



Glossary of terms relating to children's digital lives

Digital Futures Commission

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The Digital Futures Commission

The Digital Futures Commission (DFC) is an exciting research collaboration of unique organisations that invites innovators, policymakers, regulators, academics and civil society to unlock digital innovation in the interests of children and young people. It seeks to put the needs and interests of children and young people into the minds and work plans of digital innovators, businesses, regulators and governments. It calls for a critical examination of how children's lives are being reconfigured by innovation to reimagine the digital world in value-sensitive ways that uphold children's rights and take practical steps to meet their needs.

The DFC focuses on three work streams: play in a digital world, the beneficial uses of education data and guidance for innovators. Each workstream is informed by children's voices and underpinned by a research programme and outputs geared toward real-world change for children. Professor Sonia Livingstone OBE led the research.

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About this glossary

The Digital Futures Commission created this glossary for researchers, policymakers and practitioners concerned with children's digital lives. It concentrates on the topics addressed in our three workstreams: play, education data and innovation. To construct the glossary, we have been informed by definitions developed across different disciplines and domains.

We hope the glossary will be useful for experts and non-experts alike, indeed, to all those seeking to advance efforts to protect and empower children in today's digital world. We also believe that a common understanding of the terminology used by different stakeholders has value in promoting constructive deliberation relating to children's rights and the digital environment.

Terms and definitions

Terms	Definitions
4Cs of online risk	<p>4Cs is the categorisation of online risks, comprising content, contact, conduct and contract risks as defined below:</p> <p>Content risks involve engagement with or exposure to harmful content (e.g., age-inappropriate content such as pornography).</p> <p>Contact risks expose children to harmful contacts (e.g., enabling individuals to hide their identity when contacting children).</p> <p>Conduct risks include witnessing, participating in or being a victim of potentially harmful peer-to-peer behaviour (e.g., sending hateful comments or cyberbullying).</p> <p>Contract risks expose a user to inappropriate contractual relationships or commercial pressures (e.g., unfair Terms & Conditions or compulsive use). [1, 2]</p>
Accountability	<p>Taking responsibility for and being held accountable for one's actions. Accountability is also a data protection principle that requires controllers to take appropriate measures and keep records to show compliance with the UK General Data Protection Regulation (UK GDPR). It holds controllers responsible for how they handle personal data and what they do with it. It also requires controllers to demonstrate compliance with other data protection principles (e.g., data minimisation). [3]</p>
Age appropriate design	<p>An approach to design that is sensitive to children's evolving capacities and development. Age appropriate design ensures that the effect of a product or service on children of varying ages is taken into account from the initial development stage to the implementation and utilisation of the product or service. [4]</p>
Age assurance	<p>An overarching term for age verification and estimation mechanisms. The term encompasses varying degrees of certainty and precision in determining the user's age afforded by different technological measures. [5]</p>
Age estimation	<p>A technology solution for identifying the likely age of a user often based on 'automated analysis of behavioural and environmental data; comparing the way a user interacts with a device or with other users of the same age; metrics derived from motion analysis; or testing the user's capacity or knowledge.' [5]</p>
Age rating	<p>A technical measure that aims to restrict or block access for users who do not meet the age threshold. In other words, age rating is a classification based on the suitability of the given product or service to the minimum age requirements. [5]</p>

