discriminatory practices for the provision of services or products;

19. Stresses the need for media organisations to be informed about the main parameters of algorithm-based AI systems that determine ranking and search results on third-party platforms, and for users to be informed about the use of AI in decision-making services and empowered to set their privacy parameters via transparent and understandable measures;

20. Stresses that AI can support content creation in education, culture and the audiovisual sector, alongside information and educational platforms, including listings of different kinds of cultural objects and a multitude of data sources; notes the risks of IPR infringement when blending AI and different technologies with a multiplicity of sources (documents, photos,

([8]) Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

([9]) Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications) (OJ L 201, 31.7.2002, p. 37).

films) to improve how that data is displayed, researched and visualised; calls for AI to be used to ensure a high level of IPR protection within the current legislative framework, such as by alerting individuals and businesses if they are in danger of inadvertently infringing the rules, or by assisting IPR rights holders if the rules are actually infringed; emphasises, therefore, the importance of having an appropriate legal framework at Union level for the protection of IPR in connection with the use of AI;

21. Stresses the need to strike a balance between, on the one hand, the development of AI systems and their use in education, culture and the audiovisual sector and, on the other, measures to safeguard competition and market competitiveness for AI companies in these sectors; emphasises, in this regard, the need to encourage companies to invest in the innovation of AI systems used in these sectors, while also ensuring that those providing such applications do not obtain a market monopoly; underlines the need for AI to be made widely available to the cultural and creative sectors and industries (CCSI) across Europe in order to maintain a level playing field and fair competition for all stakeholders and actors in Europe; calls on the Commission and the Member States, when taking decisions on competition policy, including mergers, to take greater account of the role played by data and algorithms in the concentration of market power;

22. Stresses the need to systematically address the social, ethical and legal issues raised by the development, deployment and use of AI such as the transparency and accountability of algorithms, non-discrimination, equal opportunities, freedom and diversity of opinion, media pluralism and the ownership, collection, use and dissemination of data and content; recommends that common European guidelines and standards to protect privacy be devised while making effective use of the data available; calls for transparency in the development and accountability in the use of algorithms;

23. Calls on the Commission to put forward a comprehensive set of provisions designed to regulate AI applications on a horizontal basis and to supplement them with sector-specific rules, for example for audiovisual media services;

24. Stresses the need for investment in research and innovation on the development, deployment and use of AI and its applications in education, culture and the audiovisual sector; highlights the importance of public investment in these services and the complementary added value provided by public-private partnerships in order to achieve this objective and deploy the full potential of AI in these sectors, in particular education, in view of the substantial amount of private investment made in recent years; calls on the Commission to find additional funding to promote research and innovation into AI applications in these sectors;

25. Underlines that algorithmic systems can be an enabler for reducing the digital divide in an accelerated way, but unequal deployment risks creating new divides or accelerating the deepening of existing ones; expresses its concern that knowledge and infrastructure are not developed in a consistent way across the Union, which limits the accessibility of products and services that rely on AI, in particular in sparsely populated and socio-economically vulnerable areas; calls on the Commission to ensure cohesion in the sharing of the benefits of AI and related technologies;

26. Calls on the Commission to establish requirements for the procurement and deployment of AI and related technologies by Union public sector bodies in order to ensure compliance with Union law and fundamental rights; highlights the added value of using instruments such as public consultations and impact assessments prior to the procurement or deployment of AI systems, as recommended in the report of the Special Rapporteur to the UN General Assembly on AI and its impact on freedom of opinion and expression ([10]); encourages public authorities to incentivise the development and deployment of AI by public funding and public procurement; stresses the need to strengthen the market by providing SMEs with the opportunity to participate in the procurement of AI applications in order to ensure the involvement of technology companies of all sizes and thus guarantee resilience and competition;

([10]) Report of the UN Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, 29 August 2018.

27. Calls for independent audits to be conducted regularly to examine whether the AI applications being used and the related checks and balances are in accordance with specified criteria, and for those audits to be supervised by independent and sufficient overseeing authorities; calls for specific stress tests to assist and enforce compliance;

28. Notes the benefits and risks of AI in terms of cybersecurity and its potential in combatting cybercrime, and emphasises the need for any AI solutions to be resilient to cyberattacks while respecting Union fundamental rights, especially the protection of personal data and privacy; stresses the importance of monitoring the safe use of AI and the need for close collaboration between the public and private sectors to counter user vulnerabilities and the dangers arising in this connection; calls on the Commission to evaluate the need for better prevention in terms of cybersecurity and mitigation measures thereof;

29. Highlights that the COVID-19 pandemic crisis can be considered as a probation period for the development, deployment and use of digital and AI-related technologies in education and culture, as exemplified by the many online schooling platforms and online tools for cultural promotion employed across the Member States; calls on the Commission, therefore, to take stock of those examples when considering a common Union approach to the increased use of such technological solutions;

Education

30. Recalls the importance of strengthening digital skills and achieving a high standard of media, digital and information literacy at Union level as a prerequisite for the use of AI in education; underlines the need, in this regard, to ensure Union-wide digital and AI literacy, in particular through the development of training opportunities for teachers; insists that the use of AI technologies in schools should help to narrow the social and regional digital gap; welcomes the Commission's updated Digital Education Action Plan, which addresses the use of AI in education; calls on the Commission, in that regard, to make digital capabilities, media literacy and training and AI-related skills the priorities of this plan, while raising awareness about the potential misuses and malfunctioning of AI; calls on the Commission, in that connection, to place special emphasis on children and young people in precarious situations, as they need particular support in the area of digital education; urges the Commission to duly address AI and robotics initiatives in education in its forthcoming AI legislative proposals; urges the Member States to invest in digital equipment in schools, using Union funds to this end;

31. Highlights that the use of AI in education systems brings a wide range of possibilities, opportunities and tools for making it more innovative, inclusive, efficient and increasingly effective by introducing new high-quality learning methods that are quick, personalised and student-centric; stresses, however, that as it will impact education and social inclusion, the availability of such tools must be ensured for all social groups by establishing equal access to education and learning and leaving no one behind, especially people with disabilities;

32. Underlines that in order to engage with AI both critically and effectively, citizens need at least a basic understanding of this technology; calls on the Member States to integrate awareness-raising campaigns about AI in their actions on digital literacy; calls on the Commission and the Member States to promote digital literacy plans and forums for discussion to involve citizens, parents and students in a democratic dialogue with public authorities and stakeholders concerning the development, deployment and use of AI technologies in education systems; stresses the importance of providing educators, trainers and others with the right tools and know-how with regard to AI and related technologies in terms of what they are, how they are used and how to use them properly and in accordance with the law, in order to avoid IPR infringements; highlights, in particular, the importance of digital literacy for people working in the education and training sectors and of improving digital training for the elderly, bearing in mind that the younger generations already have a basic notion of these technologies, having grown up with them;

33. Stresses that the real objective of AI in education systems should be to make education as individualised as possible, offering students personalised academic paths in line with their strengths and weaknesses and didactic material tailored to their characteristics, while maintaining educational quality and the integrating principle of our education systems;

34. Recalls the fundamental and multifaceted role that teachers play in education and in making it inclusive, especially in early childhood, where skills are acquired that will enable students to progress throughout their lives, such as in personal relations, study skills, empathy and cooperative work; stresses, therefore, that AI technologies cannot be used to the detriment or at the expense of in-person education, as teachers must not be replaced by any AI or AI-related technologies;

35. Stresses that the learning benefits of using AI in education will depend not only on AI itself, but on how teachers use AI in the digital learning environment to meet the needs of pupils, students and teachers; points out, therefore, the need for AI programmers to involve teaching communities in the development, deployment and use of AI technologies where possible, creating a nexus environment to form connections and cooperation between AI programmers, developers, companies, schools, teachers and other public and private stakeholders in order to create AI technologies that are suitable for real-life educational environments, reflect the age and developmental readiness of each learner and meet the highest ethical standards; highlights that educational institutions should only deploy trustworthy, ethical, human-centred technologies which are auditable at every stage of their lifecycle by public authorities and civil society; emphasises the advantages of free and open-source solutions in this regard; calls for schools and other educational establishments to be provided with the financial and logistical support as well as the expertise required to introduce solutions for the learning of the future;