Age verification	A measure for establishing a user's age based on hard (physical) identifiers and/or verified sources of identification to establish the user's age. [5]
Algorithm	A set of instructions or steps that are used to solve a problem or to complete a task. [6]
Artificial intelligence (AI)	A set of computing techniques that enable computing systems to perform tasks with high degrees of autonomy based on input or training data. [7] There are different categories of AI systems. Examples include emotion recognition systems, chatbots and online search and recommendation systems.
AI literacy	A type of digital literacy that refers to individuals' competence to know and comprehend the key concepts and features of AI, enabling them to use AI tools effectively and meaningfully in daily life. [8, 9]
Anonymisation	A way to turn personal data into anonymous information. [3] The act of anonymising the data is also a form of personal data processing. [10]
Anonymous information/data	Information that does not relate to an identified or identifiable individual or personal data that is rendered anonymous in a way that the individual is no longer identifiable. [3] It is considered the 'opposite of personal data.' [11] Personal data can be anonymised through using anonymisation techniques, although it is difficult to completely anonymise data [12, 13, 14] and 'to satisfy the modern standards for anonymization set forth by the GDPR'. [15]
Assistive technology	Technology aimed to support or improve individuals' independence. [2, 16] In education, assistive technologies are primarily used to help students with disabilities (e.g., a screen reader to help children with learning disabilities).
Augmented reality	A multisensory experience resulting from the superimposition of computer-generated content over physical objects [2] (e.g., Pokémon Go).
Automated processing	The process of deciding by automated means (without human involvement) [3], e.g., using digital tools to analyse the data and make decisions based on algorithms.
Automation/automated	Processing activities or actions that take place without human intervention under specified conditions and functions. [17]
Barriers or inhibitors to free play in digital contexts	Features of digital products and services (see 'Design features') identified in the Digital Futures Commission's <i>Playful by Design</i> as constraining child-led play in the digital environment: expensive, needs high tech, excludes people, shares data, advertising, commercial, compulsive, and hateful. [18, 19]

Behavioural targeting	The collection and usage of users' online activities for targeted marketing based on their profiles. [2]
Best interests of the child	The best interests of the child principle derives from Article 3 of the UN Convention on the Rights of the Child (UNCRC). [20] It requires "a balancing act across the full spectrum of children's rights as well as the rights of others, also taking into consideration the contexts of use". [21] Notably, respecting the child's best interests as a primary consideration in actions by the state is the guiding principle of the UK's Age Appropriate Design Code. [22]
Bias	Bias (in AI) arises from the prejudicial and/or erroneous use of input data or training data that produces or amplifies prejudices, errors or unfair outcomes in the results or decisions made by an AI system. [23, 24] Algorithmic bias refers to 'an automated system that produces results that discriminate against or disadvantage groups of people (for example, based on age, disability, gender, or race)'. [6]
Big data	Very large or complex data sets that are difficult to handle with traditional data processing methods. [23] The key characteristics of big data can be summarized in terms of the 4Vs – volume (large amounts of data), velocity (data is generated and collected rapidly), variety (data comes in various formats and from different sources) and/or variability – and 'that require a scalable technology for efficient storage, manipulation, management, and analysis.' [25]
Biometric data	Personal data obtained through specific technical processing and related to a person's physical, physiological or behavioural characteristics. [26] This technical processing enables or confirms the unique identification of that individual, such as facial images. [27]
Biometrics/ biometric technologies	Processes used to recognise, authenticate and identify individuals based on their physical and/or behavioural characteristics. Examples of biometrics can include facial and fingerprint recognition used in schools. [28]
Certification	A qualification given to an organisation's systems or products by a third party that verifies the information by conducting an audit. [29] In the data protection context, organisations can acquire certification to demonstrate compliance with the UK GDPR. [30]
Child	A person under the age of 18 as defined in Article 1 of the UNCRC. [20]
Child Impact Assessment	A systematic approach or process that involves evaluating proposals for policies and laws to determine how they might affect children and youth. [31, 32]

Child Online Safety Assessment (COSA) tool	Developed by UNICEF and the LEGO Group 'to support ICT companies in assessing how children's rights can be more effectively integrated into their operations and aim to empower companies to strengthen their child protection policies, codes of conduct and due diligence processes.' [33]
Child Participation Assessment tool	A tool that supports States in achieving the goals of the <i>Recommendation on the participation of children and young people under 18</i> . [34] It 'offers a method to facilitate and support the implementation of the child's right to participate.' [35]
Child Rights and Wellbeing Impact Assessment (CRWIA)	A process that can 'identify, research, analyse and record the anticipated impact of any proposed law, policy or measure on children's human rights and wellbeing.' [36] The Scottish Government developed the CRWIA to implement child rights under the Children and Young People (Scotland) Act 2014.
Child Rights by Design (CRbD)	A design framework developed by the Digital Futures Commission to help digital innovators embed children's rights into their products and services by design. [21] It centres on 11 child rights principles distilled from the 54 Articles of the UNCRC: 1. Equity and diversity; 2. Best interests; 3. Consultation; 4. Age Appropriate; 5. Responsible; 6. Participation; 7. Privacy; 8. Safety; 9. Wellbeing; 10. Development; 11. Agency.
Child Rights Impact Assessment (CRIA)	An iterative assessment process designed to ensure early consideration of the full range of impacts on children and their rights under the UNCRC. CRIs are child-focused Human Rights Impact Assessments (HRIAs) and share many HRIA features, follow similar processes and raise similar challenges. [37]
Child Rights Impact Evaluation (CRIE)	After making a decision or taking action, the CRIE is an opportunity to reflect on the possible intentional and unintentional outcomes that legislative changes, policies, budget allocations and other administrative decisions may have had on children and young people. This reflection offers an opportunity to consider the decision's or action's effects on these groups. [38, 39]
Child rights, children's rights	Children have the same human rights as adults and must be recognised as full rights holders. Child rights refers to children's civil, political, economic, social, health and cultural rights, as specified in the UNCRC, and other rights under relevant international and national legal instruments.
Children's free play	A form of play that is chosen, directed and controlled by a child or children themselves. [40, 41]
Commercial (economic) exploitation	Practices that involve taking unfair or unjust advantage of children or their data amount to exploitation. An advantage can be anything of value. When it includes monetary or any other material interest, gain or benefit, the exploitation is commercial

(or economic). [42] 'Unfair' or 'unjust' practices can include any action or omission that is against children's best interests, fails to account for children's needs and vulnerabilities, or can potentially undermine children's rights. [43]

Community standards	The rules that online services (e.g., digital service providers) establish to inform users about the kinds of behaviour or content that are allowed (or not allowed) when using their service. These rules may include references to the relevant laws. [44]
Consumer	An individual, group of individuals (e.g., household) or entity (e.g. business, government agency, school) who buys, exchanges something of value (e.g., data), or uses products, goods and services for their personal use or consumption.
Content moderation	The practice of monitoring and reviewing user-generated content against pre-determined rules to remove content deemed impermissible, either automatically or using human moderators. Content moderation can be performed simultaneously with content generation, as in chat services or with a time delay, as in forums. [2]
Controller	A person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of processing personal data. [3]
Dark patterns	User interfaces designed to manipulate users into taking actions that they would not otherwise do. Dark patterns aim to influence users' behaviour and hinder their ability to protect their data and make conscious, well-informed choices. [46]
Data minimisation	A data protection principle that requires personal data processing to be adequate, relevant and limited to what is necessary for the purposes for which they are processed. [3]
Data protection by default	The requirement for organisations to take anticipatory actions to ensure that personal data are processed with the highest privacy protection so that, by default, personal data is not made accessible to an indefinite number of people. [3, 47]
Data protection by design	The requirement for organisations to implement technical and organisational measures at the earliest stages of the design of the processing activities, in such a way that safeguards privacy and data protection principles right from the start. [3, 47]
Data Protection Impact Assessment (DPIA)	A process in the UK GDPR and the UK Age Appropriate Design Code that controllers must undertake before they 'begin any type of processing that is likely to result in a high risk to the rights and freedoms of individuals.' [22] It helps identify and minimise the data protection risk relating to data processing - particularly the specific risks to children who are likely to access online services that involve processing their data. [3, 48]