36. Highlights, moreover, the need to continuously train teachers so they can adapt to the realities of AI-powered education and acquire the necessary knowledge and skills to use AI technologies in a pedagogical and meaningful way, enabling them to fully embrace the possibilities offered by AI and to understand its limitations; calls for digital teaching to be part of every teacher's training in the future and calls for teachers and people working in education and training to be given the opportunity to continue their training in digital teaching throughout their lives; calls, therefore, for the development of training programmes in AI for teachers in all fields and across Europe; highlights, furthermore, the importance of reforming teaching programmes for new generations of teachers allowing them to adapt to the realities of AI-powered education, as well as the importance of drawing up and updating handbooks and guidelines on AI for teachers;

37. Is concerned about the lack of specific higher education programmes for AI and the lack of public funding for AI across the Member States; believes that this is putting Europe's future digital ambitions at risk;

38. Is worried about the fact that few AI researchers are pursuing an academic career as tech firms can offer better pay and less bureaucracy for research; believes that part of the solution would be to direct more public money towards AI research at universities;

39. Underlines the importance of equipping people with general digital skills from childhood onwards in order to close the qualifications gap and better integrate certain population groups into the digital labour market and digital society; points out that it will become more and more important to train highly skilled professionals from all backgrounds in the field of AI, ensure the mutual recognition of such qualifications throughout the Union, and upskill the existing and future workforce to enable it to cope with the future realities of the labour market; encourages the Member States, therefore, to assess their educational offer and to upgrade it with AI-related skills, where necessary, and to put in place specific curricula for AI developers, while also including AI in traditional curricula; highlights the need to ensure mutual recognition of professional qualifications in AI skills across the Union, as several Member States are upgrading their educational offer with AI-related skills and putting in place specific curricula for AI developers; welcomes the Commission's efforts to include digital skills as one of the qualifications requirements for certain professions harmonised at Union level under the Professional Qualifications Directive ([11]); stresses the need for these to be in line with the assessment list of the ethical guidelines for trustworthy AI, and welcomes the Commission's proposal to transform this list into an indicative curriculum for AI developers; recalls the special needs of vocational education and training (VET) with regard to AI and calls for a collaborative approach across Europe to enhance the potential offered by AI in VET; underlines the importance of training

([11]) Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications (OJ L 255, 30.9.2005, p. 22).

highly skilled professionals in this area, including ethical aspects in curricula, and of supporting underrepresented groups in this field, as well as of creating incentives for those professionals to seek work within the Union; recalls that women are underrepresented in AI and that this may create significant gender imbalances in the future labour market;

40. Stresses the need for governments and educational institutions to rethink, rework and adapt their educational curricula to the needs of the 21st century by devising educational programmes that place greater emphasis on STEAM subjects in order to prepare learners and consumers for the increasing prevalence of AI and facilitate the acquisition of cognitive skills; underlines, in this regard, the importance of diversifying this sector and of encouraging students, especially women and girls, to enrol in STEAM courses, in particular in robotics and AI-related subjects; calls for more financial and scientific resources to motivate skilled people to stay in the Union while attracting those with skills from third countries; notes, furthermore, the considerable number of start-ups working with AI and developing AI technologies; stresses that SMEs will require additional support and AI-related training to comply with digital and AI-related regulation;

41. Notes that automation and the development of AI may drastically and irreversibly change employment; emphasises that priority should be given to tailoring skills to the needs of the future job market, in particular in education and the CCSI; underlines, in this context, the need to upskill the future workforce; stresses, furthermore, the importance of deploying AI to reskill and upskill the European labour market in the CCSI, in particular in the audiovisual sector, which has already been severely impacted by the COVID-19 crisis;

42. Calls on the Commission to assess the level of risk of AI deployment in the education sector in order to ascertain whether AI applications in education should be included in the regulatory framework for high risk and subject to stricter requirements on safety, transparency, fairness and accountability, in view of the importance of ensuring that education continues to contribute to the public good and the acute sensitivity of data on pupils, students and other learners; underlines that datasets used to train AI should be reviewed in order to avoid reinforcing certain stereotypes and other kinds of bias;