Data sharing	Sharing data between organisations includes when access is given to data to a third party, by whatever means. The scope of the Information Commissioner's Office's (ICO) data-sharing code is defined as 'the disclosure of personal data by transmission, dissemination or otherwise making it available' (Section 121, Data Protection Act 2018). [49]
Data subject	An identifiable living individual to whom personal data relates. [3]
Datafication	The process that turns subjects, objects and practices into digital data. It involves 'a logic that sees things in the world as sources of data to be mined for correlations or sold, and from which insights can be gained about human behaviour and social issues.' [50]
Design	<p>'The human power of conceiving, planning, and making products that serve human beings in the accomplishment of their individual and collective purposes.' [51]</p> <p>'The idea of 'by design' harnesses the generative power of providers, designers and policymakers to shape technological innovation in ways that prioritise values that promote human wellbeing – privacy, safety, security, ethics, equality, inclusion and, encompassing all these, human rights including children's rights.' [52]</p>
Design features	The technical or material specification that shapes the characteristics of product or service features. They include appearance, layout, navigation, functionality and structure, and in combination they afford particular options or outcomes for users. For example, in the Digital Futures Commission's Playful by Design, these include a series of barriers and enablers that shape children's possibilities for free play in digital contexts. [18, 19, 53]
Dialogue-based tutoring systems	AI systems that allow learners to engage in a conversation typed or spoken about the topic to be learned [54], for example, ChatGPT.
Digital education	The delivery of teaching and learning using digital technologies. [4]
Digital environment	<p>Refers to the physical (e.g., data centres) and virtual spaces (e.g., EdTech apps) where digital technologies are used.</p> <p>'The digital environment is constantly evolving and expanding, encompassing information and communications technologies, including digital networks, content, services and applications, connected devices and environments, virtual and augmented reality, artificial intelligence, robotics, automated systems, algorithms and data analytics, biometrics and implant technology.' [68]</p>

Digital literacy	The knowledge, skills and ability to use of the information and digital technologies to find, evaluate, create and communicate effectively. Related terms include 'media literacy', 'information literacy' or 'media and information literacy', among others. [55]
Digital services	'Any product or service that is delivered via a digital interface such as a smartphone, laptop or games console' (e.g.; social media apps, EdTech services, websites or online games). [72]
Digitisation	Adapting environments, practices, businesses and daily life to include and benefit from digital services and infrastructure. This also refers to the conversion of information into a digital format. [2]
Discrimination	Differentiation that is made to separate people when determining entitlements, rights or eligibility. [56]
Disinformation	When false information is knowingly shared. [2]
Education data	Data collected about children at school and through their participation in school. [10, 57] It encompasses not only data collected for teaching, learning and assessment but also that used for safeguarding and administration. [43]
Education system	Includes different actors such as teachers, headteachers, school counsellors, school governing bodies and government ministries at local and national levels. [4]
Educational technology (EdTech)	Digital technologies used in education, including hardware (e.g., laptops) and software to help learning, teaching as well as support tasks in 'the daily running of education institutions (such as management information systems, information sharing platforms and communication tools)'. [58]
Educators	Refers to professionals in formal education (e.g.; teachers, school counsellors or librarians) and early childhood care. [54]
Emotion recognition	A method, based on input data such as text, speech and images, for identifying and categorising human emotions. [17]
Enablers of free play in digital contexts	Features of digital products and services (see 'Design features') identified in the Digital Futures Commission's Playful by Design as enabling child-led play in the digital environment: onboarding, pathways, age appropriate, transparent, privacy, contact, creative, flexible design, hybrid, intergenerational, transmedia, communication, provides help, and variety. [18, 19]
Encryption	'A mathematical function using a secret value—the key—which encodes data so that only users with access to that key can read the information'. [3] It turns clear text information into coded information using a hash key. [23]
End user	The person who ultimately uses or is intended to use a service or a product.

E-proctoring	The use of AI systems to monitor students and pupils (or those who take exams) aiming to detect fraud, misconduct and cheating. [54]
Equality	Everyone has 'an equal opportunity to make the most of their lives and talents'. It also refers to the idea that no one should be put in a less advantageous position in life because of who they are or their background (e.g., the way they were born, where they come from), what they believe, or whether they have a disability. Equality recognises that historically certain groups of people with protected characteristics, such as disability, sex and sexual orientation, have experienced discrimination. [56]
Equality Impact Assessment (EIA)	A tool that is evidence based and that allows taking into account the potential effect of work on different groups of people. Conducting EIAs is a legal requirement under race, disability and gender equality legislation. [59]
Equity	Equity concerns fairness and justice. On a societal level, equity is concerned with the just and fair distribution of resources. [60] Treating everyone the same way doesn't mean that such an equal treatment is equitable or fair. So, equity is distinct from equality, and is about the fair allocation of resources and treatment of people, taking into account their different (dis)advantages or vulnerabilities.
Ethical AI	Indicates the development, deployment and use of AI that ensures compliance with ethical norms, fundamental rights, special moral entitlements, ethical principles and related core values. It is necessary for achieving trustworthy AI. [61]
Evidence	Grounds for belief or disbelief; data on which to base proof or to establish truth or falsehood. [62]
Ex ante impact analysis	A prospective assessment of the impact of an intervention or decision to inform policy or business decisions. In the context of CRIA, it concerns analysis done before enacting a decision or other action. It provides an opportunity for pre-emptive action, for example, by reviewing how the development of laws, policies, programmes and services may affect children and young people and suggesting methods to prevent or minimise negative consequences. [38]
Ex post impact assessment/evaluation	A retrospective assessment of the extent to which a policy intervention has effectively addressed the targeted issue and how it achieved this outcome. Impact assessment concentrates on the intervention's effects. Evaluation is likely to encompass a broader range of factors, such as the suitability of the intervention's design, its cost-effectiveness, unintentional consequences, and any lessons for future interventions. [63]

Explainability	Feature of an AI system that is intelligible to non-experts. An AI system is intelligible if its functionality and operations can be explained non-technically to a person not skilled in the art. [64, 23]
Exploitation	Using something or someone (unfairly) for one's own advantage. The UN Committee on the Rights of the Child explains exploitation as 'taking unjust advantage of another for one's own advantage or benefit.' [42]
Fairness	Fairness (in data protection law) is a core principle that requires fair processing of personal data. For processing to be fair, individuals' data need to be handled 'in ways they would reasonably expect'. [3] It is also necessary to consider how it affects children and their interests more generally. This includes taking into account the fact that different groups of children can have different expectations and needs. [65]
Fairness by design	This means embedding fairness into data processing and the design of digital technologies by addressing children's needs and expectations while promoting their best interests. This requires balancing children's rights and interests, ensuring children's control and agency over their data, and fair treatment of children. We look beyond data protection laws and adopt a universal child rights-based approach, promoting equity, accessibility and inclusiveness for designing a 'fair' digital world from which all children can benefit equally. [66]
General comment	The OHCHR defines General comments as authoritative statements through which each of the UN treaty bodies publishes its interpretation of the provisions of its respective human rights treaty. [67] For example, the UN Committee on the Rights of the Child's General comment No. 25 (2021) in relation to the digital environment sets out the United Nation's guidance for implementing children's rights in a digital world. [68]
Genetic data	Personal data relating to the inherited or acquired genetic characteristics of a person. It gives unique information about the physiology or the health of that person, and results from an analysis of a biological sample from the individual in question. [3]
Global threat assessment	A comprehensive examination of the extent and type of threats that children face while using the internet, which can be accessed and used by anyone on an international scale, with the purpose of enhancing global response efforts. [69]
Governance	The process of making decisions collectively and putting policies into practice. It refers to 'all processes of governing, the institutions, processes and practices through which issues of common concern are decided upon and regulated'. [70]

Harm	Content or activity or omission that gives rise to a reasonably foreseeable risk of a significant adverse physical or psychological impact or that alone may not cause significant or immediate harm, but in combination, can have a serious impact. It includes any risks created by the design and operation of products and service, which also covers risks that are developed over time, often with equally damaging effects. [71, 72]
Health data	Personal data relating to the physical or mental health of an individual. It can be about an individual's past, current or future health status. It includes specific details of medical conditions, tests or treatment, and any related data that reveals anything about someone's health. [3]
Human oversight	Helps ensure that an AI system does not undermine human autonomy or cause other adverse effects. [23]
Human Rights Impact Assessment (HRIA)	A forward-looking framework to identify and take measures to avoid the potential adverse human rights impacts relating to a particular practice, policy, legislation, program and project. [73, 74]
Impact	The complete result and effect of an activity, process, decision, or occurrence, that includes both favourable and unfavourable outcomes.
Impact assessment	A tool that evaluates and shapes the future consequences of a current or suggested action by of entities including civil society, private or public sector actors. It involves thoroughly examining and systematically analysing the likely outcomes of actions in order to inform policy proposals and increase awareness among decision makers and the general public about the potential effects of these actions. [75]
Individual data rights/data subject rights	Rights granted in data protection law to individuals in relation to personal data or information processed about them. Children have the same individual rights as adults over their personal data. These include, for example, the rights to access their personal data, request rectification, object to processing and have their data erased. [3]
Individual Learner Records (ILRs)	The collection of data about learners from training or education providers, including schools, in the further education and skills sector in England. [76, 77]
Individually identifiable data	Information that can be linked to a person. [78]
Inference	A conclusion reached about someone, or something based on available information. [17] Inferred data or inference drawn from personal data is data generated by a system, entity or a person, and not explicitly provided by the user. Inferred data can