43. Calls on the Commission to propose a futureproof legal framework for AI so as to provide legally binding ethical measures and standards to ensure fundamental rights and freedoms and the development of trustworthy, ethical and technically robust AI applications, including integrated digital tools, services and products such as robotics and machine learning, with particular regard to education; calls for the data used and produced by AI applications in education to be accessible, interoperable and of high quality, and to be shared with the relevant public authorities in an accessible way and with respect for copyright and trade secrets legislation; recalls that children constitute a vulnerable group who deserve particular attention and protection; stresses that while AI can benefit education, it is necessary to take into account its technological, regulatory and social aspects, with adequate safeguards and a human-centred approach that ultimately ensures that human beings are always able to control and correct the system's decisions; points out, in this regard, that teachers must control and supervise any deployment and use of AI technologies in schools and universities when interacting with pupils and students; recalls that AI systems must not take any final decision that could affect educational opportunities, such as students' final evaluation, without full human supervision; recalls that automated decisions about natural persons based on profiling, where they have legal or similar effects, must be strictly limited and always require the right to human intervention and the right to an explanation under the GDPR; underlines that this should be strictly adhered to, especially in the education system, where decisions about future chances and opportunities are taken;

44. Expresses serious concern that schools and other education providers are becoming increasingly dependent on educational technology (edtech) services, including AI applications, provided by a few private companies that enjoy a dominant market position; believes that this should be scrutinised through Union competition rules; stresses the importance, in this regard, of supporting the uptake of AI by SMEs in education, culture and the audiovisual sector through the appropriate incentives that create a level playing field; calls, in this context, for investment in European IT companies in order to develop the necessary technologies within the Union, given that the major companies that currently provide AI are based outside the Union; strongly recalls that the data of minors is strictly protected by the GDPR and can only be

processed if completely anonymised or consent has been given or authorised by the holder of parental responsibility, in strict compliance with the principles of data minimisation and purpose limitation; calls for more robust protection and safeguards in the education sector where children's data is concerned and calls on the Commission to take more effective steps in that regard; calls for clear information to be provided to children and their parents about the possible use and processing of children's data, including through awareness-raising and information campaigns;

45. Underlines the specific risks in the use of AI automated recognition applications, which are developing at pace; recalls that children are a particularly sensitive group; recommends that the Commission and the Member States ban automated biometric identification, such as facial recognition for educational and cultural purposes, on educational and cultural premises, unless its use is allowed by law;

46. Stresses the need to increase customer choice to stimulate competition and broaden the range of services offered by AI technologies for educational purposes; encourages public authorities, in this regard, to incentivise the development and deployment of AI technologies through public funding and public procurement; considers that technologies used by public education providers or purchased with public funding should be based on open-source technologies;

47. Notes that innovation in education is overdue, as highlighted by the COVID-19 pandemic and the ensuing switch to online and distance learning; stresses that AI-driven educational tools such as those for assessing and identifying learning difficulties can improve the quality and effectiveness of online learning;

48. Stresses that next-generation digital infrastructure and internet coverage are of strategic significance for providing AI-powered education to European citizens; in light of the COVID-19 crisis, calls on the Commission to elaborate a strategy for a European 5G that ensures Europe's strategic resilience and is not dependent on technologies from states which do not share our values;

49. Calls for the creation of a pan-European university and research network focused on AI in education, which should bring together institutions and experts from all fields to examine the impact of AI on learning and identify solutions to enhance its potential;

Cultural heritage

50. Reiterates the importance of access to culture for every citizen throughout the Union; highlights, in this context, the importance of the exchange of best practices among Member States, educational facilities and cultural institutions and similar stakeholders; further considers it of vital importance that the resources available at both Union and national level are used to the maximum of their potential in order to further improve access to culture; stresses that there are a multitude of options to access culture and that all varieties should be explored in order to determine the most appropriate option; highlights the importance of consistency with the Marrakech Treaty;

51. Stresses that AI technologies can play a significant role in preserving, restoring, documenting, analysing, promoting and managing tangible and intangible cultural heritage, including by monitoring and analysing changes to cultural heritage sites caused by threats such as climate change, natural disasters and armed conflicts;