	constitute personal data if the individual can be identified from that data, either directly or indirectly. [3]
Information filtering	The use of a programme to screen digital content and identify or hide content that matches set criteria. Common uses of information filtering include hiding offensive content from appearing in search engine results or sorting which results appear first. [2]
Information Society Service (ISS)	Any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services. For the purposes of this definition: (1) 'at a distance' means that the service is provided without the parties being simultaneously present; (2) 'by electronic means' means that the service is sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data, and entirely transmitted, conveyed and received by wire, radio, optical means or by other electromagnetic means; and (3) 'at the individual request of a recipient of services' means that the service is provided through the transmission of data on individual request. [79, 80]
Intermediaries	An entity that mediates between the service provider and the end users or facilitates transactions between two parties. [24] For example, schools can be intermediaries when EdTech companies provide services that are used by children through schools.
Internet of Things (IoT)	Devices with capabilities to communicate with other devices, often using Internet Protocols. [17]
Invisible processing	When people do not know that their data are being processed, affecting their ability to enjoy and exercise their rights over their data. [3]
IoT device	An entity of an IoT system that interacts and communicates with the physical world through sensing or actuating. [17]
Joint controllers	Two or more controllers jointly determine the purposes and means of processing the same personal data. [3]
K12	The school system that includes primary and secondary education (from kindergarten to the end of secondary school).
Large language model (LLM)	A model of machine learning capable of conducting multiple natural language processing (NLP) tasks, such as text generation, classification, answering questions conversationally and translating text from one language to another. [81]
Law	An obligatory rule of conduct [82] resulting from a process to make the principles established in public policies legally binding. [83] In the UK, laws include primary and secondary legislation, as well as laws made by the courts (case law).

Law enforcement	Activities carried out by law enforcement authorities for the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, including safeguarding against and preventing threats to public security. [27]
Learners	Individuals of all ages engaged in formal, informal or non-formal education.
Learning analytics/ educational data mining	Gathering, analysing and visualising big data, especially as generated by digital devices, about learners and learning processes, to support or enhance teaching and learning. [54]
Learning EdTech	Education technology that is used to support teaching, assessment and learning. [10, 57]
Lawful bases	<p>Lawfulness is a data protection principle that requires lawful processing of personal data. Controllers must choose from at least one of six lawful bases under Article 6 of the UK GDPR:</p> <ol style="list-style-type: none"> 1. Consent: It must be freely given, and it must be possible to withdraw consent at any time (UK GDPR, Article 4(11)). 2. Contract: Where data processing is necessary to perform a contract with an individual. 3. Legal obligation: Where data processing is necessary to comply with a legal obligation. 4. Vital interests: Where data processing is necessary to protect someone's life. 5. Public task: Where data processing is necessary to perform a task in the public interest or for your official functions, and the task or function has a clear basis in law. 6. Legitimate interests: This lawful basis can be used when 'processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, where the data subject is a child'. [3, 10]
Machine learning (ML)	A branch of AI that uses algorithms and statistical models to analyse big data, identify data patterns, draw inferences from these patterns, and adapt, without following step-by-step instructions (or in other words, without being explicitly programmed). [17]
Metadata	Data that provide information about different aspects of other data but not the content of the data. It is used to summaries basic information about the data that can facilitate working with