52. Stresses that AI technologies can increase the visibility of Europe's cultural diversity; points out that these technologies provide new opportunities for cultural institutions, such as museums, to produce innovative tools for cataloguing artefacts as well as documenting and making cultural heritage sites more accessible, including through 3D modelling and augmented virtual reality; stresses that AI will also enable museums and art galleries to introduce interactive and personalised services for visitors by providing them with a list of suggested items based on their interests, expressed in person and online;

53. Stresses that the use of AI will herald new innovative approaches, tools and methodologies allowing cultural workers and researchers to create uniform databases with suitable classification schemes as well as multimedia metadata, enabling them to make connections between different cultural heritage objects and thus increase knowledge and provide a better understanding of cultural heritage;

54. Stresses that good practices in AI technologies for the protection and accessibility of cultural heritage, in particular for people with disabilities, should be identified and shared between cultural networks across the Union, while encouraging research on the various uses of AI to promote the value, accessibility and preservation of cultural heritage; calls on the Commission and the Member States to promote the opportunities offered by the use of AI in the CCSI;

55. Stresses that AI technologies can also be used to monitor the illicit trafficking of cultural objects and the destruction of cultural property, while supporting data collection for recovery and reconstruction efforts of both tangible and intangible cultural heritage; notes, in particular, that the development, deployment and use of AI in customs screening procedures may support efforts to prevent the illicit trafficking of cultural heritage, in particular to supplement systems which allow customs authorities to target their efforts and resources on items that pose the greatest risk;

56. Notes that AI could benefit the research sector, for example through the role that predictive analytics can play in fine-tuning data analysis, for example on the acquisition and movement of cultural objects; stresses that the Union must step up investment and foster partnerships between industry and academia in order to enhance research excellence at European level;

57. Recalls that AI can be a revolutionary tool for promoting cultural tourism and highlights its considerable potential in predicting tourism flows, which could help cities struggling with over-tourism;

Cultural and creative sectors and industries (CCSI)

58. Regrets the fact that culture is not among the priorities outlined in policy options and recommendations on AI at Union level, notably the Commission's white paper of 19 February 2020 on AI; calls for these recommendations to be revised in order to make culture an AI policy priority at Union level; calls on the Commission and the Member States to address the potential impact of the development, deployment and use of AI technologies on the CCSI and to make the most of the Next Generation EU recovery plan to digitise these sectors to respond to new forms of consumption in the 21st century;

59. Points out that AI has now reached the CCSI, as exemplified by the automatic production of texts, videos and pieces of music; emphasises that creative artists and cultural workers must have the digital skills and training required to use AI and other digital technologies; calls on the Commission and the Member States to promote the opportunities offered by the use of AI in the CCSI, by making more funding available from science and research budgets, and to establish digital creativity centres in which creative artists and cultural workers develop AI applications, learn how to use these and other technologies and test them;

60. Acknowledges that AI technologies have the potential to boost a growing number of jobs in the CCSI facilitated by greater access to these technologies; emphasises, therefore, the importance of boosting digital literacy in the CCSI to make these technologies more inclusive, usable, learnable, and interactive for these sectors;

61. Emphasises that the interaction between AI and the CCSI is complex and requires an in-depth assessment; welcomes the Commission's report of November 2020 entitled 'Trends and Developments in Artificial Intelligence — Challenges to the IPRS Framework' and the study on copyright and new technologies: copyright data management and artificial intelligence; underlines the importance of clarifying the conditions of use of copyright-protected content as data input (images, music, films, databases, etc.) and in the production of cultural and audiovisual outputs, whether created by humans with the assistance of AI or autonomously generated by AI technologies; invites the Commission to study the impact of AI on the European creative industries; reiterates the importance of European data and welcomes the statements made by the Commission in this regard, as well as the placing of artificial intelligence and related technologies high on the agenda;

62. Stresses the need to set up a coherent vision of AI technologies in the CCSI at Union level; calls on the Member States to strengthen the focus on culture in their AI national strategies to ensure that the CCSI embrace innovation and remain competitive and that cultural diversity is safeguarded and promoted at Union level in the new digital context;