	the data. There are many distinct types, including descriptive, structural, administrative, reference, statistical, legal, etc. [23]
National Pupil Database (NPD)	A longitudinal database linking pupil characteristics to school and college learning aims and achievement information for all children in state-funded schools in England. [84]
Natural language processing (NLP)	Systems using AI to transcribe, interpret, translate and create text and spoken language. [54]
Neuromarketing	This refers to examining how individuals' brains respond to marketing material and using this knowledge in an effort to create more successful marketing campaigns. Various techniques can be employed to measure these responses, including brain scans and the duration spent on a website. [2]
Parent	Used synonymously with 'carer' or 'caregiver' or 'guardian' to refer to the adults most closely involved in or responsible for a child's welfare and upbringing. This can include biological parents living separately from the child or step-parents or foster parents living with the child. [85]
Personal data	Any information relating to a person ('data subject') who can be identified, directly or indirectly, by reference to an identifier such as a name, identification number, location data, online identifier or factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that person. It only includes information relating to 'natural persons'. [3]
Personal Learning Record (PLR)	An online record of a person's qualifications and achievements for learners aged 14 and above. [86]
Play	Any behaviour, activity or process initiated, controlled and structured by children themselves. [2]
Policy	An establishment of objectives, values and interests that then sets the agenda, and shapes the structure and behaviours of relevant stakeholders within a particular system such as digital platforms. [87, 88] Policies can be implemented through various mechanisms, including legislation, regulation, standards and certification.
Primary legislation	An Act of Parliament that goes through a full process of scrutiny by both the House of Lords and the House of Commons.
Privacy by design	The practice of designing online services to protect users' privacy as much as possible, e.g., by setting the accounts of underage users to be private by default, or by minimising the amount of data collected. [2] Privacy by design refers to several methodologies for product, process, system, software and service development. [89]
Privacy policies	These provide information about how data subjects' data and personal information will be processed, and other information

required under the applicable laws (e.g., Data Protection Act 2018, UK GDPR).

Processing	'In relation to personal data, any operation or set of operations that is performed on personal data or sets of personal data (whether or not by automated means, such as collection, recording, organisation, structuring, storage, alteration, retrieval, consultation, use, disclosure, dissemination, restriction, erasure or destruction).' [90]
Processor	Natural or legal person, public authority, agency or other body that processes personal data on behalf of the controller. [90]
Profiling	The processing of personal data to infer and/or predict aspects of a person, e.g., the person's 'performance, economic situation, health, personal preferences, interests, reliability, behaviour, location or movements.' [2, 54]
Programmatic advertising	Advertising that involves the process of automatically buying and selling digital advertising space based on data-driven decisions about which ads to buy and how much to pay for them. [24]
Proportionate	Proportionality requires striking a balance between the means used and the intended purposes of processing data. In the context of data protection, taking a proportionate approach means balancing a person's needs with the impact that data practices can have on their rights to data protection and privacy. [3]
Protected characteristics	The grounds on which discrimination is unlawful. These characteristics include age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation. [56]
Pseudonymisation	'Pseudonymisation is a technique that replaces or removes information in a data set that identifies an individual'. [3] Unlike anonymised data, pseudonymised data is personal data under the GDPR. [3, 79]
Public authority	A public authority as defined by the UK Freedom of Information Act 2000 or a Scottish public authority as defined by the Freedom of Information (Scotland) Act 2002.
Qualities of play	The Digital Futures Commission identifies 12 qualities of free play: intrinsically motivated, voluntary, open-ended, imaginative, stimulating, social, emotional resonance, diverse, risk-taking, safety, sense of achievement, immersive. [19]
Regulation	A measure for implementing policy principles established by law. [83]