63. Stresses the importance of creating a Union-wide heterogeneous milieu for AI technologies to encourage cultural diversity and support minorities and linguistic diversity, while also strengthening the CCSI through online platforms, allowing Union citizens to be included and to participate;

64. Calls on the Commission and the Member States to support a democratic debate on AI technologies and to provide a regular forum for discussion with civil society, researchers, academia and stakeholders to raise awareness on the benefits and the challenges of its use in the CCSI; emphasises, in that connection, the role which art and culture can play in familiarising people with AI and fostering public debate about it, as they can provide vivid, tangible examples of machine learning, for example in the area of music;

65. Calls on the Commission and the Member States to address the issue of AI-generated content and its challenges to authorship and copyright infringement; asks the Commission, in that regard, to assess the impact of AI and related technologies on the audiovisual sector and the CCSI, with a view to promoting cultural and linguistic diversity, while respecting authors' and performers' rights;

66. Stresses that the European Institute of Innovation and Technology (EIT), in particular its future Knowledge and Innovation Community (KIC) dedicated to cultural and creative industries (CCI), should play a leading role in developing a European strategy on AI in education, culture and the audiovisual sector and can help accelerate and harvest AI applications to these sectors;

67. Notes that AI has already entered the creative value chain at the level of creation, production, dissemination and consumption and is therefore having an immense impact on the CCSI, including music, the film industry, art and literature, through new tools, software and AI-assisted production for easier production, while providing inspiration and enabling the broader public to create content;

68. Calls on the Commission to carry out studies and consider policy options to tackle the detrimental impact of AI-based control of online streaming services designed to limit diversity and/or maximise profits by including or prioritising certain content in the consumer offer, as well as how this impacts cultural diversity and creators' earnings;

69. Believes that AI is becoming increasingly useful for the CCSI in creation and production activities;

70. Emphasises the role of an author's personality for the expression of free and creative choices that constitute the originality of works ([12]); underlines the importance of limitations and exceptions to copyright when using content as data input, notably in education, academia and research, and in the production of cultural and creative output, such as audiovisual output and user-generated content;

71. Takes the view that consideration should be given to protecting AI-generated technical and artistic creations in order to encourage this form of creativity;

72. Stresses that in the data economy context, better copyright data management is achievable, for the purpose of better remunerating authors and performers, notably in enabling the swift identification of the authorship and right ownership of content, thus contributing to lowering the number of orphan works; further highlights that AI technological solutions should be used to improve copyright data infrastructure and the interconnection of metadata in works, but also to facilitate the transparency obligation provided in Article 19 of Directive (EU) 2019/790 on copyright and related rights in the Digital Single Market ([13]) for up-to-date, relevant and comprehensive information on the exploitation of authors' and performers' works and performances, particularly in the presence of a plurality of rights holders and of complex licensing schemes;

([12]) Court of Justice of the European Union, Case C-833/18, *SI and Brompton Bicycle Ltd* v *Chedech / Get2Get*.

([13]) Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (OJ L 130, 17.5.2019, p. 92).

73. Calls for the intellectual property action plan announced by the Commission to address the question of AI and its impact on the creative sectors, taking account of the need to strike a balance between protecting IPR and encouraging creativity in the areas of education, culture and research; considers that the Union can be a leader in the creation of AI technologies if it adopts an operational regulatory framework and implements proactive public policies, particularly as regards training programmes and financial support for research; asks the Commission to assess the impact of IPR on the research and development of AI and related technologies, as well as on the CCSI, including the audiovisual sector, with particular regard to authorship, fair remuneration of authors and related questions;

74. Calls on the Commission to consider the legal aspects of the output produced using AI technologies, as well as cultural content generated with the use of AI and related technologies; considers it important to support the production of cultural content; reiterates, however, the importance of safeguarding the Union's unique IPR framework and that any changes should be made with the necessary due care, in order not to disrupt the delicate balance; calls on the Commission to produce an in-depth assessment with regard to the possible legal personality of AI-produced content, as well as the application of IPR to AI-generated content and to content created with the use of AI tools;

75. Calls on the Commission, in addition, to consider developing, in very close cooperation with Member States and the relevant stakeholders, verification mechanisms or systems for publishers, authors and creators in order to assist them in verifying what content they may use and to more easily determine what is protected under IPR legislation;