Responsibility	Capability of fulfilling an obligation or duty; the quality of being reliable or trustworthy; the state or fact of being accountable for actions; liability for some action. [78]
Risk	<p>The probability, likelihood or chance of an adverse outcome or harm to people, as well as the severity of such harm. It relates to 'the concept of future harm or the likelihood of a negative impact occurring'. [91]</p> <p>In risk management contexts, it means 'a measure of the seriousness of the outcome, as well as its probability'. [92] Risk is not the same as harm and is commonly measured in terms of the probability and severity of harm. [93]</p>
Risk-benefit assessment	'A tool for improving decision-making in any context where a balance has to be struck between risks and benefits of an activity.' [94, 92] It differs from traditional methods of risk assessment as it aids 'risk management that explicitly brings together considerations of risks and benefits in a single judgement' by considering the benefits associated with a particular situation alongside the risks when determining the appropriate responses. [92, 94]
Safeguarding	The action taken to promote children's welfare and protect them from harm. [95]
Safety by design	The practice of designing online services to ensure users' safety as much as possible, e.g., by default safe settings for accounts of underage users or by preventing adults from contacting underage users. [2]
Secondary legislation	The law (e.g., the UK Age Appropriate Design Code) created by public bodies such as the regulators (e.g., ICO) under powers given to them by primary legislation (e.g., Data Protection Act 2018). [96]
State schools	State-funded schools.
Targeted advertising	The practice of showing particular adverts to users based on data collected about them, e.g., their online activity, purchases, location, gender, age, preferences, etc. [2]
Technology	Machinery and technical equipment developed from the application of scientific knowledge. It also refers to the study of the branch of knowledge dealing with the mechanical arts and applied sciences. [78]
Terms of Service (or Terms & Conditions)	These outline what the user agrees to when they use the site. This includes issues of liability and guarantees and outlines the rights and responsibilities of the parties involved. [44]
Transparency	One of the core data protection principles set out in the UK GDPR. Transparent processing is about being clear, open and

honest with data subjects (including children) from the start about how their personal data are processed. [3]

Trust	A set of specific beliefs dealing with benevolence, competence, integrity and predictability (trusting beliefs); the willingness of one party to depend on another in a risky situation (trusting intention); or the combination of trusting beliefs and trusting intention. [97]
UN Convention on the Rights of the Child (UNCRC)	The international human rights treaty setting out the civil, political, economic, social and cultural rights of children. The UNCRC 1989 covers all aspects of a child's life and sets out the civil, political, economic, social and cultural rights that all children everywhere are entitled to. It also explains how adults and governments must work together to make sure all children can enjoy all their rights. [20, 98]
Unfairness	Any decision, process or practice against children's best interests or any of their rights. This includes any action (e.g., using deceptive/manipulative language) or inaction (e.g., failure to inform children about their individual rights in a straightforward way they can understand as required in UK Age Appropriate Design Code [22]) that undermines children's agency, autonomy or dignity. Ignoring children's views on matters they were or should have been consulted is considered unfair. Unfairness does not mean that actual detriment or harm has occurred. A loss of opportunity (for the child) or imbalance of benefits gained (e.g., children vs companies) can be 'unfair'. [43]
Unique Learning Number (ULN)	A unique 10-digit number that is designed to work with the Personal Learning Record (PLR) as proof of a person's learning and achievements. [99]
Unique Pupil Number (UPN)	A 13-character code that identifies each pupil in the local authority-maintained school system. [100]
Universal design	A design approach to make products, services, environments, and systems accessible and usable by everyone to the greatest extent possible. This means the design is not made only for average users but is inclusive for potential users of all abilities, vulnerabilities or characteristics (e.g., age). [101, 102]
User	Persons or general public who use, maintain, develop or design a product, machine or service.
Value	Friedman et al define value as 'what a person or group of people consider important in life'. [103]
Value sensitive design	An approach to technology design that considers human values in a principled, systematic and grounded way at every stage of the design process. [103, 104]

Virtual reality	A digital simulation of a three-dimensional image or environment that allows individuals to interact with in a seemingly real or physical way using particular digital equipment (e.g., a helmet with a screen inside). [2]
Vulnerable individual or group	A vulnerable individual or group of individuals who share one or several characteristics of vulnerability. Vulnerability factors, including age, affect how susceptible individuals are to risks and harms. All children are vulnerable, but some have additional vulnerabilities (e.g., children with learning disabilities or other groups of children with protected characteristics).
Wellbeing	A positive state that people and societies experience (e.g., the state of being healthy, satisfied with life, and happy). [16, 78] Wellbeing in the digital world depends on design choices and policies that support children's life satisfaction, happiness and health (e.g., 'promoting a balanced lifestyle, emotional regulation and supportive social connections' or designing to 'make mental and physical health and other forms of support easily accessible'). [21]
Young person, youth	Individual(s) between the ages of 15 and 24. [105]

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