76. Calls on the Commission to lay down rules designed to guarantee effective data interoperability in order to make content purchased on a platform accessible via any digital tool irrespective of brand;

Audiovisual sector

77. Notes that AI is often used to enable automated decision-making algorithms to disseminate and order the cultural and creative content displayed to users; stresses that these algorithms are a 'black box' for users; stresses that the algorithms used by media service providers, video sharing platforms (VSPs) and music streaming services should be designed in such a way that they do not privilege specific works by limiting their 'personalised' suggestions to the most popular works, for targeted advertising, commercial purposes or to maximise profit; calls for recommendation algorithms and personalised marketing to be explainable and transparent where possible, in order to give consumers an accurate and comprehensive insight into these processes and content and to ensure that personalised services are not discriminatory and in line with the recently adopted Platform to Business Regulation ([14]) and New Deal for Consumers Omnibus Directive ([15]); calls on the Commission to address the ways in which content moderation algorithms are optimised to engage users, and to propose recommendations to increase user control over the content they see, by guaranteeing and properly implementing the right of users to opt out of recommended and personalised services; underlines, moreover, that consumers must be informed when they are interacting with an automated decision process and that their choices and performance must not be limited; stresses that the use of AI mechanisms for the commercial surveillance of consumers must be countered, even if it concerns 'free services', by ensuring that it is strictly in line with fundamental rights and the GDPR; stresses that all regulatory changes must take into consideration the impact on vulnerable consumers;

78. Underlines that what is illegal offline shall be illegal online; notes that AI tools have the potential and are already used to fight illegal content online, but strongly recalls ahead of the forthcoming Digital Services Act that such tools must always respect fundamental rights, especially freedom of expression and information, and should not lead to a general

([14]) Regulation (EU) 2019/1150 of the European Parliament and of the Council of 20 June 2019 on promoting fairness and transparency for business users of online intermediation services (OJ L 186, 11.7.2019, p. 57).

([15]) Directive (EU) 2019/2161 of the European Parliament and of the Council of 27 November 2019 amending Council Directive 93/13/EEC and Directives 98/6/EC, 2005/29/EC and 2011/83/EU of the European Parliament and of the Council as regards the better enforcement and modernisation of Union consumer protection rules (OJ L 328, 18.12.2019, p. 7).

monitoring obligation for the internet, or to the removal of legal material disseminated for education, journalistic, artistic or research purposes; stresses that algorithms should be used only as a flagging mechanism in content moderation, subject to human intervention, as AI is unable to reliably distinguish between legal, illegal and harmful content; notes that terms and conditions should always include community guidelines as well as an appeal procedure;

79. Recalls, furthermore, that there should be no general monitoring, as stipulated in Article 15 of the e-Commerce Directive ([16]), and that specific content monitoring for audiovisual media services should be in accordance with the exceptions laid down in Union legislation; recalls that AI applications must adhere to internal and external safety protocols, which should be technically accurate and robust in nature; considers that this should extend to operation in normal, unknown and unpredictable situations alike;

80. Stresses, moreover, that the use of AI in algorithm-based content recommendations on media service providers, such as video on demand services and VSPs, may have a serious impact on cultural and linguistic diversity, notably regarding the obligation to ensure the prominence of European works under Article 13 of the Audiovisual Media Services Directive (Directive (EU) 2018/1808 ([17])); notes that the same concerns are equally relevant for the music streaming services and calls for the development of indicators to assess cultural diversity and the promotion of European works on such services;

81. Calls on the Commission and the Member States to step up their financial support for the development, deployment and use of AI in the area of the automatic subtitling and dubbing of European audiovisual works, in order to foster cultural and language diversity in the Union and enhance the dissemination of and access to European audiovisual content;

82. Calls on the Commission to establish a clear ethical framework for the use of AI technologies in media in order to prevent all forms of discrimination and ensure access to culturally and linguistically diverse content at Union level, based on accountable, transparent and inclusive algorithms, while respecting individuals' choices and preferences;

83. Points out that AI can play a major role in the rapid spread of disinformation; stresses, in that regard, that the framework should address the misuse of AI to disseminate fake news and online misinformation and disinformation, while avoiding censorship; calls on the Commission, therefore, to assess the risks of AI assisting the spread of disinformation in the digital environment as well as solutions on how AI could be used to help counter disinformation;

84. Calls on the Commission to take regulatory measures to ensure that media service providers have access to the data generated by the provision and dissemination of their content on other providers' platforms; emphasises that full data transfer from platform operators to media service providers is vital if the latter are to understand their audience better and thus improve the services they offer in keeping with people's wishes;

85. Stresses the importance of increasing funding for Digital Europe, Creative Europe and Horizon Europe in order to reinforce support for the European audiovisual sector, namely by collaborative research projects and experimental pilot initiatives on the development, deployment and use of ethical AI technologies;

86. Calls for close collaboration between Member States in developing training programmes aimed at reskilling or upskilling workers to make them better prepared for the social transition that the use of AI technologies in the audiovisual sector will entail;

87. Considers that AI has enormous potential to help drive innovation in the news media sector; believes that the widespread integration of AI, such as for content generation and distribution, the monitoring of comments sections, the use of data analytics, and identifying doctored photos and videos, is key for saving on costs in newsrooms in the light of diminishing advertising revenues and for devoting more resources to reporting on the ground and thus increase the quality and variety of content;

([16]) Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (OJ L 178, 17.7.2000, p. 1).

([17]) Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services in view of changing market realities (OJ L 303, 28.11.2018, p. 69).

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Online disinformation: deepfakes

88. Stresses the importance of ensuring online and offline media pluralism to guarantee the quality, diversity and reliability of the information available;

89. Recalls that accuracy, independence, fairness, confidentiality, humanity, accountability and transparency, as driving forces behind the principles of freedom of expression and access to information in online and offline media, are decisive in the fight against disinformation and misinformation;

90. Notes the important role which independent media play in culture and the daily life of citizens; stresses that disinformation represents a fundamental problem, as copyright and IPR generally are being constantly infringed; calls on the Commission, in cooperation with the Member States, to continue its work on raising awareness of this problem, countering the effects of disinformation as well as the source problems; considers it important, furthermore, to develop educational strategies to specifically improve digital literacy in this regard;

91. Recalls that with new techniques rapidly emerging, detecting false and manipulated content such as deepfakes may become increasingly challenging due to the ability of malicious producers to generate sophisticated algorithms that can be successfully trained to evade detection, thus seriously undermining our basic democratic values; asks the Commission to assess the impact of AI in the creation of deepfakes, to establish appropriate legal frameworks to govern their creation, production or distribution for malicious purposes, and to propose recommendations for, among other initiatives, action against any AI-powered threats to free and fair elections and democracy;

92. Welcomes recent initiatives and projects to create more efficient deepfake detection tools and transparency requirements; stresses, in this regard, the need to explore and invest in methods for tackling deepfakes as a crucial step in combatting misinformation and harmful content; considers that AI-enabled solutions can be helpful in this regard; asks the Commission, therefore, to impose an obligation for all deepfake material or any other realistically made synthetic videos to state that the material is not original and a strict limitation when used for electoral purposes;

93. Is concerned that AI is having an ever greater influence on the way information is found and consumed online; points out that so-called filter bubbles and echo chambers are restricting diversity of opinion and undermining open debate in society; urges, therefore, that the way platform operators use algorithms to process information must be transparent and that users must be given greater freedom to decide whether and what information they want to receive;

94. Points out that AI technologies are already being used in journalism, for example to produce texts or, in the context of investigative research, to analyse large data sets; emphasises that in the context of producing information of significance to society as a whole, it is important that automated journalism should draw on correct and comprehensive data, in order to prevent the dissemination of fake news; emphasises that the basic principles of quality journalism, such as editorial supervision, must also apply to journalistic content produced using AI technologies; calls for AI-generated texts to be clearly identified as such, in order to safeguard trust in journalism;

95. Highlights the potential of AI to facilitate and encourage multilingualism by developing language-related technologies and enabling online European content to be discovered;

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96. Instructs its President to forward this resolution to the Council and the Commission.